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THE AGE DIVERSITY AND THE DIVERSITY MANAGEMENT
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Abstract
The authors bring the sum of knowledge on age management, which can be obtained from available literature sources referring the empirical research. Its primary purpose, according to the authors knowledge formation personnel policy of equal opportunities. Age management is directed not only to adequate deployment of personnel. It is also used for elimination age discrimination. The managerial work reflects relation between diversity management and age management and team performance. They also reflected the influence of the health team members. Performance is negatively affected by potential conflicts in relationships and effects of stereotypes impeding effective cooperation in diversified teams. Adverse relationships in the workplace and psychological stress due to the diversity of workers and their inappropriate conduct may affect the health of workers. The article focuses more on the negative consequences of age management, because the positive aspects are perceived as self-evident.

Key words: employee, personnel management, age management, age diversity.

INTRODUCTION
Diversity is understood as a concept in the business sector that aims to create conditions allowing for individually different people to develop their personal potential. Diversity management is a relatively new approach to the management teams. It affects many areas of corporate governance, creates the conditions for adaptation to each other among minority groups of people. Characters distinguishing different groups of people represent various breakdowns diversity. Age diversity is seen as a development of the workforce composed of various age groups in order to promote creativity and innovation through intergenerational exchange of knowledge and experience.

This article is fulfilling one of the tasks of the research project of the Faculty of Business Administration of the University of Economics Prague: “The crucial aspects of the development of business competitiveness of national economies in the global economic system” IGA 02 VSE TD010093.

DIVERSITY MANAGEMENT
Diversity management is often presented as a universal managerial concept in modern society. Its origin is in historically and politically specific contexts of the USA and the UK. Gilbert et al. (1999, cited by Risberg A Soderberg 2008) provide the representative definition: "Diversity management is a voluntary organizational program designed to create greater inclusion of all individuals into informal social
networks and formal company programs.” A common argument for this inclusion is that diversity management consists of “…systematic and planned programs or procedures that are designed a) to improve interaction among diverse people especially of different ethnicities, sexes or cultures and b) to make this diversity a source of creativity, complementarity and greater effectiveness” (Stockdale and Crosby, 2004, cited by Risberg A Søderberg 2008).

Diversity management then becomes a management practice where companies offer minority groups access to the job market and career opportunities in order to benefit from the diversity these individuals bring to the company. Diversity management moves beyond discrimination is seen as a means to improve business and the bottom line while offering the company competitive advantages in different ways (Charles, 2003; Gilbert and Stead, 1999; McCuiston et al. 2004, cited by Risberg A Søderberg 2008). The constructive use of differences will improve the quality of decision making and organizational learning as diverse work teams bring more perspectives to problem solving, thus tending to produce more innovative solutions than homogeneous teams (Friday and Friday, 2003; Gilbert et al., 1999; Ely and Thomas, 2001, cited by Risberg A Søderberg 2008). Diversity management is rather used as an approach to increase the acceptance for pre-existing target group policies, by stressing the equality

Other authors in the literature studies the effects of diversity management on individuals and workgroups. Topics such as high absenteeism and turnover among minority groups who do not feel valued and respected, a "glass ceiling” for minorities, hindering them from finding a career and reaching top positions in the company. There are also criticisms of diversity management. Exploit differences can reproduce the undesirable aspects of differences.

The concept of equality is essentially contested. To illustrate this debate, we present an overview of three possible, very different interpretations of the concept of equality.

Firstly, equality can be considered as giving the same treatment of diverse groups. Diverse groups are treated in a similar, standardized way, notwithstanding eventual differences in starting positions. Although this suggests an alleged fairness, it prevents a policy directed towards certain underrepresented and structural marginalized groups (Bacchi, 1990, cited by Bleijenbergh; Peters; Poutsma 2010).

Secondly, equality can be interpreted as different treatment to reach equal outcomes in terms of group representation. Specific groups are compensated for their backward position in organizations or in society by being given preferential treatment to enter certain positions or to being promoted. In fact, this is opposite to the first interpretation of equality and it faces possible feelings of unfairness amongst certain groups which may hinder implementation of policies ([1] Bacchi, 1990 cited by Bleijenbergh; Peters; Poutsma 2010).

A third interpretation, equality as meritocracy. Here the basic principle is that individuals are treated equally, but that individual talents and merits are the basis for extra support and preferential treatment given by the organization. In contrast to the second approach, extra support is not given to reach equal outcomes on group level, but to give equal chances on the individual level. This approach may cause jealousy between the individuals involved (Bleijenbergh; Peters; Poutsma 2010).

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These three interpretations of equality may have different consequences for the opportunities organizations can give regarding extra support for specific individuals or groups.

The regular question is therefore what the effects are of this diversity for group performance. On the one hand, diversity management may foster the attainment of the organization's strategic goals. As a "business case," diversity is believed to engender competitive advantage by establishing a better
corporate image, improving group and organizational performance and attracting and retaining human capital. On the other hand, diversity management aims for social justice. By advancing individual development and inclusion of different employee categories, diversity management supports equal opportunities. In addition, diversity management may also support claims of long-term sustainable employment (Bleijenbergh; Peters; Poutsma 2010).

Explanation of diversity management is based on three theories of human behavior (Bleijenbergh; Peters; Poutsma 2010). Each presents different reasons, but all it is convenient to intensive contacts in groups and communication. The diversity in group supports this contacts and communications.

The social identity theory is used in research on effects of diversity. This theory focuses on social identity development resulting from individuals comparing themselves with other group members. This social comparison may lead to positive or negative self-images and a desire to belong to the group, or to leave the group. Between-group comparison (them vs us) strengthens the ties between group members. In-group diversity may lead to the development of subgroups which is detrimental to the performance of the overall-group.

The second theory is the Similarity - Attraction Theory. Depending on demographic characteristics, individuals perceive themselves as similar to other group members, which fosters trust and mutual cooperation and interaction. The result is the emergence of subgroups, thus leading to less effective functioning of the team at large.

The third perspective are the Information-Processing and Decision-Making Theories. This perspective suggests that heterogeneity within a group improves information exchange and enables decision-making. Members of diverse groups have access to a great variety of resources using more diverse networks than homogeneous groups would do. Note that this perspective emphasizes positive outcomes of diversity, whereas the others tend to focus more on negative outcomes of group structures and processes.

The objective of diversity management is establishing such conditions of working environment that will allow the best possible use of individual abilities and skills of the male/female employees in the process of accomplishing the enterprise’s mission. Such approach serves to achieve the concrete and measurable effects and ensures a competitive advantage for the enterprise (Przetacka 2009).

Diversity management is usually situated in personnel management system. Sometimes it is integrated into the system but it is not the specific philosophy of the management. Bureaucratic procedures is preventing the enforcement of diversity management, because it represents the majority opinion that there is a common belief that equality is best achieved by eradicating differences in treatment. However, Harris and Foster (cited by Bleijenbergh; Peters; Poutsma 2010) show that this approach encourages defensiveness and bureaucratic behavior rather than the flexible and proactive approach that is needed.

We can not understand the diversity management as unambiguously positive management tool. Diversity management gives positive results, but it also has some negative effects. Positive influences are combined with the growth potential of the working man. The negative impact is reflected in the expansion of social stereotypes for the not optimal functioning of the organization. It can be assumed that _human capital diversity_ may add value to group activity as it has the capacity to increase the workgroup’s skills, knowledge and cognitive abilities to recognize problems and to find creative and innovative solutions. And it can be assumed too that _demographic diversity_ is expected to affect intra-organizational social relationships and social processes negatively and, therefore, to lead to a loss of trust and reciprocity (Bleijenbergh; Peters; Poutsma 2010).
AGE DIVERSITY IN ORGANIZATIONS - PERSONAL CONSEQUENCES

Age diversity is characterised full structure of zaměstnanců according the age. sible for its implementation. The demographic trends in the European states changing the character of the labour market. The diversity approach to managing workplace equality has been heralded as the answer to the political and moral challenges. We know that young people at the beginning of the career and the elderly at the end of the career are the most vulnerable groups of workers and should be paid attention bread roll in personnel management. It is relatively common conflict negotiation between older and younger workers. Conflicts based on mutual prejudices. These are not usually factual conflicts, conflicts objective differences, but the conflict of ideas and beliefs.

A frequent objection to the employment of older people is their alleged inflexibility and unwillingness to learn new things. Freeman (2007) Research from Jobcentre Plus (www.taen.org.uk) has shown that 40% of older workers believe their younger colleagues teach them skills they previously did not have, while one-third of younger workers believe older workers are more likely to work anti-social hours than colleagues their own age. If we want young and old to work in perfect harmony, how far can the HR department get involved with imposing age diversity?

It is said teaching old dogs new tricks... But the claims paid for an all-age workforce:

- Don't use age as a proxy for skills, ability, experience, potential, attitude, commitment, ambition, motivation and loyalty.
- Ensure senior managers are trained to be 'age aware' and understand the benefits of embracing age diversity. Help younger supervisors and managers understand and acquire the skills to manage and motivate an all-age workforce.
- Understand the learning styles and preferences of older employees.
- Help all staff challenge their prejudices by encouraging all-age team working.
- Make sure your HR policies at least comply with the Employment Equality (Age) Regulations 2006, and seek to go further by becoming an Age Positive Champion (www.agepositive.gov.uk).
- Adopt holistic 'age management' policies and practices, such as ongoing training, job rotation, flexible working, secondments etc, which allow staff to maintain their employability.
- Get rid of any fixed retirement ages. (Freeman 2007).

It is not important physical age, it is important mental age. Workers regardless of age must be healthy, energetic, creative, flexible, socially adaptable, adaptable, easygoing. Development of these properties is an important task of personnel management.

The main age management tools that can be used to full integration into society can include information and procedures of the following areas:

1st Recruitment and retention of older workers.
2nd Health and quality of life of older employees.
3rd Flexible working hours.
4th Recruiting younger workers.
5th Redundancy and retirement.
6th Social dialogue.

Ad 1 Recruitment and retention of older workers

Age-diverse work team of the company shall affect age-diverse range of customers. This should be reflected in the marketplace offering a free position in society by emphasizing age diversity and age restrictions on the disposal of tenders. Rapid changes in work processes and requirements for employees are the reason for lifelong learning, the development of knowledge and skills. The corporate practice should be innovative development programs for employees, regular training and development needs particularly of older workers. Opportunities for skills development can be rotation of employees and their reintegration to the job. It is necessary to develop new tools and processes that help maintain and further develop management talent. Recruitment is important for all companies, but retain older workers and invest in their development is the same priority (Procházková 2013).

Ad 2 Health and quality of life of older employees

Age management strategy includes promoting health and quality lifestyle employees. It brings us reduce the costs associated with disability and reduced health risks. The instruments leading to a positive impact on the health and lifestyle contribute as preventive health checks, healthy eating, drinking regime to ensure the performance of labor or. exercise or rehabilitation. Especially for older employees is appropriate support professional health and quality of life (Procházková 2013).

Ad 3 Flexible working hours

Flexible working is an essential tool age management. Part-time work can be a tool to keep older workers in particular, respectively. free job potential in the case of younger people and mothers / fathers with children. Allows you to work more productive, motivated and satisfied people. The weakness, however, reduce wages, thereby subsequently retired. The benefit is the ability to balance work and personal lives of employees, thereby reducing stress and work stress (Procházková 2013).

Ad 4 Recruiting younger workers

The aim is to seek out talented individuals you reach, engage and retain in the company. Spreading awareness about the schools of all types to activate the interest of young people. For this purpose: internships for students, information on schools and universities, sponsoring students, academic and professional programs the trainee programs, etc. The age management is to find young people with excellent skills while creating good working conditions and attractive workplace, get image modern young company attractive to young workers (Procházková 2013).

Ad 5 Redundancy and retirement

As part of the preparation for retirement and create measures that ensure maintenance of skills, expertise and solidarity with, for example, by preparatory courses, establishment of counseling for employees taking early retirement or dismissal, holding social events allowing meetings with colleagues. Older employees can take advantage of their skills and knowledge as a consultant to the company (Procházková 2013).

Ad 6 Social dialogue

The implementation of age management, cooperation between trade unions and employers. Mutual dialogue will facilitate the development, implementation and monitoring of the development of age management strategies. As the key is cooperation with trade unions on projects demographic changes (Procházková 2013).
Diversity management is performed via talent management programs for which individuals are proposed via self-selection. This system is based upon the meritocracy argument. The researchers (Bleijenbergh; Peters; Poutsma 2010) indicate that relatively fewer women and ethnic minorities may see it as feasible to do the extra investment of a talent program. This shows that self-selection does not always work for all groups of employees, although employers experience the open character of self-selection as legitimate. Moreover, individuals who are not selected identify themselves as not talented, which would negatively affect their motivation. So, indirectly these programs work as exclusionary. If these claims are valid for groups of women and ethnic minorities, it can be assumed that the same mechanism will be applied in the age groups that have a sense of exclusion.

It is not only the theme of age diversity management and use age-differentiated human resources. HR policy also promotes equal opportunities and equal treatment of employees. Where it appears discriminatory conduct must promote adequate staffing tools and apply the principles of Age Management. Perceived age discrimination climate on the company can affect its performance. Authors Kunze, Boehm, Bruch .( 2011) examined in their study of diversity research, investigated (a) the effect of organizational-level age diversity on collective perceptions of age discrimination climate that (b) in turn should influence the collective affective commitment of employees, which is (c) an important trigger for overall company performance. In a large-scale study that included 128 companies, a total of 8,651 employees provided data on their perceptions of age discrimination and affective commitment on the company level. Information on firm-level performance was collected from key informants. We tested the proposed model using structural equation modeling (SEM) procedures and, overall, found support for all hypothesized relationships. The findings demonstrated that age diversity seems to be related to the emergence of an age discrimination climate in companies, which negatively impacts overall firm performance through the mediation of affective commitment. These results make valuable contributions to the diversity and discrimination literature by establishing perceived age discrimination on the company level as a decisive mediator in the age diversity/performance link. The results also suggest important practical implications for the effective management of an increasingly age diverse workforce.

AGE DIVERSITY AND MANAGERIAL CONSEQUENCES

Leadership styles and personal attributes influence on the implementation of organizational diversity management practices. Researchers Ng, Sears (2012) examined CEO transformational and transactional leadership in relation to organizational diversity practices and whether CEO social values and age may moderate these relationships. Their results suggest that transformational leadership is most strongly associated with the implementation of diversity practices. Transactional leadership is also related to the implementation of diversity management practices when either CEO social values or age are relatively high. These findings extend previous work examining predictors of diversity management in organizations and highlight the central role that organizational leaders may play in the successful implementation of these practices.

The authors Kunze, Boehm and Bruch (2013) suggest that the perceived negative age-discrimination climate in turn negatively relates to organizational performance. Drawing from social-identity and social-categorization theory, they theoretically argue that, in age-diverse companies, age-based subgrouping processes occur, favouring a shared perception of a negative age-discrimination climate. As the main contribution, top managers’ negative age-related stereotypes and diversity-friendly HR policies are introduced as organizational-level moderators that increase and attenuate, respectively, the social categorization processes affecting performance in age-diverse companies. The results supported all hypotheses, indicating that low negative top managers’ age stereotypes as well as high diversity-
friendly HR policies are potential organizational factors that can prevent the negative relation of age diversity with organizational performance transmitted through the negative age-discrimination climate. Timmerman (2000) in his study shows the relationships between team age diversity and team performance of baseball team. The results revealed that (after controlling for team ability) age diversity and racial diversity were negatively associated with basketball team performance. Age diversity can lead to increased creativity and a greater richness of values and skills, it can also lead to value clashes, disrespect of each other's viewpoints, and increased conflict. Lehmann-Willenbrock, Lei and Kauflfeld (2012) say that age diversity appreciation is positively related to nurses' well-being (stress and work-life balance), and also positively related to their team commitment. They further hypothesize that nurses' trust in co-workers mediates the hypothesized relationships.

Liebermann, Wegge; Jungmann a Schmidt (2013) in their research say age diversity affects the health of the team members. Functioning of the team, however, is not directly affected by age differences of team members, but their stereotypes, the results of research. The effect of age diversity on individual team members' health is contingent on the individual age as well as on age stereotypes. Younger and older employees' health is negatively associated with age diversity, while middle-aged team members' health is not affected. These age stereotypes strengthen the negative effect of age diversity for the younger age group, while they weaken the effect for older employees. For middle-aged team members, age stereotypes are expected not to determine the relationship between age diversity and health. Organizations have to be aware that age diversity can undermine the health of older and younger team members. Younger team members' health is only affected by working in age-diverse teams if they hold negative stereotypical views about older team colleagues. In contrast, older team members' health is only affected if they do not hold negative stereotypical views about older employees.

Also Wegge, Roth, Neubach, Schmidt, Kanfer, (2008) refers about influence age diversity on health. The influence of age and gender composition on group performance and self-reported health disorders was examined with data from 4,538 federal tax employees working in 222 natural work unit groups. As hypothesized, age diversity correlated positively with performance only in groups solving complex decision-making tasks, and this finding was replicated when analyzing performance data collected 1 year later. Age diversity was also positively correlated with health disorders - but only in groups working on routine decision-making tasks. Gender composition also had a significant effect on group performance, such that groups with a high proportion of female employees performed worse and reported more health disorders than did gender-diverse teams. As expected, effects of gender composition were most pronounced in large groups. Effects of age diversity were found when controlling for gender diversity and vice versa. Thus, age and gender diversity seem to play a unique role in performance and well-being. The moderating role of task complexity for both effects of age diversity and the moderating role of group size for both effects of gender diversity further suggest that the impact of these 2 variables depends on different group processes (e.g., knowledge exchange, variation in gender salience).

CONCLUSIONS
In their work, the authors bring the sum of knowledge on age management, which can be obtained from available literature sources referring the empirical research. Age management is studied here as part of diversity management. Its primary purpose, according to the authors knowledge formation personnel policy of equal opportunities. Age management is directed not only to adequate deployment of personnel. It is also used for elimination age discrimination. The managerial work reflects relation between diversity management and age management and team performance. They also reflected the
influence of the health team members. Performance is negatively affected by potential conflicts in relationships and effects of stereotypes impeding effective cooperation in diversified teams. Adverse relationships in the workplace and psychological stress due to the diversity of workers and their inappropriate conduct may affect the health of workers. The article focuses more on the negative consequences of age management, because the positive aspects are perceived as self-evident

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CAPITAL MANAGEMENT IN CHARACTERISTIC INDUSTRIES
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Abstract

Capital management is connected with leading to achieving or maintaining an optimal capital structure, that is such structure which provides a maximum company value. The hereby paper concentrates on a problem of capital management in characteristic industries. Mining industry is used as an example. It is a characteristic industry due to high capital consumption and particular significance for economy. The assets of mining enterprises, because of the profile of their activity, are specific for a high degree of immobilization, high value and they are mostly difficult to cash (buildings and establishments of underground engineering, longwalls, professional mining appliances etc.). Therefore, capital management in mining industry is an issue that requires examination. In the paper there are research results presented concerning chosen aspects of capital management in the largest world mining corporations.

Key words: capital, mining, financing strategies

1. CONCEPTUALIZATION OF CAPITAL AND CAPITAL MANAGEMENT

Capital is an element conditioning launch and development of economic activity. It is necessary for assets financing which constitutes first enterprise’s equipment, determines its production capability during activity conduction, enables financing of development undertakings or even enterprise’s liquidation (especially in mining industry). Commonness of capital is not equal to simplicity of its defining and interpretation. In all the contemporary economic sciences capital is treated in two ways what is connected with understanding of its basic definitions. The first approach is perceiving capital as property which serves an active role and is situated in the assets’ side of the balance sheet (Dobija, 2003). The second category is an abstractive capital which serves a passive, inactive role and has its reflection in the sources of assets financing, that is liabilities of balance sheet. The considerations conducted in the hereby article are based on the second capital conception.

Foreign capital is divided into long- and short-term. Foreign long-term capital are the sources for which the deadline of settling the last payment, established for the balance sheet date, is later than a year’s time. Short-term capital on the other hand are the sources provided for the enterprise for a period shorter than a year. In frames of this capital classification there is also fixed capital distinguished which has
special meaning in capital management. Fixed capital is defined as capital engaged in the enterprise in a long-term. It consists of equity and long-term foreign capital (Szczepankowski 2004). This capital should finance fixed assets. It results from a low pace of change of these asset elements into cash. In turn, the part of fixed capital which finances current assets after covering fixed assets is called net operating capital or working capital. This capital indicated the risk level connected with current assets financing. There are three levels indicated here on which net working capital may be shaped (Dębski 2005). Working capital may have the following values:

- **positive** – it means that some part of operating assets is financed by fixed capital, what contributes to decreasing risk of financial liquidity loss but at the same time it enables locating the engaged fixed capital into more profitable fixed assets (Pyka 2007),
- **neutral (zero)** – it means that operating assets are fully financed by short-term capital. This situation usually occurs temporarily in enterprises,
- **negative** – it means that fixed capital is not sufficient for covering fixed assets and for this reason they are also financed in some parts by short-term capital. At that time there is high probability of losing financial liquidity as a transfer of the elements of fixed assets into financial sources, in the moment of short-term liabilities payment deadline, may become impossible due to their low pace of exchange (Sierpińska & Jachna 2007). It is especially risky situation in case of mining industry as in this case we deal with high immobilization of assets of high value, which is mostly difficult to cash (buildings and establishments of underground engineering, longwalls, professional mining appliances etc.) Occurrence of negative working capital is acceptable only in a situation when the enterprise is specific for the possibility of continuous renewal of short-term liabilities.

2. CAPITAL MANAGEMENT CONDITIONS

In the considerations concerning capital management there is a problem of capital structure dominating. The amount and structure of capital decide about both, conducting current activity and its economic effects as well as financing possibilities of investment and restructuring undertakings, influencing at the same time on effectiveness of these undertakings and determining enterprise’s value. In finance literature there is no agreement about defining capital structure in the enterprise. Capital structure is very often used interchangeably with liabilities structure and structure of financing sources. However, these are not definitions of the same meaning. Therefore, their essence should be described.

Capital structure is most often defined as a relation of foreign capital to equity (Janasz 2010). However, in many publications it is assumed that capital structure is not equal to liabilities structure. According to this approach, liabilities that the enterprise does not pay interest on should not be included in frames of
capital structure (e.g. trade payables, tax liabilities, amounts due to remuneration etc.). Taking it into account, it is assumed that in frames of capital structure in the enterprise there are such liabilities included analyzed which interest is paid on as well as equity. When investing capital in the enterprise its debtors and owners take incomes into account that may be obtained, that is: return rate, dividends, capital gains resulting from the value increase of equity. If capital understanding is limited to debt burdened with interest and equity then capital will be financing net assets, that is assets decreased by current liabilities not burdened with interest. Capital understood in this way is the value lower than the balance sheet sum (value of assets and liabilities) (Duliniec 2001).

According to R. Masulis (1988, p. 1), R. Higgins (1992, pp. 344-345), S. Ross and others (1996, p. 4), capital structure is meant as liabilities structure in the balance sheet of an enterprise. In turn, according to E. Helfert (1994, pp. 482-483) and J. Downes and J. Goodman (1991, p. 60), capital structure is only reflected in a configuration of fixed capital, that is relation of equity and long-term foreign capital. According to their approach, short-term capital engaged in the enterprise is undergoing continuous changes and in a long term does not decide about capital structure.

Another attitude towards defining capital structure is presented by R. Brealey and S. Myers (1991, p. 397). They associate it with a structure of securities issued by the enterprise with a division into debt and owner securities.

In the hereby article capital structure is associated with liabilities structure. Capital management comes then to determining an optimal relation of equity and foreign capital in long- and short-term.

There are many various factors, both internal and in enterprise’s environment which have influence on capital management and at the same time on shaping the optimal capital structure. The main determinant is enterprise’s strategy. The problem of capital management in the light of strategic management was analyzed by, among others, S. Barton and P. Gordon (1988, pp. 623-632).

Enterprise’s strategy has a direct reflection in capital management and manifests itself in e.g. a proper level of net operating capital (working capital).

There are three main types of capital management strategy distinguished:

- aggressive strategy
- moderate strategy
- conservative strategy (Tokarski 2006).

**Aggressive strategy** is based on the assumption that operating assets and some part of fixed assets are financed by short-term foreign capital. The remaining fixed assets are financed by fixed capital. An aggressive strategy leads to incomes maximization in relation with equity and accepts higher level of financing risk (Klosowska et al. 2006). A specific feature of aggressive strategy is a high degree of financing operating assets by the short-term capital. In this situation negative level of net working capital occurs which means a low share of financing by fixed capital. Financing risk is connected with going into debt in a form of loans (Morris & Shin 2004). Risk is very high in this case as the share of short-term loans is significant. For this reason, due to high share of short-term foreign capital, there is a possibility of using the effects of financial leverage and tax shield. In case of the strategy described, return on equity is generally high, what stems from the fact that short-term loans are cheaper than long-term loans (Krzeminska 2000). A weakness of aggressive strategy is low financial liquidity which may constitute a threat to enterprise’s solvency. An aggressive strategy provides an opportunity for higher income but at the same time it is a risky strategy, assessed negatively by most debtors. When there is a
decrease of sales revenues generating cash, when periodical difficulties occur connected with obtaining a loan or increasing its costs, the enterprise may lose ability to settling its debts on time (Bień 2005).

**Conservative strategy** assumes that fixed capital is not only financing fixed assets but also some part of working assets. It is an opposite strategy to the aggressive financing strategy of activity. Its characteristic features are low degree of current assets financing by short-term capital. It results in a positive amount of net working capital. Another characteristic feature of conservative strategy is financial risk. It is low in this case as the share of short-term loans is also low. Considering a high share of long-term capital in enterprise’s financing, including bank loans, the costs of financing are high. The effects of financial leverage and tax shield are low as there is a small scale of using loans. Such small scale of using loans, especially short-term ones causes that financial liquidity is maintained on a high level. In turn, return on equity is low due to high engagement of expensive foreign capitals in the current activity (Krzemińska 2000). Conservative strategy is a safe one, it strengthens payment equilibrium in the enterprise and its financial stability but at the same time high engagement of fixed capital leads to financial costs increase. In frames of this strategy all tasks are subordinated to the rule of minimal use of short-term loans and maintaining high financial liquidity (Dębski 2005).

The enterprise conducting a **moderate strategy** is financing fixed assets by fixed capital and total current assets by short-term sources. Moderate strategy is a halfway strategy between aggressive and conservative strategy (Kłosowska et al. 2006). Its characteristic features are: average level of financing current assets by short-term capital in comparison with aggressive strategy (short-term liabilities fully cover operating assets and in aggressive strategy they also cover some part of fixed capital). In this situation net operating capital is oscillating around zero. Furthermore, this strategy is characterized by moderate financial risk connected with indebtedness with short-term loans and it involves average financial costs. The use of financial leverage and tax shield is moderate as well as financial liquidity (Lange 2010). This strategy assumes moderate return on equity (Krzemińska 2000).

### 3. MEASURES CHARACTERIZING THE PROCESS OF CAPITAL MANAGEMENT

Each type of management strategy has a different influence on the basic financial parameters characterizing enterprise’s activity. The strategy of capital management affects such financial parameters as: cost of capital, risk, return on equity, enterprise’s value. Capital management also influences on research-development activity, advertising expenses and amount of amortization funds (Balakrishnan & Fox 1993). S. Titman and R. Wessels, among the parameters directly connected with capital management indicated financial leverage, tax shield, income variability, perspectives for development, specific production, enterprise profitability and size (Titman & Wessels 1988).

Other indicators mentioned in the literature connected with the process of capital management are:

- availability of particular capital sources with the inclusion of formal-legal requirements,
- profitability achieved by the enterprise (accumulation abilities of particular enterprise),
- selection of tax system for the conducted activity,
- temporary arrangement of economic processes,

---

1 In practice such strategy requires a continuous loans refinancing. Because of the fact that banks generally are reluctant to give working capital facility in relation with high risk, in result the enterprise has to use trade credits (Bień 2005, p. 109).
In the hereby article, in relation with the process of capital management in the largest world mining enterprises, there were the following economic variables taken into account, specific for this process: share of equity and foreign capital in capital structure, level of net operating (working) capital, level of covering fixed assets by equity ratio. There was also financial leverage ratio calculated and effectiveness of capital management was examined using the ratios: ROE (return on equity) which in comparison with ROA (return on assets) determines the effect of financial leverage. On the basis of the chosen ratios, there may be the characteristic features listed for particular strategies of capital management. They are listed in table 1 and below the table there is the way of calculation indicated for the chosen variables characterizing the process of capital management.

### Table 1. Chosen variables characterizing the process of capital management

<table>
<thead>
<tr>
<th>The type of capital management strategy</th>
<th>The share of equity in total capital</th>
<th>The share of foreign capital in total capital</th>
<th>Net operating capital</th>
<th>Level of covering fixed assets by equity ratio (golden balance sheet rule)</th>
<th>Financial leverage ratio</th>
<th>ROE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggressive</td>
<td>low</td>
<td>high</td>
<td>negative</td>
<td>below 1</td>
<td>high</td>
<td>high</td>
</tr>
<tr>
<td>Conservative</td>
<td>high</td>
<td>low</td>
<td>positive</td>
<td>above 1</td>
<td>low</td>
<td>low</td>
</tr>
<tr>
<td>Moderate</td>
<td>average</td>
<td>average</td>
<td>about zero</td>
<td>about 1</td>
<td>average</td>
<td>average</td>
</tr>
</tbody>
</table>

Source: own work

In the first turn the analysis of capital management requires examining the share of equity and foreign capital in capital structure. For this purpose there are two ratios indicated (Gabrusiewicz 2005):

\[
\text{share of equity ratio} = \frac{\text{equity}}{\text{total capital}} \times 100
\]

\[
\text{share of foreign capital ratio} = \frac{\text{foreign capital}}{\text{total capital}} \times 100
\]

An important ratio supplementing the analysis of capital management strategy is the level of net operating capital, also called working capital. It may be indicated by subtracting the value of short-term liabilities from current assets or in another way, subtracting the value of short-term liabilities from the value of fixed assets. Fixed capital of enterprise consists of equity and long-term liabilities.

Moreover, when examining the capital structure of enterprise there is also the level of covering fixed assets by equity ratio indicated:

\[
\text{level of covering fixed assets by equity ratio} = \frac{\text{equity}}{\text{fixed assets}} \times 100
\]

If the value of this ratio is equal or higher than 100 % it means that so called golden balance sheet rule is achieved. It says that fixed assets which are engaged in conducting a long-term activity should be fully financed by equity.

The next ratio which allows to assess the effectiveness of capital management is return on equity (ROE), determined according to the formula:
return on assets ratio (ROA) = net income/average level of assets

The effect of financial leverage appears when in the result of continuous burden with interest, the net income fluctuations per unit of equity are more than proportional in relation with the fluctuations of operational income (Earnings Before deducting Interest and Taxes – EBIT) (Goldstein et al. 2001). Consequently, the use of financial leverage consists in increasing the share of debt in financing enterprise’s activity in order to increase the expected return rate on equity. Financial leverage ratio is indicated as a relation of debt and equity what may be written as:

financial leverage ratio = debt / equity

In a situation when financial leverage ratio is higher than zero, the effect of financial leverage occurs. The effects of financial leverage may be positive when they translate into earnings rise per one share or negative when they contribute to earnings decrease. Positive effects of financial leverage occur in a situation when return on equity (ROE) is higher than return on assets (ROA):

ROE > ROA.

4. STRATEGIES OF CAPITAL MANAGEMENT IN THE WORLD'S LARGEST MINING ENTERPRISES

When relating the problem of capital management to the grounds of characteristic industry, there was an analysis conducted concerning the strategies of capital management in mining. The mining industry is a specific industry, highly capital-consuming one of special significance for economy. In the recent years this industry, considered to be in a stage of decline, is undergoing a gradual revival due to increasing prices of alternative sources of electricity such as natural gas or crude oil and in connection with much lower than it was expected share increase of renewable sources of energy in satisfying energetic needs in Europe and in the world. Therefore, capital management in mining enterprises is a still important and current issue. In the empirical part of the hereby article there was an attempt of identification made concerning the strategies of capital management used in the world’s hard coal mining. At the beginning of research process there was thesis stated which says that mining enterprises, due to profile of activity, have high immobilization of assets of high value which in the most part is difficult to cash (buildings and establishments of underground engineering, longwalls, professional mining appliances etc.), conduct a conservative strategy of capital management. The thesis was verified in the course of further research, the results of which are presented below.

The research objects are 10 chosen mining enterprises performing in the world and listed on world’s capital markets such as:

- New York Stock Exchange (NYSE) in USA,
- Shanghai Stock Exchange (SSE) in Japan,
The enterprises being the research objects are included in table 2.

Table 2. Characteristics of the examined foreign mining enterprises

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Headquarters</th>
<th>Listed since</th>
<th>Stock exchange</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Alpha Natural Resources</td>
<td>USA</td>
<td>2005</td>
<td>NYSE</td>
</tr>
<tr>
<td>2</td>
<td>Arch Coal</td>
<td>USA</td>
<td>1988</td>
<td>NYSE</td>
</tr>
<tr>
<td>3</td>
<td>BHP Billiton</td>
<td>Australia</td>
<td>1987</td>
<td>NYSE</td>
</tr>
<tr>
<td>4</td>
<td>CONSOL Energy</td>
<td>USA</td>
<td>1999</td>
<td>NYSE</td>
</tr>
<tr>
<td>5</td>
<td>James River Coal Co.</td>
<td>USA</td>
<td>2004</td>
<td>NASDAQ</td>
</tr>
<tr>
<td>6</td>
<td>Kailuan Clean Coal</td>
<td>China</td>
<td>2004</td>
<td>SSE</td>
</tr>
<tr>
<td>7</td>
<td>Peabody Energy Corp.</td>
<td>USA</td>
<td>2001</td>
<td>NYSE</td>
</tr>
<tr>
<td>8</td>
<td>RIO TINTO</td>
<td>Great Britain</td>
<td>1990</td>
<td>NYSE</td>
</tr>
<tr>
<td>9</td>
<td>Westmoreland Coal</td>
<td>USA</td>
<td>1999</td>
<td>NASDAQ</td>
</tr>
<tr>
<td>10</td>
<td>Yanzhou Coal Mining</td>
<td>China</td>
<td>1998</td>
<td>SSE</td>
</tr>
</tbody>
</table>


In the first turn there was capital structure analyzed in the examined enterprises, in order to determine the share of equity and foreign capital in assets financing. The results are included in table 3.

Table 3. Capital structure of the examined mining enterprises in years 2009-2011

<table>
<thead>
<tr>
<th>Enterprise - Headquarters</th>
<th>Capital</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alpha Natural Resources - USA</td>
<td>Equity</td>
<td>64%</td>
<td>65%</td>
<td>54%</td>
</tr>
<tr>
<td></td>
<td>Foreign capital</td>
<td>36%</td>
<td>35%</td>
<td>46%</td>
</tr>
<tr>
<td>Arch Coal - USA</td>
<td>Equity</td>
<td>49%</td>
<td>52%</td>
<td>38%</td>
</tr>
<tr>
<td></td>
<td>Foreign capital</td>
<td>51%</td>
<td>48%</td>
<td>62%</td>
</tr>
<tr>
<td>BHP Billiton - Australia</td>
<td>Equity</td>
<td>9%</td>
<td>15%</td>
<td>12%</td>
</tr>
<tr>
<td></td>
<td>Foreign capital</td>
<td>91%</td>
<td>85%</td>
<td>88%</td>
</tr>
<tr>
<td>CONSOL Energy - USA</td>
<td>Equity</td>
<td>38%</td>
<td>47%</td>
<td>57%</td>
</tr>
</tbody>
</table>
When talking about the capital structure in the examined enterprises it was assumed that equity or foreign capital dominance takes place when in the last two years of the examined period the share of this capital exceeds 50 %. It may be noticed that only in three out of ten examined enterprises equity dominates in financing structure. However, its share in capital structure does not exceed 70% in any of them. It is emphasized by the fact that the mining industry, despite high degree of assets immobilization is financed by foreign capital in the greatest part. It influences on increasing financial risk and it may become a threat of losing financial liquidity.

In the next step the level of net operating capital was examined in the analyzed enterprises. The results are included in table 4.

### Table 4. The value of net operating capital in the examined enterprises in years 2009-2011

<table>
<thead>
<tr>
<th>Enterprise - Headquarters</th>
<th>currency</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alpha Natural Resources - USA</td>
<td>thousand USD</td>
<td>215 479</td>
<td>283 465</td>
<td>-755 998</td>
</tr>
<tr>
<td>Arch Coal - USA</td>
<td>thousand USD</td>
<td>289 143</td>
<td>467 359</td>
<td>-608 813</td>
</tr>
<tr>
<td>BHP Billiton - Australia</td>
<td>thousand USD</td>
<td>-47 740 000</td>
<td>-53 107 000</td>
<td>-66 023 000</td>
</tr>
<tr>
<td>CONSOL Energy - USA</td>
<td>thousand USD</td>
<td>-2 860 156</td>
<td>-5 519 989</td>
<td>-4 327 134</td>
</tr>
</tbody>
</table>
Negative working capital dominates in the examined period in four mining enterprises. In reference with the results obtained on a previous stage, which indicated that the share of equity in total assets financing is relatively low in the mining enterprises, it results that this industry is being financed by long-term foreign equity in the greatest part. Positive working capital shows that in most of the examined mining enterprises the fixed assets and some part of current assets is financed by fixed capital, that is equity and long-term liabilities.

In order to make the information about the way of assets financing more detailed there was also the level of covering fixed assets by equity ratio examined. The results obtained are presented in table 5.

Table 5. The value of the level of covering fixed assets by equity ratio in the examined enterprises in years 2009-2011

<table>
<thead>
<tr>
<th>Enterprise - Headquarters</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alpha Natural Resources - USA</td>
<td>83%</td>
<td>85%</td>
<td>67%</td>
</tr>
<tr>
<td>Arch Coal - USA</td>
<td>63%</td>
<td>68%</td>
<td>45%</td>
</tr>
<tr>
<td>BHP Billiton - Australia</td>
<td>3%</td>
<td>4%</td>
<td>3%</td>
</tr>
<tr>
<td>CONSOL Energy - USA</td>
<td>29%</td>
<td>29%</td>
<td>39%</td>
</tr>
<tr>
<td>James River Coal Co. - USA</td>
<td>29%</td>
<td>64%</td>
<td>44%</td>
</tr>
<tr>
<td>Kailuan Clean Coal - China</td>
<td>65%</td>
<td>68%</td>
<td>66%</td>
</tr>
<tr>
<td>Peabody Energy Corp - USA</td>
<td>52%</td>
<td>63%</td>
<td>48%</td>
</tr>
<tr>
<td>RIO TINTO – Great Britain</td>
<td>57%</td>
<td>95%</td>
<td>103%</td>
</tr>
<tr>
<td>Westmoreland Coal - USA</td>
<td>20%</td>
<td>218%</td>
<td>252%</td>
</tr>
<tr>
<td>Yanzhou Coal Mining - China</td>
<td>154%</td>
<td>188%</td>
<td>136%</td>
</tr>
</tbody>
</table>

Source: own work

In the whole examined period only in one out of ten enterprises fixed assets are fully financed by equity and the golden balance sheet rule is fulfilled. In two other enterprises equity covers fixed assets in one
or two years of the examined period. In the remaining seven enterprises the level of covering fixed assets by equity ratio is generally low (in most of them below 50 %). The lowest value of fixed assets is covered by equity in BHP Billiton from Australia. In its case only 3-4 % of fixed assets is financed by equity.

In the next stage of analysis of capital management in the world’s mining enterprises there was the financial leverage ratio examined. The results achieved are included in table 6.

Table 6. The value of financial leverage ratio in the examined world’s mining enterprises in years 2009-2011

<table>
<thead>
<tr>
<th>Enterprise - Headquarters</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alpha Natural Resources - USA</td>
<td>0.57</td>
<td>0.54</td>
<td>0.84</td>
</tr>
<tr>
<td>Arch Coal - USA</td>
<td>1.03</td>
<td>0.92</td>
<td>1.61</td>
</tr>
<tr>
<td>BHP Billiton - Australia</td>
<td>10.01</td>
<td>5.70</td>
<td>7.58</td>
</tr>
<tr>
<td>CONSOL Energy - USA</td>
<td>1.66</td>
<td>1.13</td>
<td>0.77</td>
</tr>
<tr>
<td>James River Coal Co. - USA</td>
<td>2.04</td>
<td>1.48</td>
<td>0.00</td>
</tr>
<tr>
<td>Kailuan Clean Coal - China</td>
<td>0.79</td>
<td>1.24</td>
<td>1.01</td>
</tr>
<tr>
<td>Peabody Energy Corp - USA</td>
<td>1.13</td>
<td>0.96</td>
<td>1.63</td>
</tr>
<tr>
<td>RIO TINTO – Great Britain</td>
<td>2.37</td>
<td>0.80</td>
<td>0.52</td>
</tr>
<tr>
<td>Westmoreland Coal - USA</td>
<td>4.58</td>
<td>0.45</td>
<td>0.43</td>
</tr>
<tr>
<td>Yanzhou Coal Mining - China</td>
<td>1.08</td>
<td>0.88</td>
<td>1.19</td>
</tr>
</tbody>
</table>

Source: own work

In all the examined enterprises the effect of financial leverage occurs. The strongest effects appear in these enterprises which are the most indebted. The highest effect of financial leverage occurs in BHP Billiton, in which the share of foreign capital in financing structure exceeds 85% in the whole examined period. In the remaining enterprises the effect of financial leverage is much lower.

In order to confirm whether the effect of financial leverage is positive or negative in case of particular enterprises there should be examined whether the level of debt in the enterprises affects the return on equity rate in a decreasing or increasing way. Consequently, in the next step there was the analysis of profitability of equity examined in the light of total profitability of assets. Positive effects occur in a situation when return on equity is higher than return on assets (ROE>ROA). Due to data availability, the analysis in this area was tightened to the years 2010 and 2011. The results are included in table 7.

The analysis of return rates allows to state that in most of the examined enterprises the effect of financial leverage is positive. It means that introduction of foreign capital into the financing structure caused increase of return on equity ratio in the examined period. In BHP Billiton, in which the effect of financial leverage is the highest, return on equity (although it is low) is higher than return on total assets. It indicates positive effects of financial leverage in this enterprise.

When comparing the examined factors (table 8) one may come to conclusions concerning the strategy of capital management realized by the examined mining enterprises.
Table 7. The value of ROE and ROA ratios in the examined world’s mining enterprises in years 2009-2011 [%]

<table>
<thead>
<tr>
<th>Enterprise - Headquarters</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ROE</td>
<td>ROA</td>
</tr>
<tr>
<td>Alpha Natural Resources – USA</td>
<td>28.4</td>
<td>22.8</td>
</tr>
<tr>
<td>Arch Coal – USA</td>
<td>7.3</td>
<td>3.9</td>
</tr>
<tr>
<td>BHP Billiton – Australia</td>
<td>1.3</td>
<td>0.03</td>
</tr>
<tr>
<td>CONSOL Energy – USA</td>
<td>14.7</td>
<td>3.8</td>
</tr>
<tr>
<td>James River Coal Co. – USA</td>
<td>37.4</td>
<td>10.7</td>
</tr>
<tr>
<td>Kailuan Clean Coal – China</td>
<td>16.3</td>
<td>6.2</td>
</tr>
<tr>
<td>Peabody Energy Corp – USA</td>
<td>19.1</td>
<td>8.1</td>
</tr>
<tr>
<td>RIO TINTO – Great Britain</td>
<td>13.9</td>
<td>7.3</td>
</tr>
<tr>
<td>Westmoreland Coal – USA</td>
<td>-0.1</td>
<td>-0.1</td>
</tr>
<tr>
<td>Yanzhou Coal Mining – China</td>
<td>28.4</td>
<td>22.8</td>
</tr>
</tbody>
</table>

Source: own work

Table 8. Synthetic assessment of strategy of capital management in the examined world’s mining enterprises

<table>
<thead>
<tr>
<th>Enterprise/Criteria</th>
<th>Type of strategy of capital management</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capital structure</td>
</tr>
<tr>
<td>Alpha Natural Resources – USA</td>
<td>M</td>
</tr>
<tr>
<td>Arch Coal – USA</td>
<td>M</td>
</tr>
<tr>
<td>BHP Billiton – Australia</td>
<td>A</td>
</tr>
<tr>
<td>CONSOL Energy – USA</td>
<td>M</td>
</tr>
<tr>
<td>James River Coal Co. – USA</td>
<td>A</td>
</tr>
<tr>
<td>Kailuan Clean Coal – China</td>
<td>M</td>
</tr>
<tr>
<td>Peabody Energy Corp – USA</td>
<td>A</td>
</tr>
<tr>
<td>RIO TINTO – Great Britain</td>
<td>M</td>
</tr>
<tr>
<td>Westmoreland Coal – USA</td>
<td>C</td>
</tr>
<tr>
<td>Yanzhou Coal Mining – China</td>
<td>M</td>
</tr>
</tbody>
</table>

→ with a tendency to
A – aggressive strategy, M – moderate strategy, C – conservative strategy

Source: own work
On the basis of the comparison of synthetic data included in table 8 there may be enterprises indicated which consequently realize the chosen strategy of capital management in all the examined areas. Conservative management strategy (with low tendencies to moderate one) occurs in two enterprises. Aggressive strategy characterizes six enterprises. In the two remaining cases the realized strategy is turning to the features of moderate strategy.

5. CONCLUSION

On the basis of research conducted it may be stated that in the mining industry there are various strategies of capital management adopted, with a visible dominance of aggressive strategy. The research conducted did not confirm the thesis stated at the beginning which says that mining enterprises - due to the profile of activity, high immobilization of assets of high value which are mostly difficult to cash (buildings and establishments of underground engineering, longwalls, professional mining appliances etc.) – adopt a conservative financing strategy. Most of the examined enterprises realize aggressive strategy. There is foreign capital dominating in the capital structure of the world’s largest mining enterprises. It leads to high indebtedness of mining industry in the world and at the same time it is a proof that there is high risk in this industry. In case of mining enterprises, special significance is gained by the risk of losing financial liquidity. Despite high debts and high risk of insolvency, mining industry should be perceived as profitable industry. The return on assets and return on equity ratios are generally positive and achieve a satisfying level in most of the examined enterprises. Mining industry has faced the global financial crisis which affected demand for hard coal and its price.

The hereby article was financed from the sources of National Science Centre.

REFERENCES


IMPACT OF ENERGY CROP PRODUCTION ON LAND USE IN HUNGARY

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Abstract

One of the basic aspects of sustainable development is the sustainable use of natural resources. Land is a specific resource, it is given in the country; therefore realizing its optimum management is inevitable. The paper uses the database of the Hungarian Central Statistical Office to analyse the impact of producing the key field crops (wheat, maize, sunflower, rape, barley, oat, rye and sugar beet) – which can also be used as energy crops – on land use between 2001 and 2011 in Hungary. The analysis confirms that the size of the arable land is decreasing, the yield averages are fluctuating due to the weather and the sowing area is moving towards crops which are in greater demand and can be utilized for multiple purposes.

Key words: land use, energy crop production, field crop production

1. INTRODUCTION

Land, as the basis and source of agricultural production has an outstanding role among all the other means of production. Land belongs to the group of inexhaustible resources. It is available in limited quantity, and it is a necessary endowment in each country.

Wasteful consumption, low-efficient technologies and the accelerating growth of the world population force the people on the Earth to face the limits of natural resources and the need to manage these resources more rationally.

The forecasts say that the population of the world will exceed 9 billion in 2050. Due to the increasing specific needs, the agricultural production should be expanded by 70% compared to the present level. It means that land and land use will substantially be appreciated [MAGDA – MARSELEK, 2011]; [BOZSIK – MAGDA, 2010].

Tamás and Blaskó (2008) say that the question of land use is related with the energetic utilization of biomass in many aspects:

- Due to its low energy density, biomass needs large areas.
- There is a growing competition between food, fodder and industrial raw material production for the utilization of scarce available areas.
- From environmental aspects, land use basically influences the material and coal balance of soils.

Reviewing the Hungarian and international references, a number of papers discuss the examination of land use changes. Rabbinge and Diepen (2000) introduce the changes of land use in Europe and try to determine the degree of optimum land use. Farkas-Fekete et al (2008) use scenario analysis to explore the impact of climate change, agricultural policies, social and economic changes on land use in Europe.
With the help of an agricultural supply model, Ben Frajd et al (2012) analyse the impact of European miscanthus yield on land use. Global Biosphere Management Model is set up by Fuss et al (2011) to examine the impact of global climate change on yield fluctuations and land use changes, as well as on food safety.

Garay et al (2012) examined the effect of energy crop production on land use. In their paper they discussed the potential quantity and use of biomass-based energy sources in Hungary. They concluded that there are appropriate quantities of biomass, wastes and by-products available in Hungary for reaching the targets set in the energy strategy, therefore it is not necessary to involve further land in the production of energy crops.

Ciaian et al (2012) examined how the changes of fuel and biofuel prices affect the changes in land use. They came to the conclusion that land use is changing due to the changes in fuel prices and this impact is intensified by biofuels. The impact can be direct or indirect. Direct impact in connection with land use changes refers to a situation where the land is already in use and crops for biofuel production are introduced on it. In case of indirect impact, formerly not used land areas are involved in agricultural production. Empirical results have confirmed that energy prices actually affect land use. According to the authors, all the agricultural products influence energy prices, even those products which are not directly used for bioenergy production.

2. SITUATION ANALYSIS

The greatest problem in regards to land use is that there are more competing needs for utilization. The production of renewable energy sources in fact competes with food production and land use of nature protection purposes, besides some other ways of land use. The different ways of biomass production also fight with each other because growing areas are required for producing biofuel raw material, as well as energy forests or herbaceous energy crop plantations [GYULAI, 2010].

In Hungary, the price of land – in spite of the permanently increasing tendency – is much lower at present than in other EU member countries [TAKACS-GYORGY et al 2007], [TAKACS-GYORGY et al 2011] which significantly affects the competitiveness of agriculture [BIRO, 2007]. Land prices in EU countries can be even ten times higher [NAGY, 2010].

Table 1: Arable land prices in 2010, divided by golden crown (GC) value and region, in thousand HUF/ha

<table>
<thead>
<tr>
<th>Region</th>
<th>below 17 GK</th>
<th>between 17-30 GK</th>
<th>above 30 GK</th>
<th>On average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great Plain</td>
<td>332</td>
<td>427</td>
<td>580</td>
<td>417</td>
</tr>
<tr>
<td>Transdanubia</td>
<td>474</td>
<td>559</td>
<td>713</td>
<td>562</td>
</tr>
<tr>
<td>Northern-Hungary</td>
<td>386</td>
<td>469</td>
<td>402</td>
<td>440</td>
</tr>
<tr>
<td>Hungary</td>
<td>379</td>
<td>485</td>
<td>636</td>
<td>473</td>
</tr>
</tbody>
</table>


In addition to regional location, the price of land is also influenced by the quality of land (Table 1). In Hungary, the land prices are the highest in the Transdanubian region, while arable land can be bought
at half price in the Great Plain region, where the quality is poorer. It is true not only for the EU countries but for the whole world that there is a supply shortage on the land market. Demand is increasing, but the supply cannot follow it. If farmers expect higher profitability, the land price will grow further.

Another risk concerning land use changes is the climate change [FARKAS-FEKETE et al 2008]. The forecasted climate change affects yield, animal husbandry and sites of agricultural production, seriously endangering income from agriculture and increasing the risk of withdrawing land from production. Risks connected with food production can cause serious problems in some parts of Europe because heat waves, drought and pests will make yield losses more frequent. The higher is the variability of yield, the greater is the risk regarding global food supply [SZABÓ – BARÓTFI, 2009].

In 2009, in the frames of 2009/28 EC directive on the promotion of the use of energy from renewable sources, the EU has set as a compulsory target that 20% of the total energy use should come from renewable energy by 2020 (Hungary has undertaken 13%). It means a commitment of 10% reduction in transport sector. At the same time, the directive No. 2009/30/EC as regards the specification of fuels says that the Community has committed itself to reduce the intensity of greenhouse gas emission of fuels used in transport by 6% in the EU by 2020.

Agriculture and – within this - land use is closely connected with the livestock sector. Following the post-communist transition in 1990, the livestock has been reduced by 50% in Hungary, which has resulted considerable changes in land use, therefore new possibilities should have been found to improve the stability and income generating ability of agricultural sector. In addition to the well-known ways of utilization – food production, industrial raw material production, fodder raw material production, herb production, nature conservation, recreation facilities, environmental maintenance – a new alternative has been implemented: the energy raw material production. It has offered a new way to use excess stocks and to improve the situation of agricultural sector, as well as to reduce our energy dependence.

Hungary needs substantial import in regards to oil and natural gas use. The import of natural gas is 3.3-times higher than domestic production, the oil import is 9.1-times higher. The energy dependence of the country is around 60-65% at present [HEO, 2011]. It is due to the fact, that the stocks are scarce and the marginal cost of production is higher than the market price. Hungary can reduce this dependence by growing energy crops and producing bio-energy from them. It would require, however, to revise the question of land use in order to maintain the safety of food supply.

The food prices in the world are permanently increasing since 2002. The food prices can go up not only due to the changing demand and supply, but also because of the yield results affected by the weather and the changes of financial aids. Certainly the bioenergy production contributes to the rising food prices because bioenergy is made mostly from raw materials which could also be used for food production. This impact is much stronger than it could be justified by the relative reduction of supply. It is due – besides to the panic reaction – to the fact that prices of basic food products (which cannot be substituted) overreacted to the presumed or real reduction of supply. [LACZO, 2008].

Table 2: Bioethanol and biodiesel production and consumption in Hungary, thousand barrel/day

<table>
<thead>
<tr>
<th>Title</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioethanol production</td>
<td>0,10</td>
<td>0,60</td>
<td>0,50</td>
<td>2,40</td>
<td>2,60</td>
<td>3,20</td>
<td>3,00</td>
</tr>
<tr>
<td>Bioethanol consumption</td>
<td>0,10</td>
<td>0,40</td>
<td>0,90</td>
<td>1,60</td>
<td>1,60</td>
<td>2,00</td>
<td>1,80</td>
</tr>
<tr>
<td>Biodiesel production</td>
<td>0,00</td>
<td>0,00</td>
<td>0,20</td>
<td>2,70</td>
<td>2,50</td>
<td>2,80</td>
<td>2,80</td>
</tr>
<tr>
<td>Biodiesel consumption</td>
<td>0,00</td>
<td>0,01</td>
<td>0,04</td>
<td>2,60</td>
<td>2,70</td>
<td>2,60</td>
<td>2,40</td>
</tr>
</tbody>
</table>
The biofuel consumption and production in Hungary is still at an early stage (Table 2). The production has been exceeding consumption since 2008. According to EIA report, oil consumption was around 147 thousand barrels per day in 2010. Compared to this, 2 thousand barrels of oil per day, and 2,6 thousand barrels per day were used in the same year, which makes up 3% of the daily use altogether. Hungary has committed to reach 10% of renewable energy sources in transport sector by 2020.

In order to reach these target values by using biofuels which are produced in Hungary, further appropriate capacities should be built. However, the rather significant yield fluctuations and the consequently substantial price fluctuations discourage the possible investors. It also highlights the fact, that the price of fodders and food raw materials which can also be used for biofuel production, are affected not by the demand for biofuels but quite the contrary [LACZÓ, 2008].

3. RESULTS

Land utilization is measured on the basis of value of land expressed in land unit. The different cultivation lines and the differently utilized land areas are converted into land units and divided with the size of the total area. Land utilization index expresses what is the intensity of cultivation branch with which the land is utilized. Land utilization index is shown on Table 3.

Land utilization index helps to analyse how the utilized quantity of areas changed within the examined period. In Hungary, the land utilization has decreased by 2.37% compared to 1990, which cannot be regarded significant. The land utilization was 77.19% in 2011.

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>79.56</td>
<td>79.42</td>
<td>82.35</td>
<td>81.58</td>
<td>81.70</td>
<td>81.18</td>
<td>81.07</td>
<td>80.94</td>
<td>80.88</td>
<td>80.72</td>
<td>79.32</td>
</tr>
<tr>
<td>2001</td>
<td>78.70</td>
<td>78.54</td>
<td>78.49</td>
<td>78.53</td>
<td>77.99</td>
<td>78.01</td>
<td>77.97</td>
<td>77.30</td>
<td>77.21</td>
<td>77.35</td>
<td>77.19</td>
</tr>
</tbody>
</table>

The raw materials of bioenergy can also be produced on land which was directly transformed from land of other classification directly into agricultural land. If these crops, however, are produced on already existing agricultural areas, it can displace the production of other crops which will lead to the ranking of the area into agricultural classification. This indirect impact manifests in the change of demand on the world market for agricultural raw materials and substituting products. The price change can alter the behaviour of market actors, can lead to intensified land use which often goes together with land use changes. The increased price can also encourage market actors to increase the yield on the available agricultural areas [Report from the Commission, 2010].

If the urge to use biomass is increasing, the demand for raw material will be higher, too. The price grows together with the demand, and more people will see the chances of profitability. It will ultimately lead to the expansion of growing areas at the expense of nature. It is easy to find out that this land use
competition first of all will sacrifice natural ecosystems, and later the production of food raw materials [GYULAI, 2010].

In those years when yield losses are significant, not only the provision of products required for industrial and fodder purposes is endangered but it causes significant price fluctuations and can make bioenergy production loss-making. If our cereal production cannot be stabilized, the cereals produced in weaker years will cover only the demands of animal nutrition and other industrial purposes and there will not be enough stocks for bioenergy production but reducing import volumes. The substantial production fluctuations and the related, also rather substantial, price fluctuations will discourage investors.

In Hungary, the size of arable land decreased by 4.30% during the examined period, the ratio of area withdrawn from cultivation increased by 23.59%. The size of less favoured areas is 883,558 hectare which is 9.50% of the total area of Hungary and 14.00% of the total cultivated area. The less favoured areas where the farmers are not competitive on the market due to environmental drawbacks (climate, height above sea level, soil properties, etc.) but farming activities should be performed there in order to protect or improve the environment, conserve the landscape, maintain the touristic appeal of the region. The fertility of soils is worse in these areas, therefore the yields are much lower than in other places [KUKOVICS, 1972].

### Table 4: Sowing area and yield average between 2001 and 2011 in Hungary

<table>
<thead>
<tr>
<th>Title</th>
<th>Sowing area</th>
<th>Yield average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Min (ha)</td>
<td>Max (ha)</td>
</tr>
<tr>
<td>Wheat</td>
<td>986,941</td>
<td>1,208,708</td>
</tr>
<tr>
<td>Maize</td>
<td>1,160,652</td>
<td>1,285,349</td>
</tr>
<tr>
<td>Sunflower</td>
<td>320,638</td>
<td>579,302</td>
</tr>
<tr>
<td>Rape</td>
<td>81,733</td>
<td>267,224</td>
</tr>
<tr>
<td>Barley</td>
<td>262,946</td>
<td>378,123</td>
</tr>
<tr>
<td>Rye</td>
<td>33,276</td>
<td>50,578</td>
</tr>
<tr>
<td>Oat</td>
<td>55,512</td>
<td>71,222</td>
</tr>
<tr>
<td>Sugar beet</td>
<td>12,530</td>
<td>66,876</td>
</tr>
</tbody>
</table>

Source: Own calculation on the basis of KSH data

Figure 1 shows the average annual change of yield average and sowing area in % in regards to the main field crops (wheat, maize, sunflower, rape, barley, rye, oat and sugar beet), between 2000 and 2011, as well as between 2006 and 2011. Since in Hungary the bioenergy production started to expand from 2006, it was also examined – in addition to the 10-year average – how the growing bioenergy production has affected the average yield and sowing area in the last five years.

Wheat and maize is produced on the largest areas in Hungary, it is followed by sunflower and barley. The sowing area of rape has significantly increased in the recent years. Much less rye, oat and sugar beet is produced. The sowing area of wheat, rye, barley and maize increased by less than 1.00% on average during the examined period. The sowing area of rape grew the most (by 2.05%). Its sowing area exceeds the sowing area of sunflower, which is ranked the first in Hungary. The following sowing areas decreased: sunflower (-4.77%), sugar beet (-4.70%) and oat (-2.11%). The average yield increased only
in case of maize, by 0.74%. Maize is one of the main fodder crops in Hungary. It can be utilized in multiple ways, therefore it is well marketable. In case of rape, the decline of average yield by 5.23% can be due to the unfavourable weather conditions. The average yield also significantly decreased in case of rye (-3.53%) and oat (-3.99%). Oat is used primarily for animal feeding purposes therefore its production is diminishing by the decline of livestock. The production of sugar beet is also declining in Hungary, due to the diminishing sugar industry.

Figure 1: Average annual change of sowing area and yield average, in %

Source: Own construction on the basis of KSH data

Note: □ 2001-2011 average, ○ 2006-2011 average

In summary it can be concluded that the use of field crops for energy-producing purposes has only slightly affected the land use in Hungary. The sowing area shifts toward the more marketable crops which can be utilized for multiple purposes.
4. CONCLUSIONS

Growing energy crops can be an alternative solution for farmers in the agricultural sector which faces crisis of overproduction. Thus the crisis can be overcome without keeping substantial areas uncultivated.

Due to the weather risks, however, it is very difficult to stabilize cereal yield, therefore bioenergy production is regarded risky for the investors. It requires capital-intensive greenfield and brownfield investments and – in years of worse yields - no free stocks remain for bioenergy production after fulfilling the needs of fodder and food industry.

If farmers expect higher profits from energy crop production instead of traditional crop production, there is a danger that the changing demand will rise the prices of agricultural food products, which leads to the expansion of growing areas and, subsequently, to the change of land use and it also endangers the safety of food supply.

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ENERGY CONSUMPTION AND ENERGY INTENSITY IN REGARD TO SUSTAINABILITY IN SOME CENTRAL AND EASTERN EUROPEAN COUNTRIES

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Abstract

The current energy consumption habits are not sustainable although we cannot replace fully the use of fossil energy sources – accessible in diminishing quantities – with renewable energy sources. One of the most obvious choices is to use the available energy in the most efficient way. The aim of the paper is to analyse energy consumption and energy intensity in some Central and Eastern European countries. The examined countries are the Czech Republic, Hungary, Poland and Slovakia. The paper introduces primary energy use of the examined countries by energy categories from 1990 to 2011 as well as the utilized quantity of primary energy in GDP ratio. The energy consumption per person has been more favourable in the examined countries – except for the Czech Republic – than the European Union average. The energy efficiency, however, is behind the average of European Union therefore it is important to take over and implement the efficient energy utilization methods and techniques existing in the EU.

Key words: sustainability, energy intensity, energy consumption, renewable energy

INTRODUCTION

In regard to the concept and essence of sustainable development a number of papers have been published. According to Herman Daly, the sustainable development means achieving permanent social welfare without expanding beyond ecological carrying capacity.

The resources of Earth are exhausting day by day, but the energy needs of world is permanently increasing. At present the demands of humankind placed on natural resources exceed the biocapacity of Earth already by 25%.

The primary energy use of the world has grown by almost 70% since 1980. The volumes of exploitable fossil energy sources, however, are permanently reducing. More than 80% of the global primary energy need is met by fossil energy sources, next to them the share of renewable energy sources seems to be insignificant. The expansion of use is going on in the future therefore – according to some reliable forecasts – the high proportion of fossil energy sources cannot be maintained safely in the long run. Out of fossil energy sources produced in the world the crude oil is the first where man will probably soon reaches or have already reached the highest quantity brought up to the surface. In practice it means that half of the totally available oil quantities have already been produced [National Energy Strategy 2030, 2011].

Energy links economic development, social development and environment which enables the world to develop. Development is impossible without energy and sustainable development is impossible without sustainable energy management. In order to ensure sustainable energy for everybody by 2030, three
targets should be definitely approached. These are as follows: ensuring global access to services of modern energetics, doubling renewable energy within the energy mix and doubling energy efficiency [Sustainable energy for all, 2012].

The dependence of the European Union on imported energy sources, especially oil and - just recently - natural gas, is behind the political concerns regarding the safety of energy supply. The safety of primary energy supply of the European Union can be endangered if the massive import is concentrated in the hands of relatively few partners [EUROSTAT, 2012].

The EUROSTAT calculates the rate of energy import dependence by dividing net energy import by gross consumption. The energy dependence demonstrates how the given country relies on energy import in order to meet its demand for energy.

Figure 2: Energy dependence in the examined countries between 1990 and 2011, in %

Source: Own edition on the basis of EUROSTAT

The European Union is more and more depending on import energy. Its energy dependence was 45% in the 1990s. By today this energy dependence is steadily about 54% and further increase can be expected. Out of the examined countries, Poland was the least dependent on energy import until 2007. It even produced a surplus in 1995. From 2007, however, its dependence exceeded even that of the Czech Republic due to the high costs of coal mining. The energy dependence of Hungary has been around the EU average. In 1990 Slovakia covered 77% of its energy need from import. By 2011, this dependence decreased to 64%, which is higher by 10% than the average of the European Union.

The World Energy Council (WEC) classifies countries on the basis of their energy sustainability performance. The three main dimensions of sustainable energy is the energy safety, social fairness and alleviation of environmental effects. Energy safety includes the efficient treatment of primary energy supply from domestic and external sources, the reliability of energy infrastructure and the competence of energy producing companies to meet the current and future requirements. According to social fairness, the energy supply is accessible and affordable by the people. The alleviation of environmental
impacts include the implementation of demand and supply side of energy efficiency and the development of energy supply by renewable energy sources with low carbon-dioxide emission.

The Energy Sustainability Index measures the environment-depending performance of a given country at a given time. It includes the wider energetics performance of the country, the living standards as well as the changes in economic and political environment. Thus the Energy Sustainability Index is a complex index consisting of more social-economic, environmental and institutional indicators, which determine and influence the environmental sustainability at national level.

### Table 2: Energy Sustainability Index ranking

<table>
<thead>
<tr>
<th>Countries</th>
<th>2012 Rank</th>
<th>2011 Rank</th>
<th>2010 Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Czech Republic</td>
<td>29</td>
<td>26</td>
<td>22</td>
</tr>
<tr>
<td>Hungary</td>
<td>19</td>
<td>21</td>
<td>25</td>
</tr>
<tr>
<td>Poland</td>
<td>47</td>
<td>53</td>
<td>47</td>
</tr>
<tr>
<td>Slovak Republic</td>
<td>17</td>
<td>20</td>
<td>17</td>
</tr>
</tbody>
</table>

Source: WEC (2012)

Out of the examined countries, Slovakia was the best in 2012, Hungary – the performance of which has substantially improved in the recent years – was slightly behind. The Czech Republic fall back seven places compared to 2010. The country with the weakest performance regarding Energy Sustainability Index was Poland.

A number of papers deals with the analysis of energy consumption. Dushko et al (2011) use regression analysis to examine the impact of global energy production and consumption on population and growth per person. Their results confirm that the GDP per person declines by 0.57% if the energy consumption increases by 1%. If energy production grows by 1%, the GDP increases by 1.51%. If the population increases by 1%, the growth declines by 0.098%. If the productivity in the energy sector increases by 1%, the growth will be at 1.32%.

Stocker et al (2011) and Delgado (2008) highlight in their paper that the use of renewable energy sources play an important role in reducing dependence on fossil energy sources, as well as in decreasing the emission of greenhouse gases and in the fight against climate change.

Dernbach (2008) underlines that energy efficiency can be achieved primarily by the decline of energy consumption. Considerable economic, safety, environmental and social advantages are resulted by the improvement of energy efficiency. He also notes that technological innovation, legislative and institutional arrangements are also needed to achieve this. He also deals with the expansion of using renewable energy sources. He regards renewable energy sources as the type of energy which grows the quickest and used in the smallest quantities. He forecasts the increase of renewable energy by 50% by 2030, which can be due to state support.

### MATERIAL AND METHOD

The analysis was made by using the June 2012 database of BP Statistical Review of World Energy. The GDP data came from the World Bank database calculated on purchasing power parity of 2005. The
purchasing power adjustment is needed because of the differences between national price levels and the overvaluation or undervaluation of national currencies compared to the US dollar.

The energy intensity of a country shows how much energy should be used in the given country to produce gross domestic product of one dollar or euro that is for one unit of GDP. The index can be written down as follows:

\[
EI = \frac{E}{Q} = \sum_i \left( \frac{E_i Q_i}{Q_i Q} \right) = \sum_i E_i S_i
\]

where

\( E_i \) = energy consumption in sector \( i \)

\( Q_i \) = economic activity variable for sector \( i \)

\( E \) = energy consumption in all sectors

\( Q \) = economic activity of all sectors

\( S_i = (Q_i/Q) \) = share of sector \( i \) in economic value of all sectors

\( EI_i = (E_i/Q_i) \) = Energy intensity of sector \( i \)

The energy intensity or, in other words, energy output rate depends on the economic structure of the country (what is the volume of heavy and light industry in the given country), climate as well as the energy consumption habits of the citizens and institutions in the country. The reduction of the index means the growth of energy intensity, that is the lower is the value of the index, the more intensively are the available energy sources used in the country.

The energy intensity can be calculated for the whole national economy, economic sectors, one given industrial sector, one given firm and for the consumption of primary energy sources, too. The reciprocal value of the index is the energy efficiency, which shows the economic value produced as the result of energy use.

The energy flexibility index expresses the percentage by which the volume of energy consumption changes if the GDP changes by 1%. The index can be laid down as follows:

\[
et = \frac{(\Delta EC_t / EC_t)}{(\Delta I_t / I_t)}
\]

where

\( t \) is a period given,

\( EC \) is energy consumption,

\( I \) is GDP,

\( \Delta \) is the change in the variable.
ENERGY CONSUMPTION IN THE EXAMINED COUNTRIES

The primary energy consumption decreased in all the four examined countries between 1990 and 2011. The greatest decline (16.52%) was seen in Slovakia. In Hungary, the primary energy use was reduced by 15.19%, while in the Czech Republic by 11.99%. The lowest decline in consumption was in Poland, where the primary energy use reduced by 2.85%.

The following figures demonstrate the primary energy use of the examined countries by types of energy between 1990 and 2011.

![Energy consumption data of the Czech Republic](source-image)

**Figure 3: Energy consumption data of the Czech Republic (mtoe\(^2\))**

Source: Own edition on the basis of PB (2012)

In the Czech Republic mostly coal is used as primary energy. The coal consumption declined substantially, by 43.28%, until 1999, and then it was stabilized around 20 mtoe. Oil consumption had an increasing tendency from 1994, then a decreasing one from 2009. The use of renewable energy and nuclear energy is permanently expanding in the Czech Republic. Out of the examined countries, the highest quantity of nuclear energy was used here. The consumption of nuclear energy was twice as high as in Hungary or in Slovakia. The natural gas consumption can be regarded steady from 1996.

In Hungary, the natural gas is that type of energy which is used in the greatest volume. Gas consumption increased by 63.51% from 1992 until 2005, then the consumption started to decline. In 2011, the quantity of consumed gas was 9.1 mtoe. Oil consumption declined by more than 32.26% until 2004, then it increased by 23.81% by 2006, afterwards it has been going down again. Coal consumption has declined by 51.76%. The use of renewable energy and nuclear energy has an increasing tendency, but its consumed quantity is lower than in the Czech Republic.

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\(^2\) mtoe: million tons of oil equivalent
As regards the energy consumption of Poland, the coal is used the most. The coal consumption declined by 35.29% until 2009, then it started to increase again. The consumption of oil and gas is increasing, but the intensity of growth is behind the decline of coal use. The use of renewable energy sources has an upward tendency in Poland. Out of the examined countries, this one uses the highest quantities of renewable energy sources. The use of coal, natural gas and oil is also the highest in Poland.
Figure 6: Energy consumption data of Slovakia (mtoe)

Source: Own edition on the basis of PB (2012)

The most important energy source is the natural gas in Slovakia. Its consumption declined significantly in 2009, and then it started to increase. The consumption of nuclear energy grew by 37.03% in 2000 compared to the base year, and then it decreased. In 2011, Slovakia used almost the same amount of nuclear energy than Hungary. The volume of hydroelectric energy use was the highest in this country, but the consumption of renewable energy sources was the lowest here. The lowest quantity of gas and oil was consumed in Slovakia.

On the basis of EUROSTAT data, the energy use per sector has changed as follows:

The volume of energy used by the industry declined substantially in the examined countries compared to 1990. The quantity of energy consumed by the industrial sector decreased to 78.30% in the EU27 member countries by 2011. The change was much more considerable in Hungary and Slovakia, where the volume of the utilized energy was cut in more than half by the end of the examined period.

The energy use of service sector increased by 30.42% in EU27 countries. The change was more substantial in Hungary and Poland. In the Czech Republic, the energy use of services did not change by 2011, but in Slovakia it declined to 43.82%.

The energy need of the transport sector significantly increased during the examined period. The energy use of transport sector increased by 141.56% in Poland, and by 125.04% in the Czech Republic. By the diminishing importance of agriculture, the quantity of energy used in this sector declined heavily, too. The quantity of energy used in agriculture increased only in Poland, by 7.68% in 2011. In Slovakia, the volume of energy used in agriculture declined below 20%. The energy consumption of households increased by 6.53% in Poland and decreased in all the other countries: to 67.74% in the Czech Republic, to 78.35% in Hungary and to 95.03% in Slovakia.

The primary energy consumption per capita index is often used for the comparison of countries. The energy consumption per person is the ratio of primary energy consumption and population. The energy consumption per person is usually higher in the developed countries than in the developing ones. The index is often used for the estimation of welfare in a country. [BHATTACHARYYA, 2011].
Table 3: Total Primary Energy Consumption per Capita (Million Btu/Person)

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Czech Republic</td>
<td>....</td>
<td>151.59</td>
<td>136.92</td>
<td>151.95</td>
<td>155.97</td>
<td>154.48</td>
</tr>
<tr>
<td>Hungary</td>
<td>113.90</td>
<td>100.62</td>
<td>100.76</td>
<td>115.13</td>
<td>105.20</td>
<td>....</td>
</tr>
<tr>
<td>Poland</td>
<td>103.63</td>
<td>95.88</td>
<td>93.77</td>
<td>95.50</td>
<td>105.43</td>
<td>108.47</td>
</tr>
<tr>
<td>Slovakia</td>
<td>....</td>
<td>149.91</td>
<td>145.36</td>
<td>152.88</td>
<td>141.14</td>
<td>133.80</td>
</tr>
<tr>
<td>EU 27</td>
<td>149.13</td>
<td>145.90</td>
<td>152.35</td>
<td>157.28</td>
<td>149.06</td>
<td>....</td>
</tr>
</tbody>
</table>

Source: Own edition on the basis of EIA data

In the European Union the average energy consumption per person is higher than in the examined countries. The average primary energy consumption per person is the highest in the Czech Republic. Its degree exceeded the average of the European Union by 4.64% in 2010. The value of the index is the lowest in Poland, where the energy consumption per capita is 100.08 million Btu/person on average.

Table 4: Number of population in million person

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Czech Republic</td>
<td>10.30</td>
<td>10.33</td>
<td>10.27</td>
<td>10.24</td>
<td>10.52</td>
<td>10.55</td>
</tr>
<tr>
<td>Hungary</td>
<td>10.38</td>
<td>10.35</td>
<td>10.21</td>
<td>10.09</td>
<td>10.00</td>
<td>9.97</td>
</tr>
<tr>
<td>Poland</td>
<td>38.06</td>
<td>38.59</td>
<td>38.45</td>
<td>38.17</td>
<td>38.18</td>
<td>38.22</td>
</tr>
<tr>
<td>Slovakia</td>
<td>5.27</td>
<td>5.36</td>
<td>5.39</td>
<td>5.39</td>
<td>5.43</td>
<td>5.44</td>
</tr>
</tbody>
</table>

Source: Own edition on the basis of World Bank data

The volume of energy consumption per person depends on the volume of primary energy used and the trends in population. Out of the examined countries, the size of population is almost the same in the Czech Republic and Hungary, but the population is permanently declining in Hungary while it has an increasing tendency in the Czech Republic. The number of inhabitants in Slovakia is almost half as much as in the Czech Republic and it has an expanding tendency. There are, however, more than three times as many people living in Poland than in Hungary, but the number of population shows a declining tendency in Poland, too.

ANALYSIS OF ENERGY INTENSITY

The declining energy intensity affects the improvement of energy efficiency and the structural changes of economy. This latter includes the shift of industry towards services which are typically less energy-demanding. There is another shift within the industrial sectors from the energy-intensive industrial branches towards the branches with higher added value and lower energy need.
The value of energy intensity index has improved in all the four countries in the examined period compared to the base year. In the early 1990s, the value of the index was the highest in Slovakia and Poland. The energy intensity of Poland substantially declined until 2000, and then it was followed by further but slower decrease until 2009. The energy intensity of the Czech Republic reduced the least. The energy intensity of Hungary is the closest to the average of the European Union. The two indices have been moving together from 2000.

Table 5: Energy intensity of the total primary energy use (Ktoe/thousand US$ PPP 2005)

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. H</td>
<td>0.1974 H</td>
<td>0.1835 H</td>
<td>0.1617 H</td>
<td>0.1494 H</td>
<td>0.1405 H</td>
<td>0.1350 H</td>
</tr>
<tr>
<td>2. CZ</td>
<td>0.2550 P</td>
<td>0.2213 P</td>
<td>0.1931 P</td>
<td>0.1805 P</td>
<td>0.1613 P</td>
<td>0.1479 P</td>
</tr>
<tr>
<td>3. P</td>
<td>0.2827 CZ</td>
<td>0.2373 CZ</td>
<td>0.2245 CZ</td>
<td>0.2184 SK</td>
<td>0.1712 SK</td>
<td>0.1532 SK</td>
</tr>
<tr>
<td>4. SK</td>
<td>0.2945 SK</td>
<td>0.2613 SK</td>
<td>0.2597 SK</td>
<td>0.2213 CZ</td>
<td>0.1860 CZ</td>
<td>0.1736 CZ</td>
</tr>
</tbody>
</table>

Source: Own calculation on the basis of World Bank and PB (2012)

The value of energy intensity index of the countries declined by 40.79% on average in the examined period, which means substantial improvement in regards to energy efficiency. The value of median and standard deviation also decreased which indicates growing energy efficiency, too. On the basis of the ranking set of the examined countries, Hungary is the most energy-intensive country during the examined period. The least energy intensive is Slovakia, then the Czech Republic.
The changes of energy intensity in connection with oil, gas, coal and renewable energy consumption are demonstrated by the following tables.

**Table 6: Energy intensity of oil consumption (Ktoe/thousand US$ PPP 2005)**

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>P</td>
<td>0.0433</td>
<td>0.0481</td>
<td>0.0432</td>
<td>0.0402</td>
<td>0.0355</td>
</tr>
<tr>
<td>2.</td>
<td>CZ</td>
<td>0.0482</td>
<td>0.0488</td>
<td>0.0445</td>
<td>0.0419</td>
<td>0.0402</td>
</tr>
<tr>
<td>3.</td>
<td>SK</td>
<td>0.0572</td>
<td>0.0530</td>
<td>0.0458</td>
<td>0.0423</td>
<td>0.0409</td>
</tr>
<tr>
<td>4.</td>
<td>H</td>
<td>0.0634</td>
<td>0.0558</td>
<td>0.0474</td>
<td>0.0457</td>
<td>0.0429</td>
</tr>
</tbody>
</table>

*Source: Own calculation on the basis of World Bank and PB (2012)*

The energy intensity of oil consumption improved by 29.35% on average within the examined period. The ranking of countries was different in every examined period.

**Table 7: Energy intensity of gas consumption (Ktoe/thousand US$ PPP 2005)**

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>P</td>
<td>0.0236</td>
<td>0.0227</td>
<td>0.0222</td>
<td>0.0233</td>
<td>0.0214</td>
</tr>
<tr>
<td>2.</td>
<td>CZ</td>
<td>0.0406</td>
<td>0.0435</td>
<td>0.0426</td>
<td>0.0400</td>
<td>0.0328</td>
</tr>
<tr>
<td>3.</td>
<td>H</td>
<td>0.0771</td>
<td>0.0717</td>
<td>0.0711</td>
<td>0.0693</td>
<td>0.0599</td>
</tr>
<tr>
<td>4.</td>
<td>SK</td>
<td>0.0867</td>
<td>0.0857</td>
<td>0.0838</td>
<td>0.0724</td>
<td>0.0611</td>
</tr>
</tbody>
</table>

*Source: Own calculation on the basis of World Bank and PB (2012)*

The energy intensity of gas consumption improved by 33.57%. In case of this type of energy, the ranking among countries is steadier. The most intensive country is Poland. Hungary slipped from the third place to the fourth one in the ranking.
Table 8: Energy intensity of coal consumption (Ktoe/thousand US$ PPP 2005)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>H</td>
<td>0.0272</td>
<td>H</td>
<td>0.0255</td>
<td>H</td>
<td>0.0181</td>
</tr>
<tr>
<td>2.</td>
<td>SK</td>
<td>0.0866</td>
<td>SK</td>
<td>0.0770</td>
<td>SK</td>
<td>0.0499</td>
</tr>
<tr>
<td>3.</td>
<td>CZ</td>
<td>0.1449</td>
<td>CZ</td>
<td>0.1227</td>
<td>CZ</td>
<td>0.1143</td>
</tr>
<tr>
<td>4.</td>
<td>P</td>
<td>0.2092</td>
<td>P</td>
<td>0.1573</td>
<td>P</td>
<td>0.1275</td>
</tr>
</tbody>
</table>

Source: Own calculation on the basis of World Bank and PB (2012)

The energy intensity of coal consumption improved to the greatest extent (by 56.58%) but still this type of energy has the most unfavourable intensity. The ranking between countries has not changed during the examined period. In regards to coal, the lowest intensity could be observed in that country – Poland – which uses the highest quantity of coal.

Table 9: Energy intensity of renewable energy consumption (Ktoe/thousand US$ PPP 2005)

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>SK</td>
<td>0.0000</td>
<td>H</td>
<td>0.0000</td>
<td>SK</td>
<td>0.0000</td>
</tr>
<tr>
<td>2.</td>
<td>H</td>
<td>0.0000</td>
<td>SK</td>
<td>0.0001</td>
<td>P</td>
<td>0.0002</td>
</tr>
<tr>
<td>3.</td>
<td>P</td>
<td>0.0001</td>
<td>SK</td>
<td>0.0002</td>
<td>CZ</td>
<td>0.0004</td>
</tr>
<tr>
<td>4.</td>
<td>CZ</td>
<td>0.0005</td>
<td>CZ</td>
<td>0.0008</td>
<td>H</td>
<td>0.0011</td>
</tr>
</tbody>
</table>

Source: Own calculation on the basis of World Bank and PB (2012)

The data regarding renewable energy consumption includes the use of wind, geothermic, solar, biomass energy and energy produced of wastes. The consumption of this kind of energy has only a little share in the examined countries, but it has been expanded substantially in the recent years. Therefore the energy intensity has also improved, by 86.50%. The most intensive country is Slovakia, while the least intensive is Hungary.

The energy demand in the developed countries is un flexible, thus the value of energy flexibility index in absolute value is less, than 1. As regards developing countries, the energy demand is more flexible, thus the value of the index is usually above 1. The value depends on the level of economic development as well as the structure of the economy in the given country. [BHATTACARYYA, 2011], [MARKANDYA et al 2004].
Table 10: Changes in energy flexibility

<table>
<thead>
<tr>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Czech Republic</td>
<td>-78.64</td>
<td>-0.65</td>
<td>-1.96</td>
<td>87.54</td>
<td>14.21</td>
<td>-2.14</td>
<td>-0.66</td>
<td>1.06</td>
<td>3.05</td>
</tr>
<tr>
<td>Hungary</td>
<td>16.97</td>
<td>-2.86</td>
<td>-125.78</td>
<td>-51.78</td>
<td>-0.74</td>
<td>-0.05</td>
<td>-0.75</td>
<td>1.11</td>
<td>-6.25</td>
</tr>
<tr>
<td>Poland</td>
<td>-1.69</td>
<td>-0.72</td>
<td>3.94</td>
<td>-21.23</td>
<td>-4.69</td>
<td>2.55</td>
<td>14.87</td>
<td>-1.97</td>
<td>-3.38</td>
</tr>
<tr>
<td>Slovak Republic</td>
<td>-69.07</td>
<td>-1.04</td>
<td>-8.34</td>
<td>-5.51</td>
<td>-1.20</td>
<td>4.70</td>
<td>2.34</td>
<td>0.87</td>
<td>5.57</td>
</tr>
</tbody>
</table>

Source: Own calculation on the basis of World Bank and PB (2012)

The energy flexibility index in the examined countries is rather diverse in regard to the changes of energy consumption and the changes of GDP measured at purchasing power parity. If the changes in energy consumption exceed the degree of GDP growth, the value of the index is above 1. The demand for energy was inflexible in Hungary and the Czech Republic in 2009, in Slovakia in 2010, because the GDP decline to a greater extent than the degree of energy consumption. In 2009, the value in Poland was 14.87, because the energy consumption decreased by 9.91%, while the GDP dropped only by 0.67%. In 2011, the energy demand was flexible in all the four countries.

CONCLUSIONS

The paper reviews the primary energy use by types of energy in the Czech Republic, Hungary, Poland and Slovakia, as well as the changes of energy intensity from 1990 to 2011. The primary energy consumption declined in all the four countries compared to the base period. The greatest reduction in energy use was reached by Slovakia, while the smallest decline was observed in Poland. The degree of energy use per capita, however, was the smallest in Poland, in spite of the fact that it has the highest population. The energy use per person is the highest in the Czech Republic.

The energy intensity index improved by 40.79% on average in the examined countries. The reason for this is that the energy use by sectors has changed substantially by restructuring the economy. The industry has shifted towards the service sector which is less energy intensive. The energy use of transportation industry, however, has grown very high. The energy use of household sector declined in all the countries, except for Poland.

On the basis of the ranking among countries, Hungary uses the available primary energy the most intensively. Out of the types of energy, coal has the lowest energy intensity. The coal intensity is the least favourable in case of Poland, although this country uses the highest quantity of this type of energy. The energy intensity of oil and gas consumption is almost the same. The gas consumption is the most intensive in Poland. The use of renewable energy sources has started to increase in the examined countries from the middle of the 1990s. The use of this type of energy is still rather low compared to the other sources of energy. Slovakia uses the renewable energy sources the most intensively.

The energy intensity and the use of renewable energy sources mean two environmentally friendly solutions of energy production and use – often next to each other. According to the experiences of the recent years, at present the improvement of energy intensity is the most efficient tool of environmental protection and emission reduction. Since the energy intensity of the examined countries is behind the average of the European Union, it is important to transfer and implement the efficient energy utilization methods and techniques from EU as soon as possible.
Sustainable consumption and production means that the natural resources and energy is used more efficiently and the emission of greenhouse gases is reduced together with other harmful environmental impacts. The point is that the different products and services are produced and used in a way which endangers the environment to the possible lowest extent. The aim is to create better quality of life besides fulfilling the basic needs of people for goods and services and also to ensure sufficient volumes of resources for the future generations.

REFERENCES


TENDENCIES OF DEVELOPMENT OF MARKET INFORMATION AND COMMUNICATION SERVICES IN THE REPUBLIC OF TAJIKISTAN

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Tajik Technical University named after academician M. S. Osimi
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Abstract
The aim of this study was to identify the key trends of the market development of information and communication services (ICS), of the Republic of Tajikistan. We studied the nature of market information - communication services in the Republic of Tajikistan in a modern market economy, as well as the results of the degree of development of information and communication services in the Republic of Tajikistan on the components. A comparative market analysis ICS Tajikistan in Central Asia.

INTRODUCTION
Market ICS is a set of economic, legal and institutional relations in trade information services arising between suppliers and consumers, and is characterized by the conditions and mechanisms of delivery. Market-based ICS are the information and communication technologies, including: the creation and maintenance of channels and data networks to build local and global information networks and nodes, the deployment of servers and workstations, creation of advanced network and technical infrastructure to enable future users to ensure free access to information and counterparties. Currently, information and communication technologies are widely used in the economy of various countries. This gives the opportunity to improve the socio-economic situation of the population, as well as to promote stable economic growth. Today, there is a rapid growth of the global information on the Internet, increase the level of computer literacy of the population, the ubiquity of the latest available communications, telecommunications, computer technology, and the active dissemination of efficient methods for the exchange of information through electronic networks of global reach. All of this suggests the need for more and better information exchange state, households and businesses. For Tajikistan, the market of information and communication technology as a form of economic organization of society, with a high level of information, based on the massive use of the Internet is great importance for improving the level and quality of life, especially in areas far from the administrative centers. It enhances the competitiveness of the country, extends its integration into the world economic system, increases the efficiency of public administration.

GLOBAL EXPERIENCE IN DEVELOPING AND IMPLEMENTING PROGRAMS OF ICS DEVELOPMENT
In response to the challenges of the information age, and opened them to almost all developed and many developing countries have begun to develop and implement national information society. The first such program "National Information Infrastructure" appeared in the early 90's in the U.S. [1-2]. Europe is properly assessed and U.S. initiatives to address the backlog of perceived announced project
"Information Society Technologies", which found its development initiative of the European Commission in 1999, "e-Europe" [3-5]. This project was designed to intensify the formation of a European information society.

In the Republic of Tajikistan, national program "The concept of the state information policy of Tajikistan" was adopted in 2008. A key objective of these and subsequent programs is to achieve a leading position in economic and social development of society. They have a distinct socio-economic orientation, and their main object is a person, his values and needs. Priority areas identified in the program are practically identical to each other in the areas of legal development, human resources, improvement of information and communication infrastructure. Much attention is paid to them in confidence of citizens to information and communication technologies, support for small and medium businesses in the field and monitoring the quality and competitiveness of the "human capital." A distinctive feature of the majority of adopted programs and strategies for their implementation is the fact that all information technology, e-commerce, e-government, e-business, and so they are regarded not as an independent alone activity, but as an integrated environment, which is a common foundation for the transition to the digital economy and the information society. The active development of information and communication technologies in the late XX and early XXI century led to the fact that information and communication technology is seen as one of the major sources of growth in the international competitiveness of traditional industries. Undoubtedly, the development of information and communication technologies have had an impact on the investment attractiveness of the national economy. These experts analyst firm International Data Corporation (IDC) shows that the global market for hardware solutions for information security in the I quarter of 2012 totaled $ 1.9 billion, which is 9.7% higher than last year's result. In quantitative terms, the market grew by 12.9% to 511,220 thousand units. Experts note the high growth market in all regions of the world, except for the Asia-Pacific region. Here, only Japan showed an increase of more than 10%. (Figure 1).

![Figure 1. The dynamics of the global market for information and communication services (according to IDS)](image_url)
DEVELOPMENT OF INFORMATION AND COMMUNICATION SERVICES IN THE REPUBLIC OF TAJIKISTAN

Currently the fastest growing market is the market of services of information and communication services. It should be noted that the spread of information and communication technologies in public institutions, businesses, and the public has given an impetus to processes of translation of traditional relations between citizens and the authorities in electronic form. In many countries, government relations with the business community is now almost completely transferred to an electronic basis and ahead of the development of systems for public services to the population [6-7].

The scale and intensity of the creation of systems of delivery of public services to the public in electronic form, are largely determined by the spread of information and communication technology in society and the legal capacity of civil society. Statement of the many challenges for the development of ICS services due to the need to address the everyday nature and enhance the experience for the citizens to information and communication technologies [8-9].

One of the solutions to the problems of the market of information and communication services in the development of Tajik content serves the experience of Kazakhstan in 2008, when they were introduced preferential tariffs for access to the internal resources of the Internet, increase the speed of internal traffic and free access to sites using local hosting providers.

Positive development in the field of content development in the Republic of Tajikistan is the number of active domains, representing almost 43%. World statistics show that on average only 33% of all registered domains are active. So in April 2012 the number of registered sites in the world is 314 million units and active million units 108. In Tajikistan, the active domains above the world average, and almost half of registered domains maintained by the owners and promote the development of information and communication services. One of the priorities of the creation and development of content is e-government. Today, with the initiative of e-government are the Tajikistan branch of open society - Assistance Foundation, the Center for Strategic Studies under the President of Tajikistan, scientists and professionals working in the field of information and communication technologies. Market information and communications services related to the development of e-government, corporate networking in government to pass the departmental information and databases, have relatively rapid development. For example, the Tax and Customs Committee of the Republic of Tajikistan provide their services through information - communication technologies, individuals and legal entities.

Providing some additional markets (excluding telecommunications) services information - communication technologies, providing education and training, consultancy in the field of information and communication technology, engineering services, software, content, design and technology, e-commerce and business, e-government, advertising and marketing develops slowly. Development of information and communication services in the Republic of Tajikistan has expressed uneven. The analysis shows that the means of communication and networking equipment ahead of the development of other components of information and communication technologies, such as hardware, software, services, information and communication technologies and other accompanying products and services.

IMPACT ON THE VALUE OF INFORMATION AND COMMUNICATION SERVICES

The cost of services of information - communication technologies affect the demand of the services themselves, and is a key factor in the development of information and communication technologies. In Tajikistan, it is determined by the Ministry of Communications, the basket price for ICS. Provides an
indicator of the price of services of information and communication technologies, including fixed-line telephony, mobile telephony and fixed-station broadband over domestic national income of the country.

Table 1. Price Basket of information and communication technologies Central Asian countries in 2011, 2012. (In U.S. $)

<table>
<thead>
<tr>
<th>Country</th>
<th>Price Basket of information and communication technologies</th>
<th>Changes in 2012/2011</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2011</td>
<td>2012</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>111.75</td>
<td>117.64</td>
</tr>
<tr>
<td>Kyrgyzstan</td>
<td>208.75</td>
<td>237.51</td>
</tr>
<tr>
<td>Uzbekistan</td>
<td>312.13</td>
<td>382.8</td>
</tr>
<tr>
<td>Tajikistan</td>
<td>214.98</td>
<td>244.3</td>
</tr>
</tbody>
</table>

Free access and the development of companies that provide services to the ICS, are reducing the price of market information services, and companies providing services to increase profits through economies of scale. Overall, in 2012. Republic of Tajikistan Price Basket of information and communication technologies was 35.83% (about 215 U.S. dollars) on the share of ICS in 2011. 34.9% (over 244 USD) and the price increase was 14%. In Uzbekistan, in this period basket prices for ICS services is up to U.S. $ 312, respectively, and 383 U.S. dollars, rising by 23%. In the analyzed period, the rise in prices for ICS services in the Kyrgyz Republic and Tajikistan have the same rate of 14%, but in Tajikistan services more expensive on average 10 dollars towards Kyrgyzstan. In Kazakhstan Price Basket ICS analyzed period composes $ 112 and 118 dollars respectively. ICS prices in Kazakhstan for the year increased by only 5%, which is about U.S. $ 6. Today, in Kazakhstan, the price of services of information and communication market are within 4% of the share of gross national income of the country and relatively accessible to the public. Price Basket ICS for Central Asian countries in 2011 to 2012 (in U.S. dollars) is shown in Table 1. [8]

Price Basket of information and communication technology in the world in 2011. was on average 13% of the share of gross national income. Ranges from 1.5% in developed countries and in developing countries to 17.5%. Thus, countries with high income pay for ICS services are relatively few, while those with low income pay considerably more. For example, the price of broadband connections in the developing countries is 167% of the share of ICS, while in developed countries, a similar connection is only 2%. The countries with the lowest prices for ICS services include Macao (China), Hong Kong (China), Singapore, Luxembourg, Denmark and the United Kingdom [7].

Table 2 shows the comparative Baskets prices for ICS services in Central Asia analysis with respect to the leading country in the region - Kazakhstan. Basket price of fixed telephony services in the Republic of Tajikistan in 2012. 1.5% ($ 10.5), mobile telephony 3.2% ($ 22.4), and Broadband 621.4% ($ 4,349.8) on the share of gross national income. Cart ICS Price Basket in Tajikistan higher prices by 92% in Kazakhstan, Uzbekistan more than 2.5 times, in Kyrgyzstan by 87%.
Table 2. Comparative Analysis of Price Basket ICS in Central Asia in 2012

<table>
<thead>
<tr>
<th>Country</th>
<th>Basket price of fixed telephony services</th>
<th>Basket prices of mobile telephony</th>
<th>Basket price of fixed broadband</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>U.S. dollars</td>
<td>% from leader</td>
<td>U.S. dollars</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>27.68</td>
<td>100</td>
<td>173</td>
</tr>
<tr>
<td>Kyrgyzstan</td>
<td>14.79</td>
<td>53</td>
<td>42.63</td>
</tr>
<tr>
<td>Uzbekistan</td>
<td>13.2</td>
<td>48</td>
<td>36.3</td>
</tr>
<tr>
<td>Tajikistan</td>
<td>10.5</td>
<td>38</td>
<td>22.4</td>
</tr>
</tbody>
</table>

DEVELOPMENT OF INFORMATION AND COMMUNICATION SERVICES IN THE REPUBLIC OF TAJIKISTAN

In the Republic of Tajikistan for the past 5 years (2008 to 2012) has been a significant development of the market of information - communication technologies. At present, the function 634 organizations providing services to the public communication, of which 475 operate in rural areas, accounting for 75% of the whole population. During 2008 to 2012 number of businesses and organizations working in this area has decreased by 23, or 4%. Most sensitive to the number of new technologies have become long-distance calls and telegrams and sending letters by mail. Mobile telephony has replaced half the normal long-distance calls and perform forecasts suggests that in 2013, the number of long-distance calls in the general population is about 4 million units.

<table>
<thead>
<tr>
<th>Years</th>
<th>Users of the Internet network</th>
<th>The growth rate of the previous year,%</th>
<th>Number people</th>
<th>Percentage of Internet users online (% of total population)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>2000</td>
<td>100.00</td>
<td>6702382</td>
<td>0.03</td>
</tr>
<tr>
<td>2007</td>
<td>19500</td>
<td>9.75 times</td>
<td>6702382</td>
<td>0.29</td>
</tr>
<tr>
<td>2008</td>
<td>35991</td>
<td>84.57</td>
<td>7063800</td>
<td>0.51</td>
</tr>
<tr>
<td>2009</td>
<td>81824</td>
<td>2.27times</td>
<td>7215700</td>
<td>1.13</td>
</tr>
<tr>
<td>2010</td>
<td>130838</td>
<td>59.90</td>
<td>7373800</td>
<td>1.77</td>
</tr>
<tr>
<td>2011</td>
<td>600000</td>
<td>4.59 times</td>
<td>7349145</td>
<td>8.16</td>
</tr>
<tr>
<td>2012</td>
<td>700000</td>
<td>116.67</td>
<td>7487489</td>
<td>9.35</td>
</tr>
</tbody>
</table>

According to the International Telecommunication Union, in early 2011, the number of mobile subscribers exceeded the line at 50% of the world population, and the development of mobile communications continues to be the main driving force behind the growth of ICS, especially in
developing countries. Mobile communications market in Tajikistan is developing since 1996. It competes 9 companies, eight of which are located in Dushanbe and Khujand in one company. Market leader in providing mobile communication today is the OJSC "Babylon-M", which occupies 34.1% of the market share. In 2012, for companies of Eurasia, a new single brand, and the company "Indigo Tajikistan" and "SP Somoncom" merged into a new group under the new brand "Tcell", which occupy 28.8% of market share. Ltd. "Tacom" Tajik cellular operator is licensed to provide cellular services in Tajikistan in GSM 900/1800 UMTS, and 80% stake in OOO "Tacom" belong to the Russian JSC "VimpelCom. Today «Tuck” promotes the brand «Beeline» and takes 19.9% share of the total market. In Tajikistan, the number of mobile phone users in 2012 was about 7 million units, and in relation to 2006. The increase amounted to more than 5 times to 2008. 380 times, by 2010, more than 22.5 times and 3.7 times in 2012. Today, statistics show that the two residents of the Republic of Tajikistan has an average of 1.5 phone. In contrast, the number of mobile Internet users is the network in 2006 amounted to 2,000 units, and the percentage of coverage internet network was 0.03%. In 2007 number of Internet users network made 19.5 thousand units and the percentage of coverage of 0.29%. In 2008, the number of users was more than 35 thousand units, the growth rate of 84.57%, and the percentage of coverage of 0.51%. In 2009 number of Internet users reached more than 81 thousand units increase by 2 times, and the percentage of coverage of 1.13%, in 2010 the number of users reached 130 thousand units, the growth rate of 59.9% and the percentage of coverage of 1.77% (Table 3). The highest increase in the number of users is (more than 4) times in 2011. When the cost of using the Internet to reach 1.5-2.5 somoni / h in the common areas and the emergence of the Internet connection through mobile phones. In 2011 the proportion of Internet users in the network reached 8.16%, while in the U.S. and Canada share of Internet users was up 74.2%, Europe - 52%, China - 26.9%, Russia - 32.3% in Kyrgyzstan - 15.6%, Kazakhstan - 14.9%, in Uzbekistan, to 8.2%, while in Turkmenistan - 1.5%. Analysis of data from 2012 number of Internet users was 7 network 00 thousand units, the growth rate - 116.67% and the percentage of coverage of 9.35%.

CONCLUSION

This article identifies the key features of the industry of information - communication services in the Republic of Tajikistan. The main trends in the industry in recent years has been the rapid technical change. Most developed service is mobile and the Internet, which currently dominate the industry revenues. The influence of the development of information and communication services, the growth of the overall economy, quantified basket in their prices, its share in GDP per capita is straight. A comparative analysis of the services market in the Central - Asian region identified priorities in the development of the industry and its structural changes aimed at accelerating the development of the economy as a whole.

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CROSS-BORDER CONNECTEDNESS IN THE INTERNATIONAL FINANCIAL NETWORK
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Abstract

The article analyzes the application of network theory in assessment of international financial integration. It is argued that international financial openness should be complemented with the issues of international financial connectedness. International financial connectedness incorporates various aspects of international financial linkages and the structure of international financial network.

Key words: international finance, network, integration, connectedness.

One of the major structural changes in financial systems in recent decades has been the rapid growth in international financial integration (Lane and Milesi-Ferretti 2007). Under the conditions of financialization, liberalization and destabilization of economies, the pattern of a country’s involvement into international financial flows becomes even more crucial to its internal performance.

On one hand, increasing international financial connectedness opens up new funding and investment opportunities contributing to faster economic growth, on the other hand the possibilities of local disruptions transmission to other countries increases, growing imbalances of financial linkages as well as misallocation of capital puts some countries under pressure.

Therefore it is more and more debated in the literature whether greater financial connectedness to the outside world is beneficial or detrimental; what are the patterns and trends of international financial flows; what are their determinants and etc. (Waysand, Ross, Guzman, 2010; Minoiou, Reyes, 2010; Čihák, Muñoz, Scuzzarella, 2011; Beck, Degryse, Kneer, 2012; Lane, McQuade, 2012 and etc., Arribas et al., 2006, 2009, 2011)

The recent financial crises of 2007/2008 y. has highlighted that the phenomena of financial integration has not been fully disclosed using traditional view, as the systemic risk as well as spreading of the crises was not foreseen and the capital misallocation is increasing. As the interdependence of financial system participants is growing in a fast pace the scientific question of how to fully evaluate the level and the patterns of international financial integration is being raised.

More and more researchers (Schweizer et al., 2009; Oatley et al., 2011) as well as practitioners (Haldane, 2009; Hale et al., 2011) argue that not only the value of international financial position of a country is important but the distribution and characteristics of its financial linkages as well. The deeper insight into how countries with no direct financial linkages are connected in the international financial system would help to disclose not only systemic risk (Vinals, 2010; Gabrieli, 2012) or contagion effects (Battiston et al, 2011; Elliot et al., 2013), but the macro dynamics of the whole financial system as well.

Therefore this article aims at discussing how new patterns of international financial integration could be disclosed on the bases of network theory application to international financial system. With the aim of improving the available indicators of financial integration, this study develops a new indicator, focusing
on quantities, which incorporates the structural features of international financial network. Developing a network based measure of international financial integration we can obtain the macro prudential tool for evaluating and regulating not only the systemic risk but also the macroeconomic dynamics.

**Approaches to international financial system**

The approach to international financial connectedness is closely related to how international financial system is conceptualized (Fig. 1). According to T. Oatley et al. (2011), the system-level considerations have long been ignored in the international financial research. The most scientific and empirical studies were conducted on the basis of reductionist methodological view where the system is considered as a collection of separate objects. The international financial system is considered as integrated, as integrated its average component is. But as the practice shows such point of view is not always right. As R. Moghadam (2011) remarks the participants of international financial system face with constant tradeoff between individual benefits and systemic risk. It means that individual countries seek for higher risk diversification which leads to higher system connectedness, while this increased connectedness leads to bigger systemic risk. This tradeoff could be understood basing on the insights from network theory, which is more and more applied to understand complex financial system.

![Fig. 1. Scientific approaches to international financial connectedness](image)

The researchers are more and more supporting the connectivism approach rather than reductionism or complexity theory. As A. L. Barabassi (2011) states: “Reductionism, as a paradigm, is expired, and complexity, as a field, is tired. Data-based mathematical models of complex systems are offering a fresh perspective, rapidly developing into a new discipline: network science.”
This scientific methodology trend is being witnessed in most of scientific research fields since the second half of XX century (Newman, 2002). As M. Gabrielli (2012) points out, even though the network theory has been applied in several fields of economics, only few attempts have been made to understand financial system as a network. S. Tordoir (2013) describes international financial system as the best platform for applying the network theory because of its multilayered character.

Applying the network approach to international financial system individual financial institutions or countries are considered as network nodes and their financial linkages as network links that leads to conceptualization of international financial system as an international financial network. This approach considers players of the international financial system equally important as their interconnections and the system itself. This paper provides evidence in support of this new stance, according to which the structure of financial links between individual countries have the potential to represent a new and valuable tool for the macro-prudential analysis of international financial integration.

Approaches to international financial connectedness

The concept of international financial connectedness is determined by the conceptualization of international financial network and its elements: a set of nodes and their bilateral links. Even though there exist researchers that conceptualize international financial network via formal financial links (f. e. bilateral investment treaties (Saban et al., 2010)), more often informal correlation or flow based financial linkages are used. Recently the flow linkages are being highlighted because of their growing importance in the international financial market (f. ex. Speller, 2011). The mostly disclosed are international banking networks that have been analyzed by such authors as C. Minoiu, J. Reyes (2011), I. Arribas et al. (2009), G. Hale et al., (2011) and others. The international financial network conceptualization on the bases of international portfolio investment flows is less common.

The objects (nodes) of international financial network can be conceptualized as national financial sectors or as separate financial institutions. Both ways are common in the scientific literature. The research of financial network is conducted in national (f. ex. Iori et al., 2007) as well as international level (Chinazzi et al., 2012). It discloses that international financial connectedness is a multidimensional concept incorporating different aspects of connections among different objects of interest. This variety arises because of complex nature of international financial system, wide range of its objects and connections, different levels of analysis as well as its’ application area.

As some authors denote (Oatley, 2011; Schweizer, 2009 et al.), even though acknowledging the systemic nature of international financial integration, researchers tended to use individualized country level or institutional level based measures for international financial integration, based on the convergence of interest rates or the increase in the proportion of cross-border activities. Such approach covers only the one aspect of international financial connectedness – the depth - ignoring the breadth dimension. Such approach was determined by several factors: the underestimation of the relevance of international financial connectedness; the absence of appropriate bilateral data; the absence of appropriate analysis tools. According to this approach, the more financially open the object of interest is, the more financially integrated it is considered (pvz. Saunders et al., 2009; IMF et al., 2009; Gabrieli, 2012, etc.).

After incorporating the dimension of breadth in the concept of international financial integration, not only characteristics of the researched objects are being considered, but the distribution and patterns of their international financial links, characteristics of their direct financial partners, as well as their position in the international financial network. According to the IMF economist Camelia Minoiu (2012), the countries or financial institutions with high level of connectedness are described as “caught in the
web”. This approach let us consider the level of international financial connectedness as the level of involvement in the international financial network.

The depth based and breadth based approaches to international financial connectedness can be clearly detached in the historical perspective. The breadth based approach has been more widely used after the 2007/2008 crisis that has highlighted the importance of the proper evaluation of international financial connectedness. Since 2009 the bilateral international financial data bases were renewed or newly created. Even more, the wider and deeper application of network theory in the social sciences has provided researchers with valuable methodological tools.

**Network based methodology for evaluation of international financial connectedness**

This study supports that the measures of international financial integration should be complemented with the features of international financial connectedness. The first step in this approach is to identify the main objects and the structure of international financial network. If we denote a set of network nodes as N and a set of network links as A, the international financial network will be described as NET=[N,A]. In this article separate countries are considered as network nodes. As the most common international financial linkages are flow based, the author considers bilateral cross border financial flows as valued network links. As international flows are directional in their nature, every link is considered to have a direction. In such a case we would receive a valued directed international financial network.

The linkages of the identified network could be classified by their level. Direct bilateral financial linkages can be considered as first level linkages that connect countries to their nearest network neighbors. The linkages that a country’s nearest neighbors have are called as second level linkages in this article. The third level linkages are the rest linkages in the network that are helpful to describe the structural position of a particular country.

As the identified international financial links are directional, they can be classified as incoming or outgoing from the position of a separate country. Due to international imbalances, inward and outward connectedness of a particular country might have different characteristics.

On the bases of identified network, financial connectedness of separate countries could be described with a bunch of their financial linkages characteristics based on their value, number and distribution. The author of this article has synthesized the characteristics of the countries’ intertwining into international financial network. Summarizing the insights of different authors (Fagiolo, 2009, 2010; Chinazzi, 2012; Moghadam, 2012; Gabrieli, 2012 et al.) six characteristics of international financial connectedness were revealed (Fig.2). As it is showed in the Fig.2, the traditionally covered depth dimension of international financial integration leaves the breadth dimension uncovered that incorporates a lot of different indicators.

**Value intensity** describes how value intensive the international financial linkages of a particular country are at a particular time or period. The author suggests evaluating this feature with a network indicator of which measures the sum value of all financial linkages a particular country has in comparison to the network value. If we consider that international financial linkages have not only value, but the direction as well, we will have to consider both incoming and outgoing links from a particular country’s point of view. If we denote the value of cross-border portfolio investments from country $i$ to country $j$ as $w_{ij}$, incoming partners of a country $i$ as $N_i^{in}$ and outgoing partners as $N_i^{out}$ then $\text{intens}_i^{in} = \frac{\sum_{j \in N_i^{in}} w_{ij}}{\sum_{j \in N_i^{in}} w_{ij}}$, and $\text{intens}_i^{out} = \frac{\sum_{j \in N_i^{out}} w_{ij}}{\sum_{j \in N_i^{out}} w_{ij}}$. 
Linkages intensity discloses, how many direct financial partners a particular country has. It is suggested to measure by an indicator of node degree centrality, which measures the number of incoming and outgoing links in comparison to all possible links a country might have. If we denote \(a_{ij} = 1\) as an existing link between two countries \(j \rightarrow i\), then 

\[
\text{intens}^\text{in}_i = \frac{\sum_{j \in N} a_{ji}}{N-1}, \quad \text{and} \quad \text{intens}^\text{out}_i = \frac{\sum_{j \in N} a_{ij}}{N-1}.
\]

Entropy characteristic is determined for describing how equal a particular country distributes its international financial investments among its partners. It is an opposite indicator of concentration. If we denote the sum value of all incoming investments a country \(i\) has as \(s^\text{in}_i\), and the sum value of all outgoing investments as \(s^\text{out}_i\) then 

\[
\text{entrop}^\text{in}_i = 1 - \sum_{j \in N} \left( \frac{w_{ji}}{s^\text{in}_i} \right)^2, \quad \text{and} \quad \text{entrop}^\text{out}_i = 1 - \sum_{j \in N} \left( \frac{w_{ij}}{s^\text{out}_i} \right)^2.
\]

Acknowledging that indirect financial linkages are equally important, the characteristics of direct financial partners should also be incorporated into the measure of financial connectedness. These are named as assortativity measures in this article. Every country in the international financial network has incoming as well as outgoing partners that are called the nearest neighbors. Every nearest neighbor of a country \(i\) has a certain number of financial links of a certain value. It is suggested to incorporate the measures of average value intensity and linkages intensity of country’s \(i\) nearest incoming and outgoing neighbors. In fact, two countries with the same number of partners or the same engagement in world markets may have different centrality (and therefore may play a different role) depending on how their partners are connected, how the partners of their partners are connected, and so on and so forth. (Schiavo et al., 2010). The average linkages intensity of country’s \(i\) nearest incoming and outgoing neighbors is suggested to measure by an indicator of ANND (average nearest neighbor degree). This measure indicates how many linkages an average nearest neighbor of a country \(i\) has. If we count only incoming neighbors and denote the number of incoming links of a country \(i\) as \(d^\text{in}_i\) then 

\[
adn^\text{in}_i = \text{average nearest neighbor degree for incoming links}.
\]
In conclusion it could be noted that the analysis of theoretical as well as empirical studies showed that there exist two stances how researchers understand international financial connectedness: the reductionism and connectivism approaches. The latter approach is spreading more and more widely as researchers as well as practitioners acknowledge that not only the size of involvement into international financial system is important but also the distribution of international financial linkages as well as position in the system are essential. Network analysis is considered as the most appropriate methodology for realization of connectivism approach to international financial system. This study merges the different aspects of international financial connectedness into a composite methodological model. This
model could be applied in different financial markets for testing how participants of these markets are intertwined into the financial system.

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ASPECTS REGARDING FACTORIZING FUNDFUNDING OF EXTERNAL TRADE

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Abstract

The paper will discuss the topic of funding external trade activities by a modern funding method: factoring. We will analyse the way this operation is deployed, the advantages and disadvantages of using it, as well as accounting aspects as documented by the case study. Also, the study will be based on comparative analysis with other funding methods. Factoring is increasingly prevalingly being adopted as an external funding method for all categories of companies. Factoring credit is a one-off operation as its object is the value of one entity’s accounts receivable and not its general solvency. By this material we would like to offer a series of explanations related to the main factoring characteristics, as well as the reasons why this funding operation is increasingly used. Moreover, the paper will develop particular aspects related to factoring in Romania, from the perspective of companies the use this funding method.

Key words: internal factoring, external factoring, factor, seller, factoring cost

1. INTRODUCTION

Presently, the main challenge that companies face is the access to funds. Because of the gap between the delivery and collection time (due dates usually in 30, 60, 90 day) the entities have difficulties in financing the production cycle. Thus, they have to use different funding methods. Factoring funding, which used more and more frequently, is characterised by the operations resulted from the relation between the exporter (seller) with a factor. This relation is based on a contract by which the factor, in exchange for a commission, takes on the seller’s accounts receivable by paying the latter’s invoices (net of the factor’s discount fee-the commission). The factor is a specialized financial institution that lends the seller based on an ordinary credit contract and charges the legal interest rate since it covers the borrowed amount by the seller’s accounts receivable. Oftentimes, this operation is considered to be a simple invoice discount. In practice, it is an operation that should be taken into account as one of the funding methods available to exporters by the financial and banking institutions that fund trade activities.

Thus, the participants in this factoring operation of external trade are:
- the exporter, the seller of goods and the service provider;
- the factor (the institution specialized in factoring);
- the importer (the debtor)

Most part of the factoring operations involve the discount of the accounts receivable on the internal market of the seller and this is the reason why the factoring company must take the risks that may appear and pay the seller a percentage of the value immediately after invoicing. Sometimes factoring may take
more complex shapes, being used to different purposes: customer relations services, activity promotion, company bookkeeping operations, etc.

In the current economic climate, when companies have to face drops in sales and financial blocks, they have to look for alternative funding resources as another option rather than bank loans. So banks will grant more easily factoring loans which has already led to an increase in factoring in our country.

According to the Romanian Factoring Association (RFA), the factoring market grew by 12.8% in 2012 compared to 2011, from EUR 2.58 B in 2011 to EUR 2.93B in 2012. This growth is due also to internal factoring operations (16%) but especially to import factoring (23%). The export factoring has had a relatively constant level from one year to another. RFA has foreseen a growth by around 15% in 2013 compared to 2012 and also that there will be taken on to a greater extent accounts receivable related to contracts when the debtors are represented by state institutions.

2. FACTORING COSTS

Factoring is considered a short-term credit operation; the advance invoice collection is accepted. This is based on a goods transaction or the service provisions. However, one must not mistake it for the commercial loan since factoring does not involve recording the payment obligation in a trading effect that is supposed to be passed on to many beneficiaries until it is paid. Also, the payment risks are taken by the factor and this is the case when a previous analysis of the debtor’s credit worthiness is made.

The factoring operations are based on strict agreements between the parties, related to a commercial transaction or to operations carried out during a longer time. Unlike the commercial loan, factoring funding is guaranteed by taking over the invoices by the factoring institutions still involving greater costs. We must note that factoring operations involve costs due to the interest rates and the commissions charged by the factor for the provided services. These costs are increased as the accounts receivable collection increases in duration.

Factoring is a unique combination between funding and services. This is the reason why there cannot be a close comparison between the factoring costs and the costs related to another short-term funding option. So, we can conclude that factoring does not include only the funding (in which case its costs can be compared to a commercial loan), but also the accounts receivable collection and the coverage of the non-payment risk. When the factor collects the accounts receivable the costs that must be paid by the seller are set according to the commercial contract particularities, so as to ensure the factor’s equity and profitability. We are of the opinion that it is justifiable to use factoring when the related costs are significantly lower than the possible costs generated by litigation or the non-payment of the accounts receivable, affecting the company’s cash.

The currency risk and the non-payment risk are taken by the factoring institution, and in the case of the usual factoring the credit risk is taken as well. Because of these risks, the commission charged by the factor is higher, and this can lead to an increase in the costs of this type of funding.

In the case of export factoring, in practice, the factoring institution pays 80% of the client’s invoice amount and the remainder of 20% of which commission and interest is deducted, is paid by the importer when the invoice is paid.
3. TYPES OF FACTORING

Worldwide, the most common type of factoring is the internal factoring that involves a factoring agreement between a client and a factoring institution for the provision of services and goods to the client’s country. According to the statistic data the factoring operations have 80% prevalence globally.

Another form of factoring is the external factoring that is growing continuously, considering that it funds external trade activities. The factor signs factoring agreements with foreign buyers and providers or, in the case of a two-factor system, there can be a fourth party- the import factor (the client’s residential country).

The internal and international factoring have common features among which we can note: the value of the funding given by the accounts receivable, keeping sales records, controlling credits and accepting credit risks, collecting the invoices, acceptance criteria. However, there are differences between the two types of factoring. We have noted the ones we find mostly relevant to the two-factor system:

<table>
<thead>
<tr>
<th>CHARACTERISTICS</th>
<th>INTERNAL FACTORING</th>
<th>INTERNATIONAL FACTORING</th>
</tr>
</thead>
</table>
| 1. Participants in the factoring operation | The factor, the provider and the buyer reside the same country. | - The exporter and the export factor from the exporter’s country  
- The importer and the import factor from the importer’s country |
| 2. Funding currency | National | The currency of the invoice for the goods and services. |
| 3. Factor currency risk | NO | YES |
| 4. Factor responsibility | The factor is responsible for the credit control and accepting the credit risk. | The export factor guarantees the exporter’s protection against the credit risk and the import factor is responsible for the local control of the credit. |
| 5. Factor safety | The factor monitors both partners managing not only the provider’s accounts receivable but also the buyer’s payment obligations. | The export factor monitors the exporter’s activity and the import factor monitors the importer’s, the two work together based on a set of rules for factoring. |
| 6. Applicable law | The participants in the factoring operation are subject to national law. | During the deployment of the factoring operations the law of the countries involved is taken into account. |
| 7. Accounts receivable collection | The responsibility for the accounts receivable is to be taken on by the factor. | The import factor is responsible for the collection of accounts receivable from the importer and delivers the charged amount to the export factor. |
| 8. Factoring services quality | It depends on the factor’s credit worthiness and professionalism. | It is influenced by the professionalism of the export and import factor and, especially, the import factor’s credit worthiness that must evaluate the credit risk related to the operation and on due date to cash the accounts receivable. |

Table 1 – Internal and international factoring characteristics

Source: interpretation FCI Marketing Committee
The specialised literature defines, among others, the factoring operations also according to the moment a payment is made, thus having the following types:

- The classic factoring when the factor pays the invoices when they are taken on, in this situation interest is charged (Figure 1)
- The due date factoring when the factor pays the exporter’s accounts receivable when they become payable, in this situation the brokerage fee for the collection operations is charged.

In the case of classic factoring the following methodology is respected having the following steps:

1. Signing the international sale and purchase agreement;
2. Delivering the goods and/or services from the exporter to the importer as per the provisions in the agreement
3. After the goods delivery, the exporter signs a factoring agreement with an export factor, based on which the invoices and shipping documents are handed to the latter, thus deferring the accounts receivable to the factor;
4. The export factor signs an agreement with the import factor related to the factoring operation;
5. The export factor pays the exporter the invoice amount percentage set by the factoring agreement;
6. The importer pays the import factor’s invoices amount on due date set by the commercial agreement signed with the exporter;
7. The import factor delivers the amount charged from the importer to the export factor;
8. The export factor pays the exporter the remainder, charged as deposit (net of the factoring interest)

**Figure 1 – Classic Factoring Operation Deployment**

*Source: Vancea D., Chiru C., Mădăras I., 2003, Payments and funding for external trade operations– Expert Publishing House, Bucharest*
The deployment of the factoring operation on due date is similar to the classic one. The difference is that export factor pays the exporter the invoices’ amount on due date, after the importer has made the payment.

4. CASE STUDY REGARDING ACCOUNTING IMPLICATIONS

The factoring activity is, in fact, deferring some accounts receivable of a client to the factoring institution, in exchange for a commission, which constitutes the factor’s gain. The factoring activity deployment involves the payment by the factor of the amount of the accounts receivable to its client on the term set by the factoring agreement. The accounts receivable amount is VAT inclusive and the factor charges this amount from the factoring debtor on the deferred invoice due date.

Thus, the factoring agreements involve fiscal aspects as well related to the income tax and VAT, and the accounting records of the factoring results are made according to the agreement provisions.

Regarding fiscal and accounting aspects, we will present a hypothetic case as follows:

A corporation has signed a factoring agreement with a specialised institution by which the latter is to discount the invoices issued by a client, after the goods and/or services delivery, before the due date. So, on handing the invoices to the factor, the corporation charges 80% of the amount and after the payment from the debtor the corporation gets the remainder, net of the negotiated commission. However, on paying the invoices from the debtor, the factoring institution issues a commission invoice that includes VAT.

By this factoring operation, the corporation can decrease the accounts receivable (80% of the deferred accounts receivable) from his client, and the entries are made as follows:

<table>
<thead>
<tr>
<th>Debit</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>5121 „Bank Lei Accounts”</td>
<td></td>
</tr>
<tr>
<td>Credit</td>
<td>Amount</td>
</tr>
<tr>
<td>4111 „Clients”</td>
<td></td>
</tr>
</tbody>
</table>

For the factoring commission the entries in the corporation accounting are made as follows:

a. Recording the factoring commission:

<table>
<thead>
<tr>
<th>Debit</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td></td>
</tr>
<tr>
<td>627 „Bank Commission Expenses”</td>
<td></td>
</tr>
<tr>
<td>4426 „Deductible VAT”</td>
<td></td>
</tr>
<tr>
<td>Credit</td>
<td>Amount</td>
</tr>
<tr>
<td>401 „Providers”</td>
<td></td>
</tr>
</tbody>
</table>

Note: In all types of factoring both commission and interest are charged, the amount is variable depending on the deferred accounts receivable.
b. Entering interest:

<table>
<thead>
<tr>
<th>Debit</th>
<th>666 „Interest related expenses”</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit</td>
<td>401 „Providers”</td>
<td>Amount</td>
</tr>
</tbody>
</table>

c. Entering the payment to the factoring institution:

<table>
<thead>
<tr>
<th>Debit</th>
<th>401 „Providers”</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit</td>
<td>5121 „Bank Lei Accounts”</td>
<td>Amount</td>
</tr>
</tbody>
</table>

Regarding the commission VAT deduction, the Fiscal Code mentions that the accounts deferral, whose purpose is covering an amount, is subject to VAT rules, and the right to deduct VAT is given by the purchase purpose.

5. THE ADVANTAGES AND LIMITATIONS OF FACTORING FUNDING

On one side, from the exporter’s point of view, factoring has a lot of advantages. However it does have certain disadvantages among which we will note the most important.

Advantages:

✓ By deferring the accounts receivable to the factor, the seller (exporter) gets an immediate and irrevocable payment of its amounts. So the exporter has the necessary funds for the future activities, by which it can increase its turnover and income.

✓ Factoring allows cashing in a much shorter time than a credit, and its documentation is greatly reduced.

✓ The client’s insolvency risk is taken on by the factor, thus avoiding the effects on the exporter’s profit and loss account.

✓ Factoring is the only funding source the can offer unlimited capital since there is a parallel growth of the sales and the funding.

✓ The factor facilitates the exporter’s bookkeeping when it comes to invoice collection, once it took on the records of some of the accounts receivable called “Clients”. By taking on the accounts receivable, the factor must record at the end of each month a financial report regarding the entered operations.

✓ After taking on the records for “Clients” the factor becomes an advisor-manager of the exporter and, at the same time, it manages a certain credit worthiness analysis of future clients. Thus, the factor’s involvement facilitates commercial relations with partners that have a definite payment capacity and the exporter becomes more operational.

✓ The seller can compensate for the factoring cost by not having to give discounts for the immediate payment of invoices. Also, by taking advantage of sufficient funds the seller can take advantage of discounts and reductions offered for immediate payment when buying raw materials that compensate for the factoring funding.
The costs engendered by factoring are lower than having to organize one’s own department for accounts receivable tracking and collection.

Using factoring funding is not considered to be a debt from the accounting perspective. It is based on a sale-purchase operation that results in deferring the accounts receivable to the factor, by the factoring agreement. So it is not recorded as a loan that impacts the exporter’s debt balance sheet. So, factoring must not be regarded as a loan, and the exporter has the opportunity, anytime, to use an additional credit loan.

**Disadvantages:**

- In exchange for the deferred accounts receivable the exporter charges at most 80% of the total accounts receivable amount and the remainder is discounted once the factor covers the full amount from the debtor, net of the factoring interest and commission.
- Factoring is valid only for short-term accounts receivable (due date within 120 days, at most 180 days).
- There is a factoring option with the right of appeal on the exporter.
- The factoring costs are covered entirely by the exporter.

On the other hand, by the exporter’s use of factoring funding has certain advantages, however, entails certain disadvantages for the importer, as follows:

**Advantages:**

- The funding expenses are covered by the exporter so it is the most beneficial short-term funding source.
- The banking expenses for fund transfers within the country to the import factor are usually lower than the ones charged for transfers outside the country to the benefit of the exporter, the importer being able to save up.
- The credit period, usually 120-140 days, allows the importer to cash the accounts receivable being able to pay the factor in time, without having to use other funding resources.

The major disadvantage for the importer is the commercial profitability of the transaction may be diminished if considering the inflation; the national currency is fast depreciated in comparison the currency that was used for the exporter’s invoice. This can lead to additional expenses for the importer.

6. **CONCLUSIONS**

According to a study conducted we can conclude that factoring is an important trade funding method and a way to insure one’s services like activity promotion, company bookkeeping, and customer relations services.

The costs of a factoring operation are different for each transaction and they should have a value that ensures the factor’s equity and profitability and, in the same time, it must be beneficial for the seller as well.

Factoring may be considered a fast option to rapidly fund a business ensuring there are significant amounts to provide goods and services. Thus, this method, including internal and international, factoring is becoming more and more popular.
When using two-factor international factoring there can be gap between the sale and the collection and it is more difficult to separate these activities. However the two factors manage most of the times to record the discounts faster than the client could.

In Romania, the amount of the accounts receivable deferred to the factor includes VAT; so, when the payment is made the factor charges the full amount, afterwards funding the accounts receivable VAT included.

Using factoring as a funding source is a beneficial method for both the exporter and the importer. Thus, by deferring the accounts receivable, the exporter immediately collects the invoice amount having enough capital for future activities by which it can increase its turnover. On the other hand, the importer benefits from short-term funding without paying additional expenses (these ones are covered by the exporter).

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POLITICAL ENVIRONMENT, DEMOCRACY AND JAPANESE OUTWARD FDI:
A PANEL DATA ANALYSIS

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Abstract
This paper attempts to examine the effects of Political Environment (PE) and Democracy on the Japanese outward Foreign Direct Investment (FDI) activities with a panel data of 56 developed and developing countries for the period of 1995-2010. The estimation model is constructed on the basis of the OLI (ownership, location and internalization advantages) and knowledge-capital theoretical models. Various measures of PE and Democracy are included as additional explanatory variables with market potential, wages, skilled workforce endowments, investment cost and openness. We found that a model with PE and Democracy factors and some traditional explanatory variables reasonably explains recent Japanese Multinational Companies (MNCs) activities. Japanese outward FDI flows revealed sensitivity to different levels of PE and Democracy in developed and developing countries. These findings have important implications for future policy consideration by host countries and academic research on Japanese outward FDI.

Key words: foreign direct investments, multinational companies, political environment, democracy

1. INTRODUCTION
The central objective of this paper is to examine the effects of democracy and political environment (PE, hereafter) on the recent Japanese outward Foreign Direct Investment (FDI, hereafter) with a panel data of 56 developed and developing countries for the period of 1995-2010.

Lucas (1990) in his famous paper “Why doesn’t capital flow from rich to poor countries?” initiated an important theoretical dispute of why capital flows from developed economies to developed ones and not to developing. However, recently one can observe that a global share of FDI to developing countries is growing intensively. According to UNCTAD (2012) in 2011 FDI inflows to developing and transition economies surpassed FDI inflows to developed economies with a share of 51% of Global FDI. This fundamental shift in FDI structure opens ground for the theoretical and empirical discussion. Thus, the scope of this paper is to contribute to the dispute by particularly addressing a question of institutional factors’ influence on the FDI outflows from Japan, as one of the leading developed economies. On the one hand, since 1990s Japan was continuously one of the main suppliers of world FDI.³ On the other

³ In 2010 Japan was the 8th largest country in the world by the volume of outward direct investment with an amount of 57 bil. US$. (JETRO 2011).
hand, Japan is a highly developed country considered to be one of the 3 largest world economies by the level of Gross Domestic Product (GDP).

Thus, the present investigation of Japanese FDI has been motivated by at least four reasons: First of all, although a recent trend of FDI research has stressed potential importance of political factors that might affect FDI flows (e.g. Busse and Hefeker 2007), as far as the authors know, the effect on FDI has been mixed when different Democracy measures and a composite index of political environment is used (Peng and Beamish 2008; Li and Resnick 2003; Jensen 2003), and there has been no closer examination of the effects of democracy and political factors on the Japanese FDI alone. For instance a non-linear relationship between PE, Democracy and FDI can be gleaned from Figures 1 and 2.

This relationship suggests that there might be several dimensions inherent to PE and Democracy measures, and thus direct and indirect effects of PE and Democracy on Japanese outward FDI should be analyzed rigorously.

Secondly, although a number of papers consider FDI flows to developed and developing countries separately, there are at best few studies that conducted a formal econometric examination of Democracy and Political factor as determinants of outward FDI from the supply side of these capital flows to developed and developing countries.4 Thirdly, we use another composite index reflecting multiple dimensions of host country’s political environment for empirical investigation, the Euromoney Country Risk (ECR) data. To the authors’ knowledge, this composite index has rarely been used previously in the analysis of FDI.5 Thus, we are interested in how differently Japanese MNCs behave to the index.

And fourthly, we use three different measures of Democracy in order to increase the credibility of our findings. These are International Country Risk Guide (ICRG) democratic accountability index, Polity IV Democracy and Autocracy composite indicator, and Freedom House Political Rights rating.

Since we in fact found some differences in sensitivity to the democracy and political environment indices between developed and developing countries, we propose our theoretical framework and tentative but new hypotheses for the difference, and discuss several alternative reasons as well.

Using a panel data of Japanese outward FDI flows to 55 developed and developing countries, we estimate a hybrid regression model reflecting the knowledge-capital theories (Carr, Markusen, and Maskus 2001; Bergstrand and Egger 2007) and the OLI (Ownership, Location, and Internalization advantages) hypotheses (Dunning 1992). We first construct a model which incorporates the traditional FDI determinants such as market size, growth perspectives, openness, investment cost, wage cost, skill difference, etc. Then, we extend the model to examine the effects of democracy and political factor on Japanese outward FDI flows to developed and developing countries separately. Finally we examine possible interactive effects of Democracy and PE.

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5 An exception might be Clare and Gang (2010).
Figure 1. PE ([0,25] scale) and FDI (millions of US dollar), All countries, 1995-2010. Values are averaged by country from 1995 to 2010. A higher PE value is associated with increased political risk. The regression represented by the fitted line yields a coefficient of -0.802 for a squared term and 6.503 for a direct effect, N = 49, R² = 0.007. Countries abbreviations are presented in Appendix 1.

Figure 2. ICRG ([0,1] scale) and FDI (millions of US dollars), All countries, 1995-2010. Values are averaged by country from 1995 to 2010. A higher ICRG value is associated with higher level of democracy. The regression represented by the fitted line yields a coefficient of -1355.8 for a squared term and 1588.7 for a direct effect, N = 49, R² = 0.042. Countries abbreviations are presented in Appendix 1.
The rest of the paper is organized as follows. Section II provides a review of the recent literature, with special emphasis on the effects of democracy and political factors. Section III presents our simple theoretical framework. Section IV presents our empirical models and discusses the effects of explanatory variables on FDI. Section V describes the data and methodology, and is followed by estimation results in section VI. Section VII focuses on the interaction of Democracy and PE, and their effect on Japanese outward FDI. Section VIII provides the summaries, limitations of the study and conclusions.

2. DEMOCRACY AND POLITICAL FACTORS FOR FDI: AN OVERVIEW OF LITERATURE

This section is devoted to present exclusively a brief review of recent literature that has stressed the significance of Political factors and Democracy for FDI flows. In his recent review article, Blonigen (2005, p.390) mentioned that the "quality of institutions is likely an important determinant of FDI activity, particularly for less-developed countries". While he argued that a negative impact of poor institutions on FDI leaves no room for doubt, it is difficult, if not impossible, to confirm empirically the effects of institutions because of several problems inherent to the data; measurement errors and little informative variations over time, among others.

There have been many empirical investigations of political factors on FDI activities. For example, Singh and Jun (1996) was one of the first papers to analyze the impact of political environment for the sample of 31 developing countries, and found by a panel data estimation that the political "risk" turned out to have a negative and significant effect on FDI. The political risk was captured by an index developed by Business Environment Risk Intelligence (BERI) with six internal causes of political risk. Another empirical analysis with cross-section estimation was presented by Wei (2000) who used a sample of bilateral FDI from 12 OECD source countries to 45 host countries. Variables such as corruption, bribes, or transparency of governments are identified as political "risk". He found that a rise in either the tax rate on the profits of MNCs or the corruption level in a host country reduces inward FDI, and that American investors are more averse to corruption in host countries, but not necessarily more so than average OECD countries.

To our knowledge, Clare and Gang (2010) is the only empirical study that used the Euromoney Country Risk Score as a measure of political environment. They analyzed the effects of exchange rate and political risk on inward FDI to 53 countries during the years 1999-2003, and found that political stability has a positive effect on FDI only for developing countries. Moreover, when the analysis moved from "Manufacturing" to "All industries", the result changed to a paradoxical negative effect. For that matter our redefinition and re-estimation of political factors will suggest a complimentary explanation to this phenomenon.

6They are fractionalization of the political spectrum (linguistic, ethnic, and religious fractionalization) and coercive political risk (dependence on and/or importance to a hostile power), and 2 symptoms of political risk (societal conflict involving demonstrations and street violence).

7Some of the data were undated, however.

8In their setting political stability represents political risk score that is taken from Euromoney’s March country risk assessments and it covers “items such as risk of non-payment of loans, goods, dividends, and non-repatriation of profits.” The higher score is associated with the more stable politically country.
Effects of political environment on FDI activities have also been examined empirically with panel data. For example, Busse and Hefeker (2007) used a panel consisting of 83 developing countries covering the period 1983-2003. They considered 12 different political risk variables that may affect their sample of inward FDI. The data source was the ICRG (International Country Risk Guide) provided by the PRS (Political Risk Services) Group. An important feature they stressed was the endogeneity inherent to political factors, and therefore, to avoid the possible effects through endogeneity, they employed the GMM method for estimation. They found that the seven out of a total of 12 political indicators were closely associated with FDI, implying that a country with a lower political risk and better institutions receives more FDI.

Peng and Beamish (2008) empirically investigated Japanese FDI using a panel data set of 50 host countries from 1999-2003 by OLS and random effect regressions. They examined the relationship between FDI and host country's corporate social responsibility (CSR) environment. A composite index, a National Corporate Responsibility Index (NCRI), based on a series of CSR, has been developed as a composite index comprising 7 broad components which include several measures of political environment such as the "business cost of corruption" or the "degree of civil freedom" as the basic data. They first derived a testable hypothesis for developed countries that FDI increases with lower NCRI, because NCRI is an indicator of the corporate responsibility institutions in host countries. But their novelty is summarized in their discussion for developing countries, summarized as the second testable hypothesis claiming that NCRI has a positive relationship with FDI. They reported that both hypotheses are successfully vindicated empirically, and the results are robust after several additional checks.

Due to the difficulty in theoretical modeling the effects of democracy on FDI as well were mainly addressed through empirical researches. However, due to the novelty of this area the number of works is relatively limited to date. Two influential papers by Li and Resnick (2003) and Jensen (2003) proposed different conclusions. Li and Resnick (2003) analyzed FDI net inflows to 53 developing countries in the period of 1982-1995, and found that Democracy actually might discourage FDI. The reason is that more autocratic governments may provide better business environment for monopolistic/oligopolistic companies and protect them from labor unions. They used Polity IV index as a measure of Democracy. On the contrary, Jensen (2003) suggested that Democracy might encourage FDI, since it provides a more stable business environment and increases protection for property rights. He analyzed the effects of democracy, measured by Polity III index, on FDI net inflows to 114 developed and developing countries in the period of 1970-1997.

In one of the recent works, Asiedu and Lien (2011) used three different composite indices for democracy; the data on political rights published by Freedom House, the democracy index published in Polity IV, and the ICRG index. They estimated a dynamic panel data model for 112 developing countries over the period 1982-2007, and found that all three composite indices had a positive effect on FDI “in countries where the share of natural resources in total exports is low”, and negative effect on FDI “in countries where exports are dominated by natural resources”. In this regard their finding is somewhat parallel to ours, as it reveals MNCs’ sensitivity to different levels of Democracy.

Mathur and Singh (2013) are probably one of the first who mentioned a possible effect on FDI of an interaction between Democracy measured by the Freedom House index and PE measured by the Corruption perception index. They analyzed a panel of 29 developing countries in the period of 1980-2000, and found that more democracy attracts less FDI. In addition, perceived corruption decrease might encourage FDI to the host country. They extended the analysis with the cross effects of property rights with corruption. They noted that corruption could be inversely related to the property right protection. Thus, a decrease in corruption means an increase in property right protection, and hence increases FDI.
From the cross effect of democracy and corruption they suggested that more democratic countries attract less FDI. Although they discussed that the simple correlation coefficient between property right protection and corruption is 0.7, but between democracy and property right protection is only about 0.1, they simply mentioned the difference in the correlation coefficients without discussing possible underlying systematic relationships.

Several interesting facts are observed from the studies reviewed above. First of all, the political factors have been taken from various data, often represented by an aggregate (or composite) index incorporating multiple dimensions of socio-economic, and internal and external political and/or institutional characteristics. As a result, secondly, political factors may reflect different needs of political environment and/or different cost sensitivity to those factors for MNCs. Thus, thirdly, MNCs behave differently, depending on such factors as host country's development of political stages. As a consequence the effects of political factors on FDI may have different results for developed and developing countries. Specifically, the multiple dimensions of aggregated political environment indices have made it difficult, if not impossible, to reach a corroborative effect on FDI in empirical research (Peng and Beamish 2008).

The effects of Democracy on FDI in various empirical works also have shown mixed results. In particular, democracy could either encourage or discourage FDI depending on different samples (i.e. host countries and sample periods) and specification. One important note here is that most studies addressed only developing or joint developed and developing samples of FDI host countries, and there is a rare study discussing only developed countries as FDI recipients. For instance, Mathur and Singh (2013) mentioned that “the result will be "dramatically" different for FDI in developed countries.” Thus, it is legitimate to suggest that the effects of Democracy on Japanese FDI might be different depending on the stage of countries’ economic development. In addition it is worth mentioning that several different indices of Democracy were used to test the hypotheses, but the most accepted were ICRG Democratic accountability, Polity and Freedom house indexes.

In view of these recent theoretical and empirical developments, this paper aims at empirically analyzing the Japanese FDI flows by a regression model reflecting the OLI and knowledge-capital hypotheses, with the possible determinants derived from these theoretical frameworks. The knowledge-capital models (Carr et al. 2001; Bergstrand and Egger 2007) proposed different types of FDI flows (horizontal, vertical, and platform) to emerge endogenously, and to be encouraged by a number of factors. The OLI theoretical framework allows for different alternative determinants in order to explain the FDI flows from Ownership, Internalization and Location advantage perspectives.

As put forth above, the present paper focuses on Japanese FDI, with particular emphasis on the effects of political factors and democracy. We use another composite index for political factors here, the Euromoney Country Risk (ECR) Index. Democracy is examined using 3 different measures: ICRG democratic accountability, Polity IV, and Freedom House. The contribution of our investigation, if any, rests on the fact that ours is the first attempt to analyze empirically the direct and interactive effects of Political Factor and Democracy exclusively on Japanese FDI flows to developed and developing countries.

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9One commonly observed feature of those composite indices is that the correlation between them is high (e.g. Alesina and Wagner (2006)).
3. THEORETICAL FRAMEWORK

Since in fact the literature suggested mixed evidences on the effects of PE and Democracy on MNCs activities, we construct a theoretical model attempting to account for non-linear relationships between these explanatory variables and the FDI flows. We examine two cases for PE and Democracy separately.

3.1 Political Environment and FDI

Our theory is based on the following assumptions:

(A-1) Assume a Japanese MNC that is planning to undertake FDI in a foreign country, and it is assumed that there exists a following function F:

\[ F(PE, OLI, FDI) = 0, \]

Where F is assumed to be positive, continuous, and continuously differentiable real-valued function defined on the non-negative domain of PE, OLI (ownership, location and internalization) index, and FDI.

PE represents the political environment in the host country that is assessed by Japanese MNCs as an additional factor that influences their decision to invest. Since in our study PE is a composite index, it could be associated with Institutional Quality (IQ) depending on Japanese MNCs’ assessment of the factors composing PE. Furthermore, this assessment may depend on the level of countries’ economic development (developed and developing countries). Thus, lower PE may be associated with higher advantages and profitability for developed countries if MNCs view too good Institutional Quality (IQ) as an impediment in their activity. On the other hand, for developing countries lower PE may be associated with lower advantages and profitability if MNCs are not satisfied with the level of IQ in the foreign countries.

OLI represents a set of advantages in the sense of Dunning’s OLI’s framework. These advantages allow an MNC maximizing its profits when operating in the foreign market and, thus show their willingness to invest abroad.

FDI is the value of investment undertaken by an MNC in the host country.

(A-2) Assume that F is solved for OLI (advantages/profitability index) such that OLI = f(PE, FDI).

(A-3) Also, assume f as a positive, continuous, and continuously differentiable real-valued function.

Total differentiation of f for a given level of OLI yields:

\[ \left( \frac{\partial f}{\partial PE} \right) dPE + \left( \frac{\partial f}{\partial FDI} \right) dFDI = 0 \]

(2)

Equation (2) shows the "transformation curve" between PE and FDI, and thus:

\[ \frac{dFDI}{dPE} = \frac{\partial f / \partial PE}{\partial f / \partial FDI} = -\frac{f_{PE}}{f_{FDI}} \]

(3)

Since f is a transformation curve, the numerator (denominator) has an economic interpretation of the marginal cost of PE (FDI) in terms of OLI.

The inverse function rule implies:

\[ \frac{\partial FDI}{\partial OLI} = \frac{1}{f_{FDI}} \quad \text{and} \quad \frac{\partial PE}{\partial OLI} = \frac{1}{f_{PE}} \]

(4)
where $f_{FDI}$ and $f_{PE}$ are partial derivatives of $f$ with respect to FDI and PE.

Equations (3) and (4) yield:

$$\frac{df_{FDI}}{dPE} = \frac{f_{PE}}{f_{FDI}} = \frac{\partial f_{FDI}}{\partial OLI} \frac{\partial OLI}{\partial PE}$$

(5)

Since higher OLI advantages are associated with higher profitability for an MNC, and, hence, higher FDI is undertaken, we postulate that:

$$\partial f_{FDI}/\partial OLI > 0.$$  

(6-1)

As explained above for PE, MNCs may differently assess changes in institutional quality in the host countries depending on their level of economic development. Specifically, we postulate that:

(6-2-a) $\partial PE/\partial OLI < 0$ if an increase in PE from too good institutions, meaning a decrease in IQ, corresponds to a higher OLI (willingness to invest) for developed countries, but

(6-2-b) $\partial PE/\partial OLI > 0$ if an increase in PE (becoming poorer institution), meaning lower IQ, corresponds to a lower OLI (willingness to invest) for developing countries.

From (5), (6-1), (6-2-a) and (6-2-b) we can summarize the relationship between FDI and PE as follows:

$$\frac{dF_{FDI}}{dPE} > 0 \text{ for developed countries with too much better institution}$$

$$\frac{dF_{FDI}}{dPE} < 0 \text{ for developing countries with poor institution}$$

(7)

Thus, the relationship (7) between FDI and PE may be depicted as an "inverted" U-shaped figure between PE and FDI. This relationship (7) implies the following two testable hypotheses:

**Hypothesis 1**: Higher PE is associated with higher FDI if developed countries whose level of PE has been well below the average PE values.

**Hypothesis 2**: Higher PE is associated with lower FDI if developing countries whose level of PE has been well above the average PE values.

### 3.2 Democracy and FDI

The theoretical analysis is parallel to the previous one, and depends on the similar but slightly different assumptions as follows:

(A-4) Assume a Japanese MNC that is planning to undertake FDI in a foreign country, and it is assumed that there exists a following function $G$:

$$G(DEM, OLI, FDI) = 0,$$  

(8)

where $G$ is similarly defined as $F$ in equation (1) on the non-negative domains of DEM, OLI (ownership, location and internalization) index, and FDI.

DEM represents democracy level in the host country that is assessed by Japanese MNCs as an additional factor that influences their decision to invest. This assessment may depend on the level of countries’ economic development (developed and developing countries). Thus, higher Democracy may be associated with higher advantages and profitability for developed countries if MNCs view lower corruption as a facilitator of their FDI activity. On the other hand, for developing countries, higher Democracy may be associated with lower advantages and profitability if MNCs are not satisfied with the level of monopolistic advantages that they can obtain in the foreign countries.
OLI and FDI are similarly interpreted as in equation (1).

(A-5) Assume that \( G \) is solved for OLI (advantages/profitability index) such that \( OLI = g(DEM, FDI) \).

(A-6) Also, assume \( g \) as a positive, continuous, and continuously differentiable real-valued function.

Total differentiation of \( g \) for a given level of OLI yields:

\[
\left( \frac{\partial g}{\partial DEM} \right) dDEM + \left( \frac{\partial g}{\partial FDI} \right) dFDI = 0
\]  \tag{9}

Equation (8) shows the "transformation curve" between DEM and FDI, and thus:

\[
\frac{dFDI}{dDEM} = \frac{\frac{\partial g}{\partial DEM}}{\frac{\partial g}{\partial FDI}} = -\frac{\delta DEM}{\delta FDI}
\]  \tag{10}

Since \( g \) is a transformation curve, the numerator (denominator) has an economic interpretation of the marginal cost of DEM (FDI) in terms of OLI.

Applying the inverse function rule for \( g \) and using equation (10) yield similar functional relationships as summarized in equation (11):

\[
\frac{dFDI}{dDEM} = \frac{\delta DEM}{\delta FDI} = \frac{\partial FDI/\partial OLI}{\partial DEM/\partial OLI}
\]  \tag{11}

where \( g_{FDI} \) and \( g_{DEM} \) are partial derivatives of \( g \) with respect to FDI and DEM. Since higher OLI advantages are associated with higher profitability for an MNC, and, hence, higher FDI are undertaken, we similarly postulate that:

\( \frac{\partial FDI/\partial OLI}{\partial DEM/\partial OLI} > 0 \) \hspace{1cm} (12-1)

As explained above for DEM, MNCs may differently assess changes in Democracy in the host countries depending on their level of economic development. Specifically, we postulate that:

(12-2-a) \( \frac{\partial DEM/\partial OLI}{\partial DEM/\partial OLI} > 0 \) if an increase in DEM corresponds to a higher OLI (willingness to invest) for developed countries, because of lower corruption, but

(12-2-b) \( \frac{\partial DEM/\partial OLI}{\partial DEM/\partial OLI} < 0 \) if an increase in DEM corresponds to a lower OLI (willingness to invest), because of loss of monopolistic advantages, etc. for developing countries.

From (9), (12-1), (12-2-a) and (12-2-b) we can summarize the relationship between FDI and DEM as follows:

\[
\frac{dFDI}{dDEM} \begin{cases} < 0 & \text{for developed countries for less corruption} \\ > 0 & \text{for developing countries for lower monopolistic advantages} \end{cases}
\]  \tag{13}

Thus, the relationship (13) between FDI and DEM may similarly be depicted as an "inverted" U-shaped figure between DEM and FDI as between FDI and PE in the previous case. This relationship (13) implies the following two additional and testable hypotheses:

**Hypothesis 3**: Higher DEM is associated with lower FDI if developed countries whose level of DEM has been well above the average DEM values.
Hypothesis 4: Higher DEM is associated with higher FDI if developing countries whose level of DEM has been well below the average DEM values.

The following sections IV-VII are devoted to testing these four hypotheses by means of various econometric estimations with the Japanese outward FDI data.

4. EMPIRICAL MODEL AND VARIABLES DESCRIPTION

This section presents our basic specification for the empirical strategy. The dependent variable in our study is FDI flow from Japan to a ‘country i’ in US Dollar (FDI) that is averaged over 3 years to smooth out cyclical fluctuations, and the independent variables are chosen as explained below. Two of them (real GDP and Wage cost) are expressed in logarithmic form, and the others remain as they are, as they represent the computed indexes.

The basic model for GMM is specified in a reduced form as:

$$ y_{it} = \delta y_{it-1} + X_{it}' \beta + \epsilon_{it}. $$ (14)

where $y_{it}$ is the logarithm of 3-year averaged outward FDI from Japan into a host ‘country i’ at time t and $X_{it}$ denote an (1xk) vector of exogenous variables which vary in the cross-section and in the time dimension. $\delta$ is a scalar. $y_{it-1}$ is a lagged dependent variable. $\epsilon_{it}$ is a stochastic error term, which is assumed to be uncorrelated over all $i$ and $t$.

The estimation form of the basic model is linearly specified as:

$$ \text{(LOG}_\text{FDI}\text{)}_{it} = \delta(\text{LOG}_\text{FDI}\text{)}_{it-1} + \beta_1 \text{LOG}_\text{GDP}_{it} + \beta_2 \text{SD}_{it} + \beta_3 \text{LOG}_\text{W}_{it} + \beta_4 \text{OPENNESS}_{it} + \beta_5 \text{IC}_{it} + \beta_6 \text{Dem}_{it} + \epsilon_{it}. $$ (15)

$$ \text{(LOG}_\text{FDI}\text{)}_{it} = \delta(\text{LOG}_\text{FDI}\text{)}_{it-1} + \beta_1 \text{LOG}_\text{GDP}_{it} + \beta_2 \text{SD}_{it} + \beta_3 \text{LOG}_\text{W}_{it} + \beta_4 \text{OPENNESS}_{it} + \beta_5 \text{IC}_{it} + \beta_6 \text{PE}_{it} + \epsilon_{it}. $$ (16)

We use FDI flow as our dependent variable, as this first provides a larger number of observations and second, allows statistical inferences for flow effect of real FDI. In addition we average the data over 3 years to smooth out cyclical fluctuations and transform them logarithmically.\textsuperscript{10} Data for FDI activity are collected from OECD database which provides data of Japanese FDI for a large number of countries for the period 1985 to 2010.\textsuperscript{11}

The explanatory variables are selected mostly from those used in many previous empirical studies to test the knowledge-capital model and/or the OLI hypotheses. First is $\text{LOG}_\text{GDP}_{it}$ representing the market size for country i at time t that has been considered as one of the first principal determinants of FDI. The greater market is accessible through FDI, the higher should be FDI flow. Thus, we expect a

\textsuperscript{10}To note, ten observations of the three-year FDI average are negative values. These are observation for United Arab Emirates, Romania, Colombia, Greece, Iceland, Luxembourg, Mexico in the period of 2004-2006 and observations for Greece, Ireland and Portugal in the period of 2007-2010. These negative FDI flows represent the capital withdrawals by the parent company from the foreign affiliate. For instance, it may appear under the form of shares’ sale to the local or other multinational company. Thus, I drop these 10 observations in order to employ only the positive values of the dependent variable and transform them logarithmically.

\textsuperscript{11}We use the statistics reported in US dollars in our analysis. This statistics was compiled by OECD statistical division from Bank of Japan and Japanese Ministry of Finance statistical sources.
positive sign of GDP on FDI. The GDP data are taken from the World Bank World Development Indicators (WDI) database and are reported in constant 2000 US$.

Second, human capital of the host economy is another important factor for FDI flows. It has been argued that two important aspects should be considered for human capital: skill endowment and labor cost. Skill endowment for ‘country i’ at time t is proxied by \( S_{Î»}t = S(J) - S(i) \), where \( S(J) \) and \( S(i) \) mean the skill scores for Japan and the i-th host country, respectively. The skill score measures the level of the skilled labor availability in each country; the higher the score is, the easier it is to get a skilled labor. Thus, \( S_{Î»}t \) in effect represents the difference of the skill score for the host country relative to that of Japan.¹²

The sign for this variable is expected to be positive if Japanese MNCs are looking for cheap unskilled labor (as the knowledge-capital model predicts can happen for vertical-type FDI), and negative if Japanese FDI flows are attracted by host countries’ skilled labor abundance (as can happen for horizontal FDI).

In addition, availability of low cost labor is expected to stimulate FDI of vertical type where the cheap wage is considered to be of high importance (e.g., Sahoo (2006)). Labor cost can be proxied by wage cost (Nunes, Oscategui, and Peschiera 2006). Thus, \( \text{LOG}_{W}it \), which is the log of employees compensation received in US$ per hour for country i at time t, represents the labor cost.¹³ The data were deflated using CPI index.¹⁴ The sign of this variable is expected to be negative as higher labor cost is expected to discourage FDI flows.

The next explanatory variable is \( \text{OPENNESS}_{Î»}t \) of the host country which is opposite to trade cost. In general the impact of openness is linked to the type of FDI (Sahoo 2006). Horizontal FDI is attracted by high trade barriers first because of the high alternative export cost to the host country, and second as it also creates barriers for the competitors. On the other hand, vertical FDI (which is export-oriented) is attracted by relatively open economy. Thus, the openness is expected to have negative sign for horizontal FDI and positive sign for vertical-type FDI. Following some previous studies, openness measures come from Penn-World Tables, and are defined as the ratio of the sum of imports and exports to GDP.

\( \text{IC}_{Î»}t \) is investment cost for ‘country i’ at time t that is regarded as impediments and difficulties in the operational activity of foreign affiliate in the host country. These include financial, juridical, fiscal and other incentives/impediments. This article follows the approach adopted by Carr et al. (2001) who composed an index including the appropriate factors for the investment cost. The investment cost was constructed from various indexes of the WCY.¹⁵ It is computed on scale from 0 to 10 with higher number indicating lower investment cost. The sign of the investment cost is expected to be positive, implying that the lower investment barriers are, the higher will be a tendency for MNCs to invest in the host country.

¹² The data source of the index is the World Competitiveness Yearbook (WCY, hereafter).

¹³ The data source is also the WCY and represents an average salary ($/h) in the host country. However, the data are compiled from US Department of Labor, Bureau of Labor Statistics and National Sources. Y

¹⁴ CPI price index source is International Monetary Fund (IMF) statistical database. In case of Taiwan we used Taiwan National Statistics (http://eng.stat.gov.tw/mp.asp?mp=5).

¹⁵ The index includes the level of control of foreign companies, restraints on negotiating joint ventures, strict controls on firing and hiring practices, an absence of fair administration of justice, access to local and foreign capital markets, difficulties in acquiring local bank credit, an inadequate protection of intellectual property rights, anti-trust and competition laws, and immigrations laws.
PE_{at} represents political environment for ‘country i’ at time t that has recently been emphasized as one of the most researchable issues in international economics, as reviewed and discussed in the previous section. Indeed, a political factor usually influences some economic phenomenon not only in domestic activities, but also in international environment, and FDI is one of them. The political index is calculated from the ECR index, and has been scored from 0 to 25 with a higher score indicating a lower political risk. The index is subtracted from the maximum value of 25 to indicate that a higher number is supposed to indicate higher “political risk”. According to the conventional wisdom, the coefficient of the Political risk is expected to have a negative sign as higher political risk might have adverse effects on FDI flows. However, the ECR index includes not only political risk, but also government and institutional assessment as the qualitative expert opinions. In addition, the ECR index also includes information and policy environment (see Table 1). Thus, it is likely that this multiple dimensionality of a composite index may have different effects on the MNCs’ behavior for FDI, depending on the development stages of host countries, as formulated in the previous theoretical section III.1, and will be discussed later in more detail.

<table>
<thead>
<tr>
<th>Political risk</th>
<th>Component</th>
<th>Score (qualitative expert opinions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Corruption</td>
<td>10=no corruption, 0=serious corruption</td>
</tr>
<tr>
<td>2</td>
<td>Government non-payments/non-repatriation</td>
<td>10=no government interference, 0=high government interference</td>
</tr>
<tr>
<td>3</td>
<td>Government stability</td>
<td>10=stable, 0=highly unstable</td>
</tr>
<tr>
<td>4</td>
<td>Information access/transparency</td>
<td>10=unrestricted, 0=totally restricted</td>
</tr>
<tr>
<td>5</td>
<td>Institutional risk</td>
<td>10=efficient and independent institutions, 0=no state institution</td>
</tr>
<tr>
<td>6</td>
<td>Regulatory and policy environment</td>
<td>10=highly consistent, 0=no regulatory environment exists</td>
</tr>
</tbody>
</table>

Dem_{it} shows a level of democracy of a host country i at time t whose change is also expected to influence FDI flows. There could be different reasons. First, higher democracy might be associated with higher property rights, and thus Japanese MNCs might seek to invest in the countries with higher property rights. Second, lower democracy might encourage investment by monopolistic/oligopolistic MNCs, since they could lobby their interests in the less democratic governments. Thus, a hypothesized effect on Japanese FDI might be both positive and negative, as shown in section III.2.

There are many sources that provide different measures of democracy and none of them is perfect. In order to increase the credibility of our results we follow Asiedu and Lien (2011) and use 3 different measures of Democracy:

- International Country Risk Guide (ICRG) Democratic Accountability – scored 0-6 with a higher score indicating higher democracy.
- Polity IV – scored “-10” to “+10” with a higher score indicating higher democracy and a lower score indicating a higher autocracy.
- Freedom House (FH) Political Rights – scored 1-7 with a higher score indicating most free and a lower score indicating less free nations.
All the scores are normalized to lie in between zero and one with a higher value implying more democracy.

This completes the explanation of our estimation model. As evident, our model is a hybrid model of knowledge-capital models and OLI framework as reviewed earlier, with additional and explicit consideration of political factors and democracy.

5. DATA AND METHODOLOGY

The data set consists of three-year moving average observations for the period 1995-2010 for the 2 sets of countries: 32 developed and 24 developing countries. The data source for Japanese FDI is the OECD database, and for other variables different sources such as the WDI (the World Bank), the WCY (International Institute for Management Development), Penn-World Tables, and Euromoney.

We employ a panel data analysis in order to capture static and dynamic nature of the FDI flows, accounting for at the same time possible heteroscedasticity, autocorrelation and endogeneity. By including lagged FDI flows as an additional regressor we change a static model to a dynamic panel model. Thus our panel data set consists of two sets and two dimensions: one dimension is cross-section (32 developed countries and 24 developing countries: i = 1,...,N), and the other is time dimension (5 periods: 1995-1997; 1998-2000; 2001-2003; 2004-2006; 2007-2010: t=1,...,T). The total number of observations in this context is 280 for all countries, 160 for developed countries and 120 for developing ones, and it can be considered adequate to produce robust estimations for the scope of the analysis.

Generally the problems of autocorrelation, endogeneity and heteroscedasticity are inherent in economic data sets. First, some explanatory variables can be endogeneous, and therefore OLS estimators might be biased and inconsistent. Second, unobserved panel-level effects (fixed effects) may be correlated with the explanatory variables. Finally, the inclusion of lagged dependent variable can lead to autocorrelation.

In order to deal with all these problems, a commonly used method for dynamic panels is the GMM estimator proposed by Arellano and Bond (1991). As their estimator is set up, the fixed effects are eliminated using first differences, and an instrumental variable estimation of the differenced equation is performed. However, a first difference has a weakness in unbalanced models, since it magnifies gaps in it. Due to the data characteristics our sample contains some missing data particularly for developing countries. Thus, we follow the second common transformation proposed by Arellano and Bover (1995) that is called “forward orthogonal deviations”. In contrast to the “first difference” it

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16 We use OECD membership as a criterion for highly-developed economies. Developed and developing countries in our study are listed in the Appendix 1.

17 The countries selection among others is limited by data availability.

18 In this study we emphasize the role of Political Environment and the effects of Democracy on Japanese MNCs activities only. Thus, caution must be taken when generalizing our conclusions for other FDI researches.

19 The descriptive statistics of the data is presented in Appendix 2.

20 Nevertheless, a common constant (pooled OLS) and Fixed Effects methods’ analysis was also performed. We report them here in order to provide a comparison of coefficients values. According to Roodman (2009) the value of coefficient in GMM estimation is plausible to be expected to lie in between OLS and Fixed effects estimators values.
subtracts the average of all future available observations of a variable.\textsuperscript{21} Next, we use GMM style instruments as proposed by Holtz-Eakin, Newey, and Rosen (1988) in order to account for possible endogeneity of the explanatory variables. We perform the Hansen J-test of overidentifying restrictions for the selected instruments. All the regressions were shown to be robust according to this criterion. Finally, we do not include any additional (external) instruments.

6. ESTIMATION RESULTS AND DISCUSSIONS

We estimate equations (15) and (16) in order to analyze the Japanese FDI with our sample data under different econometric specifications. The results are presented in Tables 2 to 5 below.

Several interesting features are disclosed, and in what follows, we give some interpretations and evaluations for them. The coefficients of control variables are mainly consistent with the theoretical predictions and prior assumptions. Market size positively affects Japanese MNCs’ activity. As can be inferred from the signs of the coefficient of Openness, Japanese MNCs tend to be of horizontal type for developed countries ($\beta_4<0$) and of vertical-type for developing countries ($\beta_4>0$).\textsuperscript{22}

Now, we turn to the discussion of the effects of Democracy on the Japanese outward FDI. As mentioned above in order to increase the credibility of our results we employ 3 measures of Democracy, namely ICRG, Polity and FH.

<table>
<thead>
<tr>
<th>Table 2 Democracy (ICRG) effects on Japanese outward FDI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developed</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>OLS(a)</td>
</tr>
<tr>
<td>FDI(-1)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>GDP</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Developing</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>OLS(b)</td>
</tr>
<tr>
<td>FDI(-1)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>GDP</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

\textsuperscript{21}Indeed, a first difference method produced biased estimators and thus the results are not reported here.

\textsuperscript{22}The only unexpected result is a consistent positive sign of Wages and negative sign of lagged FDI, implying that Japanese MNCs’ investments are encouraged by higher real wages and lower FDI in the previous period. Although this is seemingly puzzling result, we do not discuss it in details here and propose the following explanation. Higher wages might imply a existence of business environment impediments for operational activities. At the same time MNCs can benefit from this environment, since they can obtain a competitive advantage over local firms by attracting highly skilled local labor and establishing a more efficient management. Thus, MNCs can become more competitive at the local market and enjoy monopolistic advantages. To note that this result was encountered in a few previous studies as well (e.g. Wei 2000). In fact the data are three-year moving averages for five periods. Thus, a possible interpretation of lagged FDI negative effect might consist in the crisis effect (Asian crisis of 1997-1998 and the financial crisis started in 2007). It is likely that after the crisis occurred Japanese MNCs ceased their foreign activities, and, thus, the negative dynamic effect might be associated with this FDI decrease. This result was obtained in several other studies as well (e.g. Asiedu and Lien 2011, Bayoumi and Lipworth 1998). For instance, Bayoumi and Lipworth (1998) proposed an alternative interpretation as a stock adjustment process. According to them once the FDI stock is largely increased, it is followed by a diminution in subsequent FDI flows.
Does Democracy have a direct effect on FDI? To answer this question we estimate equation (14) for developed and developing countries using three different democracy measures. We are interested in the magnitude and significance of the coefficient \( \beta_6 \). For developing countries the estimators are positive and significant for some specifications (OLS(b), FE(d), and OLS(f)). This result suggests that an increase in Democracy is likely to encourage FDI inflows in developing countries. Indeed, if a higher democracy is associated with higher property rights, less corruption and higher institution quality, then Japanese MNCs perceive a secure business environment and more profitable opportunities, and increase their investments. For instance, an increase in Democracy level measured by ICRG (OLS(b)) from 3.00 to 4.00 can encourage an increase in Japanese FDI by 1.32% \[ \frac{\partial fdi}{\partial icrg} = 1.32(4.00 – 3.00) \]. This finding confirms the Hypothesis 4 for Democracy derived in section III.2.

However, for developed countries, the coefficient is negative and significant (GMM(d), GMM(c), GMM(e)). It implies that Japanese outward FDI are discouraged by an increased Democracy in developed countries. This result supports the Li and Resnick (2003) findings, and could be explained by the fact that too much Democracy provides less opportunities for monopolistic advantages and MNCs’ interest lobbying in the government. Indeed, in a highly democratic societies (e.g. France) labor rights protection, anti-trust laws, local business protection increases the vulnerability and operational cost for MNCs. Thus, it is reasonable to assume that there is a certain level of Democracy above which a further increase leads to an increased probability of lower FDI. Again, this finding is consistent with the Hypothesis 3 for Democracy derived in section III.2.
We formalize our Hypothesis 3 and 4 of the effects of Democracy on FDI with the following three steps. First, there is some level of Democracy for which Japanese FDI is insensitive. Second, FDI may not be undertaken to countries with a very poor record of Democracy. Thus, for a marginally higher Democracy, FDI is higher. Third, for very stable (developed) countries, FDI is undertaken. Moreover, a marginally lower level of Democracy is interpreted as a good sign for a more disciplined economy, and thus more FDI.

Thus, we define a non-linear inverted U-shape functional relationship between Democracy and FDI. Let $F$ be the appropriately-defined real-valued functional relationship between Democracy and FDI. We postulate that the function $F(Dem, FDI \mid Z)=0$ be a real and multi-valued function on its domain, where Dem stands for Democracy, and Z for the other variables in equation (15). Figure 3 illustrates this relationship inferred from the results in GMM(a) and OLS(b) with ICRG data as the proxy for Democracy [Table 2, GMM(a) and OLS(b)], and visualizes our Hypotheses 3 and 4.

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23For a similar formulation for exchange rate regimes with IQ, see Alesina and Wagner (2006).
Table 4 Democracy (Freedom House) effects on Japanese outward FDI

<table>
<thead>
<tr>
<th></th>
<th>Developed</th>
<th>Developing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OLS(e)</td>
<td>FE(e)</td>
</tr>
<tr>
<td>FDI(-1)</td>
<td>0.59</td>
<td>-0.27</td>
</tr>
<tr>
<td></td>
<td>(7.72)**</td>
<td>(-2.34)**</td>
</tr>
<tr>
<td>GDP</td>
<td>0.79</td>
<td>-0.97</td>
</tr>
<tr>
<td></td>
<td>(3.91)**</td>
<td>(-1.06)</td>
</tr>
<tr>
<td>Wages</td>
<td>-0.27</td>
<td>1.28</td>
</tr>
<tr>
<td></td>
<td>(-1.23)</td>
<td>(2.25)**</td>
</tr>
<tr>
<td>Openness</td>
<td>0.01</td>
<td>-0.01</td>
</tr>
<tr>
<td></td>
<td>(2.37)**</td>
<td>(-0.72)</td>
</tr>
<tr>
<td>Skill Difference</td>
<td>0.52</td>
<td>0.14</td>
</tr>
<tr>
<td></td>
<td>(2.73)**</td>
<td>(0.52)</td>
</tr>
<tr>
<td>Investment Cost</td>
<td>0.46</td>
<td>0.52</td>
</tr>
<tr>
<td></td>
<td>(2.24)**</td>
<td>(1.29)</td>
</tr>
<tr>
<td>FH (Democracy)</td>
<td>0.75</td>
<td>2.74</td>
</tr>
<tr>
<td></td>
<td>(0.45)</td>
<td>(0.61)</td>
</tr>
<tr>
<td>Constant</td>
<td>-23.04</td>
<td>22.84</td>
</tr>
<tr>
<td></td>
<td>(-4.02)**</td>
<td>(0.97)</td>
</tr>
<tr>
<td>R²</td>
<td>0.74</td>
<td>0.89</td>
</tr>
<tr>
<td></td>
<td>0.56</td>
<td>1.18</td>
</tr>
<tr>
<td>Hansen J-test (p-value)</td>
<td>0.23</td>
<td>0.67</td>
</tr>
</tbody>
</table>

Note: t-statistics in parentheses. *,**, and *** mean significant at the 10, 5, and 1% level, respectively.

The null hypothesis is that the overidentification restriction is valid

As illustrated in the Figure, the elasticity of FDI with respect to Dem evaluated at the mean values for developed countries is -0.46, which is more than 2 times as larger than that for developing countries in absolute terms (i.e. 0.16). This implies that Japanese MNCs are not insensitive to Democracy when investing in developed countries. It may be inferred from the Figure that the function F attains a possibly non-unique maximum at some ICRG democratic accountability level somewhere in between the mean values of developing countries (0.66) and developed countries (0.94).24,25

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24Figure 3 is inspired by the idea of Alesina and Wagner (2006). A similar figure can be found in Peng and Beamish (2008), but they have not mentioned the possibility of multi-valued function of F(PE,FDI│Z)=0, or non-linearity.

25The null hypothesis of equality of the mean for Dem, 0.94(s.d.=0.1) for developed countries and 0.66(s.d.=0.22) for developing countries, is rejected by a normal test with the 1% level of significance.
Figure 3. Relationship between Democracy and FDI (η=elasticity of FDI w.r.t. Democracy)

Note: Figures on the axes are the sample means.

Does Political Environment have an effect on Japanese Outward FDI flows? To answer this question we estimate equation (16).

<table>
<thead>
<tr>
<th></th>
<th>Developed</th>
<th></th>
<th></th>
<th>Developing</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OLS(g)</td>
<td>FE(g)</td>
<td>GMM(g)</td>
<td>OLS(h)</td>
<td>FE(h)</td>
<td>GMM(h)</td>
</tr>
<tr>
<td>FDI(-1)</td>
<td>0.59</td>
<td>-0.28</td>
<td>-0.42</td>
<td>0.43</td>
<td>-0.09</td>
<td>-0.11</td>
</tr>
<tr>
<td></td>
<td>(7.91)***</td>
<td>(-2.5)***</td>
<td>(-6.42)***</td>
<td>(5.62)***</td>
<td>(-0.89)</td>
<td>(-4.11)***</td>
</tr>
<tr>
<td>GDP</td>
<td>0.75</td>
<td>-1.41</td>
<td>-0.51</td>
<td>0.59</td>
<td>1.47</td>
<td>1.45</td>
</tr>
<tr>
<td></td>
<td>(3.68)***</td>
<td>(-1.5)</td>
<td>(-1.32)</td>
<td>(3.41)***</td>
<td>(2.05)**</td>
<td>(6.3)***</td>
</tr>
<tr>
<td>Wages</td>
<td>-0.41</td>
<td>1.21</td>
<td>1.73</td>
<td>-0.44</td>
<td>0.43</td>
<td>0.62</td>
</tr>
<tr>
<td></td>
<td>(-1.61)</td>
<td>(2.59)**</td>
<td>(6.49)***</td>
<td>(-2.87)***</td>
<td>(1.44)</td>
<td>(7.42)***</td>
</tr>
<tr>
<td>Openness</td>
<td>0.01</td>
<td>-0.01</td>
<td>-0.01</td>
<td>0</td>
<td>0.003</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>(2.29)**</td>
<td>(-0.87)</td>
<td>(-0.68)</td>
<td>(1.34)</td>
<td>(0.47)</td>
<td>(0.18)</td>
</tr>
<tr>
<td>Skill Difference</td>
<td>0.43</td>
<td>0.04</td>
<td>0.06</td>
<td>0.05</td>
<td>0.3</td>
<td>0.36</td>
</tr>
<tr>
<td></td>
<td>(2.11)**</td>
<td>(0.16)</td>
<td>(0.32)</td>
<td>(0.51)</td>
<td>(1.09)</td>
<td>(2.32)***</td>
</tr>
<tr>
<td>Investment Cost</td>
<td>0.33</td>
<td>0.24</td>
<td>0.8</td>
<td>0.06</td>
<td>0.42</td>
<td>0.49</td>
</tr>
<tr>
<td></td>
<td>(1.41)</td>
<td>(0.56)</td>
<td>(2.7)***</td>
<td>(0.31)</td>
<td>(1.87)*</td>
<td>(2.5)**</td>
</tr>
<tr>
<td>PE</td>
<td>-0.08</td>
<td>-0.26</td>
<td>0.32</td>
<td>-0.12</td>
<td>-0.05</td>
<td>-0.07</td>
</tr>
<tr>
<td></td>
<td>(-1.16)</td>
<td>(-1.63)</td>
<td>(1.98)**</td>
<td>(-2.74)***</td>
<td>(-0.71)</td>
<td>(-2.36)***</td>
</tr>
</tbody>
</table>
A seemingly puzzling result of the GMM estimation appears in case of Political environment (PEit), a composite index of "political risk". The coefficient is statistically significant both for developed and developing countries. For developing countries it is negative and significant, and it corresponds to our initial presumption that the Japanese MNCs are concerned about political stability and reduce their investment when perceiving a higher political risk (GMM(h)). Thus, our Hypothesis 2 is statistically vindicated. For developed countries the coefficient is positive and statistically significant for Japanese FDI flows (see GMM(g)). Literally interpreted, this suggests that Japanese MNCs tend to invest in the more politically unstable countries, which is a counterintuitive finding. Nevertheless, our Hypothesis 1 for PE discussed in section III.1 is supported by this finding. The next discussion is devoted to addressing this seemingly puzzling phenomenon, and to offer our new hypothesis regarding difficulties in interpretation for aggregate indices.

We first propose our hypothesis as follows: Since the composite index PE is constructed with six different qualitative components (see Table 1), they may have different effects on MNCs behaviour for developed and developing countries. We term these qualitative components as “institutional quality (IQ)”, reflecting multiple qualitative characteristics of host countries. Then, if MNCs are more concerned with IQ, there might be a case that an increase in IQ is associated with an increase in FDI positively. Specifically, if the level of "government stability" (item 3 in Table 1) reflects such factors as juridical, bureaucratic and social development in the host country, a lower value of the PE variable means a relatively higher level of IQ, resulting in a lower level of law's and social environment pressure. In other words, Japanese MNCs might expect lower pressure from the government and public sector, which could serve as an incentive for their FDI. From this point of view, starting from a point where PE has been sufficiently low (i.e., IQ has been high enough) as in developed countries, it is likely that Japanese MNCs could tolerate a slightly lower IQ (i.e. a slightly higher PE) to undertake additional FDI if profitable. Several reasons could be put forth. The first reason for it may be that, starting from a level of IQ far above what is necessary for FDI, an increase in PE (a decrease in IQ) means a slightly higher

26 It is interesting to note that we are not the only one FDI research that encounters different and contradicting signs for developed and developing countries samples for PE. A similar sign pattern was reported in a recent empirical research by Peng and Beamish (2008) who discussed difficulties in interpreting the effect of another composite index, a National Corporate Responsibility Index (NCRI) on the Japanese outward FDI.

27 It is also interesting to note that a fact that effects of some composite indices may be ambiguous has been found in another area, the choice of the (optimal) exchange rate regime. Alesina and Wagner (2006) used the Business Environment Risk Intelligence (BERI) index and the Composite Indicator Dataset of the World Bank in order to examine the ambiguous effects of institutional quality on the choice of the exchange rate regime. Likewise, Bearce and Hallerberg (2011) used another aggregate index named “Democracy” which was compiled by Gurr, Jaggers, and Moore (1990) and scored from -10 (most autocratic) to 10 (most democratic), to investigate the choice of the exchange rate regime.
level of law’s and social environment pressure, which could be perceived as a good sign by Japanese MNCs, as it might imply “more discipline”. The second reason for it may be that, if an increase in PE (a decrease in IQ) is associated with slightly deteriorated information access within the market (item 4 in Table 1), then some wider and more “profitable business opportunities” could be opened for Japanese MNCs due to the asymmetric information argument. Interestingly, the first reason put forth as above is similar in spirit to Peng and Beamish (2008, p.691) who emphasize MNC’s corporate responsibility. They used a word “political environment” to have an opposite meaning to our PE, and concluded that "(a) loosening of (political) environment will attract more FDI” (emphasis added) for developed countries, because "the levels of (political environment) may be far above what is necessary" for MNCs’ operations.

Needless to say, when PE is sufficiently high, implying a low level of IQ, as in a case of developing countries, a still higher level of PE (i.e. still lower IQ) is always associated with a lower FDI. This implies that Japanese MNCs may react differently to Political environment in developing host countries, compared with developed ones. Specifically, observing a composite Political Environment variable, Japanese MNCs may be more sensitive to risk factors such as corruption and government non-payment/non-repatriation, (items 1 and 2 in Table 1) when deciding FDI to developing countries.

Similarly to Democracy, we formalize our hypotheses 1 and 2 of the effects of IQ on FDI with the following three steps. First, there is some level of IQ for which Japanese FDI is insensitive. Second, FDI may not be undertaken to countries with a very poor record of IQ. Thus, for a marginally lower IQ, FDI is reduced. Third, for very stable (developed) countries, FDI is undertaken. Moreover, a marginally lower level of IQ (i.e., higher PE) is interpreted as a good sign for a more disciplined economy, and thus more FDI.

Let G be the appropriately-defined real-valued functional relationship between PE and FDI. We postulate that the function G(PE, FDI | Z)=0 be a real and multi-valued function on its domain, where Z stands for the other variables in equation (16). To reiterate our hypothesis, it is equivalent to assume that there is some non-linearity between PE and FDI (cf. Alesina and Wagner, 2006; Peng and Beamish, 2008). Figure 4, with our estimated elasticities (evaluated at the sample means), visualizes our Hypotheses 1 and 2.

---

28 For a similar formulation for exchange rate regimes with IQ, see Alesina and Wagner (2006).
29 Figure 4 also is inspired by the idea of Alesina and Wagner (2006). A similar figure can be found in Peng and Beamish (2008), but they have not mentioned the possibility of multi-valued function of F(PE,FDI | Z)=0, or non-linearity.
30 The null hypothesis of equality of the mean for PE, 3.64 (s.d.=3.49) for developed countries and 10.67 (s.d.=4.32) for developing countries, is rejected by a normal test with the 1% level of significance.
As illustrated in the Figure, the elasticity of FDI with respect to PE evaluated at the mean values for developed countries is 0.24, which is more than that for developing countries in absolute term (i.e. 0.14). This implies that Japanese MNC’s are not insensitive to PE when investing in developed countries. It may be inferred from the Figure that the function G attains a possibly non-unique maximum at some PE level somewhere in between the mean values of developed countries (3.64) and developing countries (10.67).

Thus, both the results of separate regressions of Democracy and PE suggested an inverted U-shape relationship with respect to FDI. In order to test this hypothesis we pooled our sample and estimated the following equations:

\[
\begin{align*}
\text{(LOG_FDI)}_t &= \delta \text{(LOG_FDI)}_{t-1} + \beta_1 \text{LOG_GDP}_t + \beta_2 SD_t + \\
&\quad \beta_3 \text{LOG_W}_t + \beta_4 \text{OPENNESS}_t + \beta_5 \text{IC}_t + \beta_6 \text{PE}_t + \beta_7 \text{PE}^2_t + \epsilon_t. \\
\end{align*}
\]

(17)

\[
\begin{align*}
\text{(LOG_FDI)}_t &= \delta \text{(LOG_FDI)}_{t-1} + \beta_1 \text{LOG_GDP}_t + \beta_2 SD_t + \\
&\quad \beta_3 \text{LOG_W}_t + \beta_4 \text{OPENNESS}_t + \beta_5 \text{IC}_t + \beta_6 \text{PE}_t + \beta_7 \text{PE}^2_t + \epsilon_t.
\end{align*}
\]

(18)

If our hypothesis is correct, then the expected sign of \( \beta_7 \) for both equations (17) and (18) is negative, as it implies the concavity. The results are presented in Table 6, in which only the results of GMM for our variables of interest are reported.

Interestingly, the coefficients of Democracy (ICRG and Polity IV) and PE are significant and negatively signed as expected. Thus, our hypothesis is successfully vindicated. Further investigation is needed to support our hypothesis on a broader framework. Nevertheless, in the next section we put forth a more complicated relationship between PE, Democracy and FDI.
Table 6 Pooled 55 countries, ICRG squared, Polity squared, FH squared and PE squared

<table>
<thead>
<tr>
<th></th>
<th>GMM(i)</th>
<th>GMM(j)</th>
<th>GMM(k)</th>
<th>GMM(l)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDI(-1)</td>
<td>-0.22 (-3.53)***</td>
<td>-0.32 (-5.57)***</td>
<td>-0.5 (-5.29)***</td>
<td>-0.15 (-2.13)***</td>
</tr>
<tr>
<td>GDP</td>
<td>0.27 (0.54)</td>
<td>1.87 (2.4)**</td>
<td>0.66 (0.55)</td>
<td>-0.05 (-0.25)</td>
</tr>
<tr>
<td>Wages</td>
<td>1.03 (5.12)***</td>
<td>1.51 (5.85)***</td>
<td>1.2 (2.41)**</td>
<td>1.07 (4.2)***</td>
</tr>
<tr>
<td>Openness</td>
<td>-0.01 (-1.35)</td>
<td>-0.03 (-3.44)***</td>
<td>-0.01 (-1.18)</td>
<td>0.001 (0.22)</td>
</tr>
<tr>
<td>Skill Difference</td>
<td>0.35 (2.33)**</td>
<td>0.14 (0.8)</td>
<td>0.32 (0.97)</td>
<td>0.15 (1.11)</td>
</tr>
<tr>
<td>Investment Cost</td>
<td>-0.04 (-0.21)</td>
<td>0.24 (0.97)</td>
<td>-0.11 (-0.25)</td>
<td>0.45 (2.07)**</td>
</tr>
<tr>
<td>ICRG</td>
<td>15.41 (2.41)***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polity</td>
<td></td>
<td>-15.05 (-1.25)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICRG squared</td>
<td>-11.56 (-2.56)**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polity squared</td>
<td></td>
<td>9.04 (1.19)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FH</td>
<td></td>
<td></td>
<td>37.05 (1.98)*</td>
<td></td>
</tr>
<tr>
<td>FH squared</td>
<td></td>
<td></td>
<td>-30.36 (-2.24)**</td>
<td></td>
</tr>
<tr>
<td>PE</td>
<td></td>
<td></td>
<td>0.3 (1.42)</td>
<td></td>
</tr>
<tr>
<td>PE squared</td>
<td></td>
<td></td>
<td>-0.02 (-2.23)**</td>
<td></td>
</tr>
<tr>
<td>SE of regression</td>
<td>0.97</td>
<td>1.05</td>
<td>1.33</td>
<td>0.97</td>
</tr>
<tr>
<td>Hansen J-test (p-value)*</td>
<td>0.42</td>
<td>0.61</td>
<td>0.75</td>
<td>0.32</td>
</tr>
</tbody>
</table>

Note: t-statistics in parentheses. *, **, and *** mean significant at the 10, 5, and 1% level, respectively.

The null hypothesis is that the overidentification restriction is valid.

7. POLITICAL ENVIRONMENT, DEMOCRACY AND FDI

As suggested in the previous section, the results show that it is plausible to expect an inverted U-shape relationship between PE and FDI, and between Democracy and FDI. As a step further we might expect that there is a negative correlation between PE and Democracy.
Note that Democracy is measured by three alternative variable choices (ICRG Democratic Accountability, Polity IV and Freedom House Political Rights). In fact, Democracy represents the voice of citizens to influence political movement, political decisions. Thus it is directly related to political parties’ competitiveness. So the higher is democracy, the higher would be a pressure on the current government. As a consequence, the government cannot take inappropriate decisions like for example a big multinational company lobbying to pursue its interests of maximizing profit strategies on the expense of employees’ working conditions and environmental issues. PE is another side of the coin. It is more about how the system works, and it reflects such issues like corruption, bureaucracy, and confiscatory taxation policies.

The relationship between Democracy and PE can be gleaned from Figure 5. For instance, Kazakhstan (KZ) may serve as an extreme example of a developing country with relatively low level of Democracy (0.23) and high level political risk (0.57). Thus, despite abundance in natural resources (gas, oil etc) MNCs’ presence in this country is relatively limited. On the other hand, for example, Iceland (IS) is a developed country with relatively high level of Democracy (1.00) and low level of Political risk (0.18). As a result, there has been a relatively high presence of foreign investors; particularly in the banking sector (until the financial crisis started in 2008).

![Figure 5. Relationship between ICRG and PE. ICRG ([0,1] scale) and PE ([0,1] scale), 55 countries, 1995-2010. Values are averaged by country from 1995 to 2010. A higher ICRG value is associated with higher level of democracy. A higher PE value is associated with increased political risk. The regression represented by the fitted line yields a slope coefficient of -0.4208, R² = 0.2326.](image-url)
In sum, Democracy and PE represent two aspects of institutional environment. Nevertheless, they may influence each other. As shown in Figure 5 the correlation between Democracy and PE is negative, since higher Democracy might be associated with lower political risk.

Table 7 presents a correlation between PE and Democracy.

<table>
<thead>
<tr>
<th>Correlation with PE</th>
<th>Correlation with PE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polity IV</td>
<td>-0.34</td>
</tr>
<tr>
<td>t-statistics</td>
<td>-5.18</td>
</tr>
<tr>
<td>ICRG Democratic accountability</td>
<td>-0.47</td>
</tr>
<tr>
<td>t-statistics</td>
<td>-7.69</td>
</tr>
<tr>
<td>Freedom House</td>
<td>-0.51</td>
</tr>
<tr>
<td>t-statistics</td>
<td>-8.55</td>
</tr>
</tbody>
</table>

Indeed all the coefficients are negative. Thus we could illustrate a more complicated relationship between PE, Democracy and FDI on a common 3-D figure as shown in Figure 6 below.

**Figure 6. Relationship between Democracy, PE and FDI**

PE and Democracy might influence each other, and their interaction might have an effect on Japanese outward FDI as well. Mathur and Singh (2013) were probably one of the first who suggested a possible interaction between corruption (as a measure of PE) and Democracy. However, they left vigorous statistical analyses of its implications unanalyzed. In order to investigate a possible relationship between Democracy and PE, we perform a Granger causality test. We follow an estimation procedure suggested
by Toda and Yamamoto (1995) that takes into consideration non-stationarity of the data at their level.\(^{31}\) The results are presented in Table 8.

Table 8 Re-estimated Granger Causality (follows Toda and Yamamoto (1995))

<table>
<thead>
<tr>
<th>Developed countries</th>
<th>Developing countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE &amp; ICRG</td>
<td>ICRG Granger causes PE</td>
</tr>
<tr>
<td>PE &amp; Polity</td>
<td>No causality</td>
</tr>
<tr>
<td>PE &amp; FH</td>
<td>FH Granger causes PE</td>
</tr>
<tr>
<td></td>
<td>No causality</td>
</tr>
</tbody>
</table>

In what follows, we found that, for developed countries, the Granger test shows that Democracy (ICRG and FH) causes PE, and for developing countries that PE causes Democracy (ICRG and Polity)\(^{32}\). Thus, as a next step we estimate an interaction effect of Democracy and PE on Japanese Outward FDI. For developed countries we estimate PE + PE*Democracy, equation (19). For developing countries we estimate Democracy + PE*Democracy, equation (20).

\[
\text{LOG}_{-}\text{FDI}_{it} = \delta\text{LOG}_{-}\text{FDI}_{i,t-1} + \beta_1\text{LOG}_{-}\text{GDP}_{it} + \beta_2\text{SD}_{it} + \beta_3\text{LOG}_{-}\text{W}_{it} + \beta_4\text{OPENNESS}_{it} + \beta_5\text{IC}_{it} + \beta_6\text{PE}_{it} + \beta_7\text{Dem}_{it}*\text{PE}_{it} + \epsilon_{it}. \tag{19}
\]

\[
\text{LOG}_{-}\text{FDI}_{it} = \delta\text{LOG}_{-}\text{FDI}_{i,t-1} + \beta_1\text{LOG}_{-}\text{GDP}_{it} + \beta_2\text{SD}_{it} + \beta_3\text{LOG}_{-}\text{W}_{it} + \beta_4\text{OPENNESS}_{it} + \beta_5\text{IC}_{it} + \beta_6\text{Dem}_{it} + \beta_7\text{DEM}_{it}*\text{PE}_{it} + \epsilon_{it}. \tag{20}
\]

The results of the estimation are presented in Tables 9 and 10.

As can be inferred from the results, the hypothesis of a nonlinear relationship between FDI and PE/Democracy is again confirmed. The direct effect of PE on Japanese outward FDI in case of developed countries is positive. For developing countries the result is significant only for ICRG, and it implies that it has a positive effect on Japanese MNCs activities.

Moreover, we can infer that, for developed countries, \(\frac{\partial f_{\text{di}}}{\partial \text{pe}} = 0.04 - 0.36*\text{ICRG}\). Thus a positive effect of an increase in PE on Japanese FDI is reduced if Democracy (ICRG Democratic accountability) increases.

For developing countries (based on ICRG estimations) \(\frac{\partial f_{\text{di}}}{\partial \text{icrg}} = 1.81-0.21*\text{PE}\). Thus, a positive effect of improvement in Democracy (ICRG) is reduced when PE increases (i.e. deterioration of political environment).

\[\text{The details of our estimation are available upon request.}\]

\[\text{However, no Granger causality was identified in PE and Polity relationship for developed countries, nor in PE and FH relationship for developing countries.}\]
Table 9 Developed countries. Political environment and Democracy

<table>
<thead>
<tr>
<th></th>
<th>PE and ICRG</th>
<th>PE and FH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OLS(i)</td>
<td>FE(i)</td>
</tr>
<tr>
<td>FDI(-1)</td>
<td>0.58 (7.69)***</td>
<td>-0.28 (-2.48)**</td>
</tr>
<tr>
<td>GDP</td>
<td>0.75 (3.7)***</td>
<td>-1.42 (-1.5)</td>
</tr>
<tr>
<td>Wages</td>
<td>-0.45 (-1.7)*</td>
<td>1.04 (1.86)*</td>
</tr>
<tr>
<td>Openness</td>
<td>0.01 (2.34)**</td>
<td>-0.01 (-0.69)</td>
</tr>
<tr>
<td>Skill Difference</td>
<td>0.42 (1.99)**</td>
<td>0.03 (0.11)</td>
</tr>
<tr>
<td>Investment Cost</td>
<td>0.3 (1.21)</td>
<td>0.13 (0.29)</td>
</tr>
<tr>
<td>PE</td>
<td>-0.02 (-0.13)</td>
<td>-0.17 (-0.79)</td>
</tr>
<tr>
<td>PE*ICRG</td>
<td>-0.09 (-0.55)</td>
<td>-0.14 (-0.59)</td>
</tr>
<tr>
<td>PE*FH</td>
<td>-19.4 (-3.05)***</td>
<td>41.74 (1.6)</td>
</tr>
<tr>
<td>Constant</td>
<td>1.29</td>
<td>0.99</td>
</tr>
<tr>
<td>R^2</td>
<td>0.74</td>
<td>0.89</td>
</tr>
<tr>
<td>SE of regression</td>
<td>0.76</td>
<td></td>
</tr>
</tbody>
</table>

Note: t-statistics in parentheses. *, **, and *** mean significant at the 10, 5, and 1% level, respectively.

The null hypothesis is that the overidentification restriction is valid.

In sum, for developed countries Japanese MNCs might seek a lower democracy associated with higher political risk. This could be explained by the fact that more profitable opportunities open for Japanese MNCs. In addition, there would be more favourable conditions for monopolistic advantages. And since at the initial level democracy and PE are relatively stable for developed countries, their slight deterioration does not threaten the profits of foreign affiliates of an MNC. This is a joint consequence of Hypotheses 1 and 3. For developing countries a higher democracy associated with a decrease in PE encourages FDI. This is a new and somewhat interesting finding. It suggests that Japanese MNCs seek a higher democracy, which probably ensures more property rights. A decrease in political environment might be associated, for instance, with more information transparency, stronger regulatory and policy environment, which leads to more profitable opportunities for MNCs. Thus, FDI is increased, which is another joint consequence of Hypotheses 2 and 4.
This result is highly important from the policy prescription perspective, as the host countries’ government could consider democracy, political stability and the stage of economic development together when prescribing FDI attracting policies.

Table 10 Developing countries. Democracy and Political Environment

<table>
<thead>
<tr>
<th></th>
<th>PE and ICRG</th>
<th></th>
<th>PE and Polity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OLS(k)</td>
<td>FE(k)</td>
<td>GMM(o)</td>
</tr>
<tr>
<td>FDI(-1)</td>
<td>0.42**</td>
<td>-0.11</td>
<td>-0.04</td>
</tr>
<tr>
<td></td>
<td>(5.55)**</td>
<td>(-1.05)</td>
<td>(-0.6)</td>
</tr>
<tr>
<td>GDP</td>
<td>0.74**</td>
<td>1.56**</td>
<td>1.2**</td>
</tr>
<tr>
<td></td>
<td>(4.33)**</td>
<td>(2.21)**</td>
<td>(3.87)**</td>
</tr>
<tr>
<td>Wages</td>
<td>-0.44**</td>
<td>0.46</td>
<td>0.25</td>
</tr>
<tr>
<td></td>
<td>(-2.84)**</td>
<td>(1.53)</td>
<td>(1.56)</td>
</tr>
<tr>
<td>Openness</td>
<td>0.01**</td>
<td>0.003</td>
<td>0.005</td>
</tr>
<tr>
<td></td>
<td>(2.71)**</td>
<td>(0.53)</td>
<td>(1.47)</td>
</tr>
<tr>
<td>Skill Difference</td>
<td>0.14</td>
<td>0.28</td>
<td>0.57</td>
</tr>
<tr>
<td></td>
<td>(1.24)</td>
<td>(0.99)</td>
<td>(3.76)**</td>
</tr>
<tr>
<td>Investment Cost</td>
<td>0.11</td>
<td>0.46</td>
<td>1.1**</td>
</tr>
<tr>
<td></td>
<td>(0.55)</td>
<td>(2.07)**</td>
<td>(5.86)**</td>
</tr>
<tr>
<td>ICRG</td>
<td>2.48**</td>
<td>-0.002</td>
<td>1.81*</td>
</tr>
<tr>
<td></td>
<td>(3.16)**</td>
<td>(-0.001)</td>
<td>(1.72)</td>
</tr>
<tr>
<td>Polity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PE*ICRG</td>
<td>-0.13</td>
<td>-0.1</td>
<td>-0.21**</td>
</tr>
<tr>
<td></td>
<td>(-2.31)**</td>
<td>(-0.99)</td>
<td>(-3.00)**</td>
</tr>
<tr>
<td>PE*Polity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-17.79</td>
<td>-37.62</td>
<td>-18.01</td>
</tr>
<tr>
<td></td>
<td>(-3.74)**</td>
<td>(-2.06)**</td>
<td>(-3.53)**</td>
</tr>
<tr>
<td>R²</td>
<td>0.8</td>
<td>0.94</td>
<td>0.80</td>
</tr>
<tr>
<td>SE of regression</td>
<td>0.92</td>
<td>0.65</td>
<td>0.79</td>
</tr>
<tr>
<td>Hansen J-test (p-value)²</td>
<td>0.77</td>
<td>0.76</td>
<td></td>
</tr>
</tbody>
</table>

Note: t-statistics in parentheses. ***, **, and * mean significant at the 10, 5, and 1% level, respectively.

²The null hypothesis is that the overidentification restriction is valid

For developing countries an increase in Democracy will potentially lead to more FDI. If associated with PE its increasing effect might be strengthened by lower PE. On the other hand, for developed countries, the issue may be more controversial. Up to a certain threshold level an increase in Democracy will lead
to more FDI, but if the increase in Democracy goes further beyond the level that is necessary for MNCs operations, it might actually lead to less FDI. And the effect is even strengthened by higher PE. Thus, a certain balance might be necessary.

8. CONCLUDING REMARKS

This paper empirically examined the outward Japanese FDI with a panel data of a total of 56 developed and developing countries for the period 1995-2010. Based on the OLI theoretical framework and knowledge-capital models, a number of traditional determinants (GDP, Human capital indicators, Investment cost, Trade cost, etc.) are complemented with 2 non-traditional determinants for Japanese FDI, namely Democracy and Political Environment. Ordinary Least Squares, Fixed Effects and Generalized method of moments are applied to this panel data set. The main conclusions are based on the GMM specifications that implied GMM instruments as endogenous.

The estimated coefficients of the traditional (conventional) explanatory variables are mostly consistent with the preceding studies and are robust for all specifications.

One of our main concerns in this paper, Democracy was differently signed for developed and developing countries. Although it was measured by 3 different measures, namely ICRG, Polity and Freedom House, the results were robust. For developing countries higher Democracy is associated with more FDI, which is consistent with most of the previous findings (Jensen 2003, Asiedu and Lien 2011 etc). However, for developed counties, higher Democracy turned out to be associated with less FDI. In explaining this result we proposed an inverted U-shape non-linear relationship between Democracy and FDI. In fact, this finding confirms our theoretical inference as well.

Another concern in this paper, Political Environment (PE), was differently signed for developed and developing countries as well. For developing countries it has a negative sign, which is consistent with most of the preceding literature. However, for developed countries, the sign is positive, implying that Japanese MNCs tend to increase FDI for a marginal increase in PE (i.e. a marginal decrease in institutional quality), because political environment in developed countries may be far above what is necessary for MNCs’ operations (Peng and Beamish 2008). On this seemingly contradictory result, again we put forth our hypothesis of the existence of non-linearity between Political environment and FDI, following an interpretation by Alesina and Wagner (2006). This finding confirms our theoretical hypotheses as well.

In order to test our hypotheses we pooled all the countries in one sample, and regressed FDI with a squared PE term. An inverted U-shape relationship was confirmed robustly only in case of ICRG as a measure of Democracy.

Finally, we examined a relationship between PE and Democracy and its possible interaction effect on Japanese outward FDI. First, the Granger causality test showed one-directional causality from Democracy to PE for developed countries, and from PE to Democracy for developing countries. Second, based on Granger causality we examined the effect of interaction term between PE and Democracy on Japanese MNCs activities. The results showed that, for developed countries, Japanese MNCs might seek lower democracy associated with higher political risk, while for developing countries a higher democracy associated with a decrease in PE. This line of research is highly important from the government policies perspective since countries’ development stage, Democracy and Political environment could be considered simultaneously.
We conclude that Japanese FDI can be reasonably explained by the proposed independent variables. The most probable and/or dominant form of Japanese FDI according to the results is vertical type when investing in developing countries and horizontal type when investing in developed countries. And finally, as far as the authors know, this is the first formal attempt to empirically examine the effects of political environment and democracy on Japanese FDI to developed and developing countries using the Euromoney Country Risk index and 3 measures of Democracy namely ICRG, Polity and Freedom House. We successfully found that democracy and political environment are, as expected, significantly associated with Japanese FDI flows. These finding have important implications for future policy consideration by host countries and academic research on Japanese outward FDI.

Appendix

Appendix 1 List of countries used in the study

<table>
<thead>
<tr>
<th>Developed countries (32 countries)</th>
<th>Developing countries (24 countries)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia (AU), Austria (AT), Belgium (BE), Canada (CA), Chile (CL), Czech Republic (CZ), Denmark (DK), Finland (FI), France (FR), Germany (DE), Greece (GR), Hungary (HU), Iceland (IS), Ireland (IE), Israel (IL), Italy (IT), Korea (KR), Luxembourg (LU), Mexico (MX), Netherlands (NL), New Zealand (NZ), Norway (NO), Poland (PL), Portugal (PT), Slovakia (SK), Slovenia (SI), Spain (ES), Sweden (SE), Switzerland (CH), Turkey (TR), United Kingdom (UK), United States (US)</td>
<td>Argentina (AR), Brazil (BR), Bulgaria (BG), China (CN), Colombia (CO), Hong Kong (HK), India (IN), Indonesia (ID), Jordan (JO), Kazakhstan (KZ), Malaysia (MY), Peru (PE), Philippines (PH), Qatar (QA), Romania (RO), Russia (RU), Singapore (SG), South Africa (ZA), Taiwan (TW), Thailand (TH), United Arab Emirates (AE), Ukraine (UA), Venezuela (VE), Vietnam (VN)</td>
</tr>
</tbody>
</table>

Appendix 2 Descriptive statistics of variables in the study

<table>
<thead>
<tr>
<th>Developed</th>
<th>Developing</th>
<th>Pooled sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>Std. Dev.</td>
<td>Coef. of variation</td>
</tr>
<tr>
<td>LOG_FDI</td>
<td>4.90</td>
<td>2.45</td>
</tr>
<tr>
<td>LOG_GDP</td>
<td>26.36</td>
<td>1.32</td>
</tr>
<tr>
<td>LOG_W</td>
<td>2.64</td>
<td>0.91</td>
</tr>
<tr>
<td>IC</td>
<td>6.78</td>
<td>1.00</td>
</tr>
<tr>
<td>SD</td>
<td>0.64</td>
<td>0.84</td>
</tr>
<tr>
<td>OPENNESS</td>
<td>76.96</td>
<td>34.17</td>
</tr>
<tr>
<td>PE</td>
<td>3.64</td>
<td>3.49</td>
</tr>
<tr>
<td>POLITY</td>
<td>0.98</td>
<td>0.05</td>
</tr>
<tr>
<td>ICRG</td>
<td>0.94</td>
<td>0.10</td>
</tr>
<tr>
<td>FH</td>
<td>0.97</td>
<td>0.10</td>
</tr>
</tbody>
</table>
Earlier versions of this paper were presented at various Conferences and Workshops, including WEAI (San-Francisco), HSS (Paris), JSIE (Konan University), JEPA (Nagoya Gakuin University), WEAI (Tokyo) and Graduate Workshop (Waseda University). We would like to express our sincere thanks to Professors Shujiro Urata, John Devereux, Nathan Cook, Lein Lein Chen, Aleksander Petkovic, Toshiyuki Matsuura, Vu Thuan Khai and other participants for their critical but constructing comments and suggestions that improved the content considerably. All remaining errors and shortcomings are our own. This paper is a part of outcome of research performed under a Waseda University Grant for Special Research Projects (Project number: 2013B-010).

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FISCAL POLICY AND EXTERNAL DISEQUILIBRIUM IN THE EU ECONOMIES

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Abstract
The paper’s main objective is to investigate the empirical link between the fiscal balance and the current account. The paper focuses on the EU member states and candidate countries which are according to their different (historical, political, economical and geographical) characteristics divided into two major groups, i.e. old EU member states (EU-15) and new EU member states and candidate countries (EU12+3) in the 1995-2008 period. The empirical results suggest that budget deficits in the EU member states and candidate countries have generally signaled relatively high level of substitutability between private and public savings, implying a relatively low correlation between fiscal and external imbalances. Finally, the paper provides evidence of a relatively higher level of capital mobility in the EU12+3 region, particularly in the second sub-period (2004-2008).

Key words: current account, public finance, capital mobility, EU, panel data analysis

1. INTRODUCTION

The extent to which variations in the stance of fiscal policy can lead to predictable developments in an open country’s performance in the current account of the balance of payments remains a controversial issue. Generally, two competing views exist to explain variations in the current account as a consequence of public sector (in)stability. The traditional view argues that general government budget deficits cause current account deficits. In fact, public sector activity can have both direct and indirect effects on the current account balance. Construction projects by the public sector may require imports of investment goods, thereby exerting a direct influence on the external balance. Simultaneously, public sector activities affect total demand in the economy and an increase in them can also have some psychological effect. In addition, financing budget deficits by issuing bonds leads to higher consumption expenditure due to wealth effects and they raise interest rates. Ceteris paribus, these higher interest rates appreciate the currency and, because of the resulting loss in competitiveness, worsen the current account balance. The traditional view is challenged by adherents to the Ricardian equivalence hypothesis (Barro, 1989) which states that an increase in a budget deficit (through reduced taxes) will be offset by increases in private savings, insofar as the private sector fully discounts the future tax liabilities associated with financing the fiscal deficit.

It is not only developed economies like the US that seem to suffer from a twin deficit problem since several emerging economies, including new EU member states, are also experiencing deficits in both the government budget and current account balance. So far, empirical studies have mainly concentrated on the US and other developed economies. Therefore, empirical work to analyze data from different emerging economies is needed, in particular for the so far mainly neglected new EU member states and candidate states. In line with this, the article builds on the work of Hermann and Jochem (2005) and also
Fidrmuc (2003) who investigated evidence of the twin deficits phenomenon and the so-called Horioka-Feldstein puzzle in a wide range of economies, including three new EU member states, by modifying his analysis by applying different econometric approaches.

Thus, the purpose of the paper is to test empirically the validity and rationale of the neoclassical (and Keynesian) theory and the Ricardian equivalence hypothesis in the old EU member states (EU-15) and new EU member states and candidate countries (EU12+3). Additionally, the importance of the Feldstein-Horioka puzzle in the considered countries is examined in order to draw some conclusions about the regions’ integration with international capital markets. Therefore, the relationship between budget and current account deficits and other selected current account determinants are tested using panel data for 30 countries in the 1995-2008 period.

The paper is organized as follows. The next section briefly summarizes the theoretical considerations of twin deficits hypothesis and the background of the empirical methodology. The empirical tests of current account determinants are then presented in third section. The final section provides concluding remarks and some policy implications.

2. THEORETICAL BACKGROUND AND EMPIRICAL METHODOLOGY

2.1 Theoretical background

Simple national accounting identities help shed light on the macroeconomic determinants of current account fluctuations. According to the absorption theory of the balance of payments (Alexander, 1952), the current account is the excess of gross national product (\( \text{GNP}_t \)) over absorption (\( \text{A}_t \)):

\[
\text{CA}_t = \text{GNP}_t - \left( \text{C}_t + \text{G}_t + \text{I}_t \right) = \text{GNP}_t - \text{A}_t
\]

where \( \text{C}_t \), \( \text{G}_t \), and \( \text{I}_t \) stand for private consumption, government purchases and investment. In addition, note that the difference between a country’s national product and private and government consumption is national savings that are the sum of private and government savings. As a result, the current account is also equal to the difference between national savings, \( \text{S}_t \), and investment:

\[
\text{CA}_t = \text{S}_t - \text{I}_t = \text{S}_t^p - \text{I}_t^p + (\text{T}_t - \text{G}_t)
\]

where a current account surplus must be matched by a private sector surplus (\( \text{S}_t^p > \text{I}_t^p \)) and/or public-sector surplus (\( \text{T}_t > \text{G}_t \)). By analogy, a current account deficit must be matched by a private sector deficit and/or public sector deficit (i.e. the ‘twin deficit’ problem). When an economy starts to run a current account deficit, policymakers will want to see whether there has been a decrease in (private) savings, increase in investment, and/or increase in the budget deficit. However, there is a sound reason to worry about a country’s long-term prospects if the onset of the current account deficit reflects lower (private)
savings or a larger budget deficit.\textsuperscript{33} In both cases, the country is borrowing abroad or running down its foreign assets to sustain or raise consumption, whether by the private sector or the public sector. Yet there is less cause to worry when the onset of a current account deficit reflects an increase in investment. Namely, the country is then raising its capital stock more quickly and therefore raising its future output faster.

Suppose that current taxes are held constant and \((S_t^p - I_t^p)\) remains the same and stable, an increase in temporary purchases will raise the government budget deficit \((G_t - T_t)\) which in turn affects the current account. In this way, a government budget deficit resulting from increased purchases reduces the nation’s current account surplus or widens a nation’s current account deficit (Abel and Bernanke, 2001). Another aspect of the twin deficits phenomenon could be the positive effect of budget deficits on interest rates. In fact, in a small open economy an increase in the budget deficit leads to an increase in interest rates. The increase in interest rates induces capital inflows leading to an appreciation of domestic currency. A twin deficits situation arises as the appreciation deteriorates net exports and, in turn, worsens the current account (Kearney and Monadjemi, 1990).\textsuperscript{34}

On the other hand, many economists support the alternative view (intertemporal approach) exemplified by the Ricardian theory (see Barro, 1989) and suggest that the decline in public saving is offset by an equal increase in private saving, and that national saving remains unaffected. In other words, the proponents of Ricardian equivalence stress that, in order to analyze macroeconomic phenomena, it is necessary to take into account the intertemporal saving and investment decisions of the private sector. In these models, the current account is viewed as the solution to a dynamic optimization problem where the objective is to allocate consumption optimally over time. The current account balance is seen as the change in net assets of an economy. In addition, the government budget deficit is the result of a cut in current taxes, with current and planned future government purchases unchanged. With government purchases, \(G_t\), unchanged and with output, \(Y_t\), held constant at its full-employment level, the tax cut will cause national saving to fall only if it causes private consumption, \(C_t\), to rise.

In fact, the proponents of Ricardian equivalence argue that lump-sum tax changes (with current and future government purchases held constant) will not affect consumption or national savings. These economists argue that a cut in taxes today forces the government to borrow more to pay for its current purchases; when this extra borrowing plus interest is repaid in the future then future taxes will have to rise. Thus, although a tax cut raises consumers’ current after-tax incomes the tax cut creates the need for higher future taxes and lowers the after-tax incomes that consumers can expect to receive in future. If the Ricardian equivalence proposition is true, a budget deficit resulting from a tax cut will have no effect on the current account because it does not affect national savings.

\textsuperscript{33} Proponents of the so-called Lawson doctrine emphasized that an increase in a current account deficit that results from a shift in private sector behavior should not be a matter of concern at all. On the other hand, the public budget balance is a matter of public policy concern and the focus should be on this (Corden, 1994). Nevertheless, several financial crises, like Mexico (1994), occurred despite the absence of large fiscal imbalances.

\textsuperscript{34} Several studies supported the twin deficits hypothesis, such as Darrat (1988) and Bachman (1992) for the USA, Vamvoukas (1997) for Greece, Kulkarni et al. (2001) for Mexico, India and Pakistan, Islam (1998) for Brazil, Akbostanci et al. (2001) for Turkey, Fidrmuc (2003) for Hungary and Poland and Afonso and Rault (2008) for Austria, Belgium, Czech Republic, Ireland, Latvia, and Malta.
2.2 Empirical methodology and data

Based on previous theoretical and empirical findings reported by Bussière et al. (2004), Hermann and Jochem (2005), Marinheiro (2006), and Nickel and Vansteenkiste (2008), empirical analysis will be applied to assess the model where the current account balance represents the dependent variable for country $i$ in time $t$. The observation covers two dimensions: a cross-sectional observation of individual units ($i$) and an observation of time series ($t$). The equation of the model is as follows:

$$ TR_a = \alpha + \lambda + \beta_1 TR_{a-1} + \beta_2 JF_a + \beta_3 RELBDP_a + \beta_4 I_a + \beta_5 REER_a + \nu_a $$

$\alpha$ stands for the effects which are common to all countries and do not change in time, $\beta$ stands for partial regression coefficients for selected independent variables (public finance balance (JF), investments (I), relative real GDP p.c. (RELBDP) and real effective exchange rate (REER)). $\lambda$ stands for time effects characteristic of an individual year but constant for all countries, $\nu_a$ represents the errors of the regression model due to a random effect, which are characteristic of an individual country and year.

Many reasons speak in favor of a panel analysis. A panel model includes higher degrees of freedom and variability of the sample than models based solely on time series; they enable the testing of more complex characteristics than in time series models or between observed units; it enables control over the omitted variables – these are not part of the model but correlate with the explanatory variable. The model is dynamic, thus enabling the analysis to focus on the differences within an individual observed unit and thus reduce correlation between the current and lag variables. It enables more accurate forecasts using pooling data as it is possible to observe the behavior of an individual unit by observing other units. In addition, it tests homogeneity against the heterogeneity of the observed units. If these units are independent the panel analysis ensures a normal or asymmetric distribution, whereas in the case of time series a problem often arises, namely the distribution of coefficients of minimum squares or maximum likelihood is not part of a normal distribution (Hsiao, 2006, pp. 2-8).

The main difference between the panel and OLS models lies in the use of the methodology of fixed effect models (FEM) or random effect models (REM). The FEM fixes part of the error (deviation) in the estimated values as a constant, whereas the REM allows for variation of this part of unexplained deviations. Using the Hausman test for the existence of statistically significant differences between the estimated regression coefficients which had been calculated based on the FEM or REM, we verify the zero hypothesis that the effects of individual countries do not correlate with other variables included in the model in all studied cases. Moreover, Beck and Katz (1996) propose a less complex method, retaining OLS parameter estimates (consistent but inefficient) and replace OLS standard errors by panel-corrected standard errors (PCSE). Since the samples of the models generally contain more countries than annual observations per country, we also propose to use ordinary least squares with panel corrected standard errors (OLS-PCSE).

The theoretical and previous empirical findings generate our expectation that there is a positive correlation between the public finance balance and the current account balance in the EU-27 and the candidate countries. In view of the fact that the public finance deficit often means borrowing in foreign financial markets and thus contributes to the current account deficit, a positive sign is expected in front of the regression coefficient. The real convergence of countries and the forecast higher income in the
future lead to borrowing which, obviously, debits the current account of the balance of payments. Another burden is the fact that the catching-up process actually attracts investments. Due to the above, a negative sign is expected in front of the estimated regression coefficient. Appreciation of the real exchange rate in line with the theoretical expectations causes international competitiveness to deteriorate, along with the current account balance, which is why the expected estimate of the abovementioned regression coefficient is negative. The empirical data analysis is based on the STATA 10.0 statistical program.

The database consists of annual data for the dependent variable of the current account balance and an independent variable for the sample of 30 countries in the period from 1995 to 2008. The basic data sources include World Development Indicators (WDI), the OECD database and Eurostat. In the assessment of the model, the dependent variable is the balance of the current account of the balance of payments (TR), expressed as a percentage of GDP (a negative value shows a current account deficit). Independent variables in the model, besides the dependent lag variable, include the balance of the public finance balance as a percentage of GDP (JF), domestic investment as a percentage of GDP (I), relative income per capita (RELBDP) and the variable of the real effective exchange rate (REER).

3. EMPIRICAL RESULTS

3.1. Verification of the model's adequacy

Initially, the model verifies some basic assumptions of the OLS model. The first assumption is based on the homoskedasticity of the endogenous variables and residuals, i.e. the constant variance of residuals. The Breusch-Pagan/Cook-Weisberg test examines whether the estimated variance of regression model residuals depends on the values of the independent variables included in the model. High values of \( \chi^2 \), particularly that applying to the entire model i.e. 54.69, confirm the existence of heteroskedasticity (Table 1). Heteroskedasticity can lead to the partiality of estimates, mainly as a consequence of an incorrectly formed model. However, the possibility of such an effect on the model was rejected based on the White and Ramsey test.

The Waldo test was applied to establish whether the independent variable affects the dependent variable statistically significantly. The zero hypothesis was confirmed in all three groups (EU-27+3, EU-15, EU-12+3) and the adequacy of the explanatory variables was thus corroborated. On the other hand, the Ramsey test investigates the existence of the omitted variable bias. The test is statistically significant for the EU-15 and EU-12+3 groups, thus indicating that the evaluations of regression coefficients in the continuation are quite impartial. However, this is not the case with the model including all the studied countries.

3.2. Results of the model

According to the theoretical expectations, the correlation coefficients show different correlation values between the public finance balance and the current account of the balance of payments in the investigated countries. The correlation between the abovementioned variables is highest in the EU-15 group. Partial correlation coefficients vary within the group. It is interesting that negative values were observed in the cases of Greece, Italy, Luxembourg and Sweden. The EU-15 group also included countries which generated high positive values of partial correlation coefficients, which also confirms the hypothesis of the existence of a twin deficit. These coefficients exceeded 0.7 of a percentage point in Germany, the Netherlands and Ireland. Partial correlation coefficients for the EU-12+3 countries showed positive and statistically significant values only for Macedonia, where the increase in the public
finance deficit by 1 percentage point resulted in an increase in the current account deficit by 0.547 of a percentage point. The remaining nine countries in this group recorded negative values of partial correlation coefficients (see Table 2). The correlation between national investments and the current account is in line with the theoretical expectations, although certain exceptions exist (e.g. Sweden and Great Britain). A stronger correlation between investments and the current account was observed in countries which are more integrated in international flows in financial terms, i.e. the EU-15. Similar was observed in countries of the EU-12+3 group where the highest coefficients were mainly seen in the countries of Central and Eastern Europe.

Table 1. Results of the test of autocorrelation, heteroskedasticity and omission of variables of the model in the 1995-2008 period (% of GDP)

<table>
<thead>
<tr>
<th>Test</th>
<th>EU27+3</th>
<th>EU12+3</th>
<th>EU15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breusch-Pagan / Cook-Weisberg test</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>chi2(3)</td>
<td>54.69</td>
<td>12.38</td>
<td>4.73</td>
</tr>
<tr>
<td>(0.000)</td>
<td>(0.0004)</td>
<td>(0.0296)</td>
<td></td>
</tr>
<tr>
<td>Remsey test</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F(3, 397)</td>
<td>4.80</td>
<td>9.58</td>
<td>6.91</td>
</tr>
<tr>
<td>(0.0027)</td>
<td>(0.0000)</td>
<td>(0.0002)</td>
<td></td>
</tr>
<tr>
<td>Wald test</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F(4, 400)</td>
<td>407.13</td>
<td>25.24</td>
<td>533.45</td>
</tr>
<tr>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.0000)</td>
<td></td>
</tr>
</tbody>
</table>

Note: The probability of rejecting null hypothesis is presented below the corresponding coefficient.
Source: WDI (World Bank), 2009; Eurostat, 2009; own calculations.

The estimates of regression coefficients derived from various models are shown in Table 3. Standard deviations are relatively low for most variables included in the model, which means that the estimated values approximate the true value of the model. Some deviations were seen in the REER and RELBDP variables, mainly as a result of oscillations between the countries. As regards the basic hypothesis of the model, the estimated correlation between the public finance deficit and current account deficit is the most important. In the first assessed model which includes all 30 countries in the 1995-2008 period, it was estimated that the correlation was weak, negative and statistically insignificant in all four aspects. However, similarly to what the Breusch-Pagan/Cook-Weisberg test showed (see Table 3), the model which includes all 30 studied countries is partial due to the problem of heteroskedasticity. The negative and statistically insignificant correlation rejects the hypothesis of a twin deficit for the entire group and for the two subgroups. From a policy perspective, the implementation of fiscal tightening may not diminish the current account deficit in the regions, which is in line with the findings of Afonso and Rault (2008). The estimates of the regression coefficients of the remaining three independent variables
confirm the theoretical correlation. The relative income per capita shows the level of a country’s development and it is therefore understandable that the catching-up process and thus the expected higher income in the future forced those countries which lag behind the EU-27 average to increase their borrowings so as to balance their long-term consumption. The key determinant of the current account is the share of domestic investment in GDP. The estimation of the regression coefficient showed that an increase in investments by 1 percentage point in the EU-15 deepened the current account deficit by 0.344 of a percentage point on average, or by 0.757 of a percentage point in the EU-12+3 countries.

Table 2. Partial correlation coefficients of the EU-27+3 (1995-2008)

<table>
<thead>
<tr>
<th>Country</th>
<th>Correlation coefficient (CA-I)</th>
<th>Correlation coefficient (CA-BUDG)</th>
<th>Country</th>
<th>Correlation coefficient (CA-I)</th>
<th>Correlation coefficient (CA-BUDG)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU15</td>
<td>-0.3761***</td>
<td>0.1928***</td>
<td>EU12+3</td>
<td>-0.0248</td>
<td>-0.1271*</td>
</tr>
<tr>
<td>Austria</td>
<td>-0.7702***</td>
<td>0.0903</td>
<td>Bulgaria</td>
<td>-0.955***</td>
<td>0.1897</td>
</tr>
<tr>
<td>Belgium</td>
<td>-0.7523***</td>
<td>0.0057</td>
<td>Czech R.</td>
<td>-0.6321**</td>
<td>-0.1760</td>
</tr>
<tr>
<td>Denmark</td>
<td>-0.7340**</td>
<td>0.2283</td>
<td>Cyprus</td>
<td>-0.7867***</td>
<td>-0.4304</td>
</tr>
<tr>
<td>France</td>
<td>-0.5438*</td>
<td>0.1249</td>
<td>Estonia</td>
<td>-0.6095**</td>
<td>-0.5546*</td>
</tr>
<tr>
<td>Greece</td>
<td>-0.8609***</td>
<td>0.6341**</td>
<td>Macedonia</td>
<td>-0.7523***</td>
<td>0.5465*</td>
</tr>
<tr>
<td>Finland</td>
<td>-0.1476</td>
<td>-0.6245**</td>
<td>Croatia</td>
<td>0.2063</td>
<td>-0.1599</td>
</tr>
<tr>
<td>Ireland</td>
<td>-0.7816***</td>
<td>0.7513***</td>
<td>Latvia</td>
<td>-0.5950*</td>
<td>-0.5833*</td>
</tr>
<tr>
<td>Italy</td>
<td>-0.3682</td>
<td>-0.3495</td>
<td>Lithuania</td>
<td>-0.8430***</td>
<td>0.3091</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>-0.7005**</td>
<td>-0.5273*</td>
<td>Hungary</td>
<td>0.0415</td>
<td>-0.2193</td>
</tr>
<tr>
<td>Germany</td>
<td>-0.8325***</td>
<td>0.8087***</td>
<td>Malta</td>
<td>-0.6811**</td>
<td>-0.5171</td>
</tr>
<tr>
<td>Netherlands</td>
<td>-0.2797</td>
<td>0.7926***</td>
<td>Poland</td>
<td>-0.7081**</td>
<td>-0.1393</td>
</tr>
<tr>
<td>Portugal</td>
<td>-0.7158**</td>
<td>0.1169</td>
<td>Slovenia</td>
<td>-0.8476***</td>
<td>0.4974</td>
</tr>
<tr>
<td>Spain</td>
<td>-0.7195**</td>
<td>0.4884</td>
<td>Slovakia</td>
<td>-0.8256***</td>
<td>0.4851</td>
</tr>
<tr>
<td>Sweden</td>
<td>0.4786</td>
<td>-0.0309</td>
<td>Romania</td>
<td>-0.1306</td>
<td>0.0194</td>
</tr>
<tr>
<td>Great Britain</td>
<td>0.0354</td>
<td>0.2051</td>
<td>Turkey</td>
<td>0.3167</td>
<td>-0.6969**</td>
</tr>
</tbody>
</table>

Notes: ***, **, * denotes significance at the levels of 1%, 5% and 10%, respectively.
Source: WDI (World Bank), 2009; Eurostat, 2009; own calculations.

The empirical analysis divides the studied period into two subperiods. The first subperiod lasts from 1995 to 2003 (the EU pre-enlargement period) and the second from 2004 to 2008 (the EU post-enlargement period). A positive but weak correlation between the deficits is confirmed for the EU-15 countries in the first subperiod. The result is in line with theoretical expectations that the link between the twin deficits may be weaker the higher is public debt (as in the case of many EU-15 countries) (see Milesi-Ferretti and Razin, 1996). A much stronger influence on the current account of the balance of...
payments in the EU-15 in this period is seen through domestic investments and the exchange rate. The empirical analysis thus shows that, in the period prior to EU enlargement, an increase in domestic investments by 1 percentage point deepened the deficit in the current account of the balance of payments by 0.734 of a percentage point. The analysis does not reveal the effect of the development level on the balance of the current account of the EU-15 countries (see Table 4).

<p>| Table 3. Summary of empirical results for the entire studied period (1995-2008) |
|------------------------------------------|-------------------|----------------|-----------------|----------------|</p>
<table>
<thead>
<tr>
<th><strong>Explanatory Variables</strong></th>
<th><strong>OLS-PSCE</strong></th>
<th><strong>FGLS</strong></th>
<th><strong>TWO WAY FE</strong></th>
<th><strong>TWO WAY RE</strong></th>
</tr>
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<tr>
<td>EU 27+3</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>TR_{it-1}</td>
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<td>(0.0443; 0.000)</td>
<td>(0.0325; 0.000)</td>
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<td>(0.0455; 0.337)</td>
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<td>(0.0393; 0.170)</td>
<td>(0.0352; 0.391)</td>
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<td>(4.201; 0.149)</td>
<td>(0.7261; 0.000)</td>
<td>(3.9459; 0.385)</td>
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<tr>
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<td>-0.2228</td>
<td>-0.5336</td>
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<td>2128.44</td>
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<td>(0.0537; 0.888)</td>
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<td>3.7091</td>
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<td>(5.5404; 0.922)</td>
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<td>REER(_{it})</td>
<td>REER(_{it})</td>
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<td>(0.2438)</td>
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<tr>
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<td>(0.0455; 0.303)</td>
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<td>(0.049; 0.419)</td>
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<td>Hausman test</td>
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<td>Breusch and Pegan Lagrangian multiplier test</td>
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</table>

Notes: The values of standard errors and p-values are presented in the parenthesis, respectively. Source: WDI (World Bank), 2009; Eurostat, 2009; own calculations.

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<th>Explanatory Variables</th>
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<th>TWO WAY RE</th>
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<td>(0.116; 0.001)</td>
<td>(0.0439; 0.000)</td>
<td>(0.084; 0.000)</td>
<td>(0.0566; 0.000)</td>
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<td>JF_{it}</td>
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<td>0.3993</td>
<td>0.3229</td>
<td>0.103</td>
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<td>(0.0592; 0.507)</td>
<td>(0.1033; 0.002)</td>
<td>(0.0874; 0.238)</td>
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<td>4.7648</td>
<td>5.4471</td>
<td>5.6629</td>
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<td>(7.5537; 0.367)</td>
<td>(1.8635; 0.111)</td>
<td>(7.8427; 0.489)</td>
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<td>-0.6593</td>
<td>-0.1833</td>
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<td>(0.1183; 0.000)</td>
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<td>Hausman test</td>
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<td>59.54</td>
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<tr>
<td>Breusch and Pegan Lagrangian multiplier test</td>
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<td></td>
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<td>EU15 2004-2008</td>
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<td>TR_{it-1}</td>
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<td>0.9192</td>
<td>0.6844</td>
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<td>(0.1134; 0.000)</td>
<td>(0.0577; 0.000)</td>
<td>(0.1556; 0.000)</td>
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<td>JF_{it}</td>
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<td>-0.0373</td>
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<td>(0.2097; 0.955)</td>
<td>(0.0819; 0.671)</td>
<td>(0.1619; 0.615)</td>
<td>(0.1059; 0.724)</td>
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<td>RELBDP_{it}</td>
<td>7.8255</td>
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<td>2.8261</td>
<td>2.6684</td>
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<td>(16.6704; 0.639)</td>
<td>(2.6016; 0.312)</td>
<td>(29.234; 0.924)</td>
<td>(3.464; 0.441)</td>
</tr>
<tr>
<td>I_{it}</td>
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<td>-0.3919</td>
<td>-0.2110</td>
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<tr>
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<td>(0.2357; 0.168)</td>
<td>(0.0777; 0.044)</td>
<td>(0.2735; 0.160)</td>
<td>(0.1037; 0.042)</td>
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<td>(11.6234; 0.771)</td>
<td>(6.3247; 0.053)</td>
<td>(9.7579; 0.994)</td>
<td>(7.4148; 0.311)</td>
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<td>Adj. R²</td>
<td>0.9877</td>
<td>0.9509</td>
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</table>
The results of assessing the models in both subperiods are also interesting in the case of the EU-12+3 group. The pre-EU enlargement estimates show that the validity of the hypothesis of a twin deficit cannot be confirmed for this group as an increase in the public finance deficit by one percentage point even leads to an improvement in the balance of the current account by 0.211 of a percentage point. The post-EU enlargement analysis reveals a negative but statistically insignificant effect of the public finance balance on the current account. In the abovementioned group, domestic investments played a very important role as their growth by 1 percentage point was reflected in the deepening of the current account deficit by 0.226 of a percentage point, whereas the post-enlargement effect of the investments rose to 1.032 percentage points, indicating higher capital mobility after the enlargement. The remaining two variables in both subperiods show a theoretically expected but statistically insignificant effect (see Table 4 and Table 5).

### Table 5. Summary of the results of regression models for EU-12+3 – division into two subperiods: 1995-2003 and 2004-2008

<table>
<thead>
<tr>
<th>Explanatory Variables</th>
<th>OLS-PSCE</th>
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<th>TWO WAY RE</th>
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<td>1995-2003</td>
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<tr>
<td>TR(_{it-1})</td>
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<td>0.2830</td>
<td>-0.04798</td>
<td>0.3042</td>
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<td>(0.0809; 0.000)</td>
<td>(0.0985; 0.627)</td>
<td>(0.0879; 0.001)</td>
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<td>JF(_{it})</td>
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<td>-0.2097</td>
<td>-0.0387</td>
<td>-0.2113</td>
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<tr>
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<td>(0.0648; 0.701)</td>
<td>(0.0622; 0.001)</td>
<td>(0.0784; 0.623)</td>
<td>(0.0668; 0.002)</td>
</tr>
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<td>RELBDP(_{it})</td>
<td>0.4929</td>
<td>3.203</td>
<td>0.7200</td>
<td>2.9759</td>
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<td>(4.058; 0.903)</td>
<td>(1.7436; 0.066)</td>
<td>(4.8554; 0.882)</td>
<td>(1.8769; 0.113)</td>
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<td>I(_{it})</td>
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<td>-0.2278</td>
<td>-0.6292</td>
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<td>(0.1088; 0.000)</td>
<td>(0.0635; 0.000)</td>
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<td>REER(_{it})</td>
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### Hausman test

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### Breusch and Pegan Lagrangian multiplier test

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#### EU12+3 2004-2008

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Notes: The values of standard errors and p-values are presented in the parenthesis, respectively.

Source: WDI (World Bank), 2009; Eurostat, 2009; own calculations.

### 4. CONCLUSION

The paper’s main objective is to investigate the empirical link between the fiscal balance and the current account (i.e. the twin deficits phenomenon). The paper focuses on the EU member states and candidate countries which are according to their different (historical, political, economical and geographical) characteristics divided into two major groups, i.e. old EU member states (EU-15) and new EU member states and candidate countries (EU12+3) in the 1995-2008 period. Additionally, the importance of the so-called Feldstein-Horioka puzzle in the considered countries is examined in order to draw some conclusions about the regions’ capital markets integration. The empirical results suggest that budget deficits in the EU member states and candidate countries have generally signaled relatively high level of substitutability between private and public savings, implying a relatively low correlation between fiscal and external imbalances. Accordingly, fiscal policy measures in general has not been the
fundamental force which deteriorated current account positions in the both analyzed regions in the 1995-2008 period.

Moreover the empirical results also suggest that, as originally claimed by Feldstein and Horioka in their seminal paper, the intertemporal theory of the current account partly failed to explain the relationship between domestic saving and investment in the EU-15. Nevertheless, the paper provides evidence of a relatively high level of capital mobility, especially in the EU12+3 region in the second sub-period (2004-2008). However, given the partial equilibrium nature of this theory isolating the idiosyncratic sources of fluctuations by taking the heterogeneous responses to investment to global shocks into account should be considered in future research. Further, due to the relatively high heterogeneity within the both regions certain other econometric techniques, like time-series analysis, could be applied in future empirical investigations.

REFERENCES


DYNAMIC APPROACH TO CANDLESTICK PATTERN BASED INVESTING

Allan Teder
University of Tartu, Ülikooli 18, 50090 Tartu, Estonia

Abstract

It has been shown that the usage of various technical indicators does not provide consistent outperforming of the stock market and can be hence counted as useless. Since the dominant mood in the stock market constantly changes, no technical indicator could be the all-powerful cure for investing. The purpose of this study is to develop a methodology where a technical indicator is optimized dynamically based upon data from previous quarter to the dominant market momentum and apply the results for investment decisions in the next quarter.

Candlestick charts, more specifically the piercing pattern and the dark cloud pattern are used in the model as indicators. Strength and power of the buy-sell signals are introduced as essential characteristics of such signals. For evaluating the momentum and finding the optimal values for these characteristics a Monte Carlo simulation is performed.

The study shows that this kind of methodology is applicable to making investment decisions and based upon the S&P 500 index data from 2001-2011 there is evidence that the strategy developed in this paper significantly outperforms the traditional buy-hold strategy.

Current study does not take into account transaction costs which is the biggest limitation. Transaction costs influence the results negatively. The study also does not take into account the possibility of leveraged short selling which could influence the results positively by benefiting from falling market. Following research will focus on changing the timeframe of historical data, testing the methodology on different regional markets and also on individual stocks, and including wider range of technical indicators to the decision making process.

Key words: stock market, candlestick charts, investment

1. INTRODUCTION

Since one of the biggest stock market crashes in history in 1987 also known as Black Monday when the Dow Jones Industrial Average (DJIA) fell nearly 25% (Bogle 2008) in one day researchers have struggled to find explanations and theories that would help avoid future crashes. In modern economics stock markets have an important place to fill. While stock markets have traditionally been an important institution for companies to raise funds for their activities and hence act as a system of liquidity the concept of stock market has by far exceeded that function. It has been said that stock markets can influence or be an indicator of social mood. While rising or stable stock prices contribute to investments (by allowing companies to raise funds thus also contributing to employment) they also affect the wealth of households and level of their consumption. So it can be said that stock market effectively contributes to economic growth (Levine et al 1998).

The crash of a stock market thus reduces liquidity while reducing investment, increasing unemployment and reducing the overall wealth. Stock market has become an essential part of modern financial system.
and political-economical instrument. In order to avoid crashes and booms it is essential to understand why and how stock markets move.

The fundamental theory of what moves stock markets is the most important foundation for making stock market predictions. One of the most dominant theories about market behaviour has traditionally been the efficient market hypothesis (EMH) according to which only changes in fundamental factors such as economic outlook, companies profits, dividends and other financial and non-financial data moves markets and all other movement in between publications of new data are completely random and follow the random walk trail (Fama 1965). According to EMH it is thus not possible to predict stock market movements other than making correct predictions about the fundamental factors and taking them into account correctly while calculating a true valuation for an asset.

Another theory that is also the basis for this paper is formed by George Soros, world famous investor and billionaire for betting against the British pound in 1992 (Soros 2003). The theory of reflexivity as Mr. Soros calls it is contradictory to EMH in a way that according to theory of reflexivity markets never tend towards market equilibrium and are in fact inefficient. The theory of reflexivity basically states that while expectations drive the market (as do in EMH) then expectations and behaviour towards these expectations are a reflexive process – expectations alter expectations. One example of stock market reflexivity is a situation where market participants’ expectations for future profit growth are ahead of actual profit growth. The company can use overvalued stock price to issue new shares thus getting financing for future growth which also fulfils market participants’ expectations (Soros 2003).

Another example would be bad weather forecast which increases the price of an agricultural commodity influenced by the forecast. Even if fundamentally there exists an equilibrium state between supply and demand, pressure buying might arise due to the fright that market participants may be left without their goods. Some participants might also buy extra for speculation purposes. That leads to price increases that move away from their fundamental value caused by the reflexive reaction to a change in expectations.

Current paper is directed towards discovering the momentum of stock market movements. Author’s main assumption here is the idea that stock market momentum is a reflexive process. That is also the reason why George Soros’s approach is the theory behind current study.

One example for author’s reasoning might be trend following which is an acknowledged characteristic (Kahneman et al. 1979) of a stock market (author’s remark: rises in prices may attract more buyers who pressurize the price even more or vice versa with falling prices). Another example would be increased volatility which might cause further volatility (author’s remark: market participants exiting the market and speculators entering the market).

The main assumption of this paper is that market movements tend to have momentum because of which it is possible to make better decisions in investing when researching historical data. Those decisions might include being more careful in falling market or volatile market.

The purpose of this paper is to introduce a methodology for evaluating market momentum and applying it in future investment decisions. This will be achieved by simulating recent market data and measuring the momentum through best case scenarios. In other words when one can identify the characteristics of best case scenario in recent history (quarterly data in this paper) one can also assume that the momentum of the market doesn’t change too quickly thus making it possible to apply some principles also for the next quarter. These characteristics might include volatility, market trend etc. In this paper these characteristics are not measured directly but rather through different components like for example the required strength of a technical signal or pattern for a positive outcome scenario (strong signal
requirements might reference to volatile or falling markets). The methodology is tested empirically on S&P 500 stock index.

The paper is divided into seven sections. The second chapter presents other research done mostly in the area of candlestick charts since candlesticks are one of the simplest ways of presenting market participants’ behaviour in the market hence making it possible to analyze more easily as also explained there. Main contribution of this paper to previous research is also presented in this chapter. In theoretical framework section candlestick charts and specific patterns used in this paper are explained. Since Monte Carlo simulation and different distribution functions are not the main research area rather than tools used in this paper these concepts are explained only briefly.

The third chapter of the paper introduces the data and methodology which are used. The model that is tested in the paper is split to components and explained the usage and definitions of all the components. This chapter also introduces a novel approach how through step-by-step simulation of historical data it is possible to predict future movements by relying on slowly-changing momentum of the market.

The fourth chapter discusses the results of the paper. The methodology is benchmarked against traditional buy-hold strategy. It is shown that dynamical usage of simulation and candlestick charts can lead to market beating results due to avoidance of major crashes of the stock markets.

The fifth chapter discusses further research possibilities and limitations of this paper. The paper ends with conclusion and annexes.

2. THEORETICAL BACKGROUND

2.1. Previous studies

Candlestick charts have been historically developed to monitor rice price movements. It was developed as a technique already in the 17th century in Japan (Etschberger et al 2006). Even though the technique itself is very old, its usage of predicting stock market movements in Western world is fairly recent. First academic work on this matter in the Western world started to develop in the early 90-s.

Etschberger et al. (2006) have proposed a candlestick chart definition framework for research and created a systematic and automatic approach for candlestick classification. They have proposed a classification for the size of the candles by dividing candles to tall candles, medium candles, small candles and very small candles. In this paper candle size is considered in relation to the underlying asset price (tall candles are equivalent to large movements of price). Etschberger et al. also lays the foundations for two analyzed candlestick patterns used in this paper – piercing pattern and dark cloud cover. They have classified these patterns as bullish and bearish (stock market terms referring to stock market up and down movements respectively) signals respectively with tall bodys. Introduction to candlestick charts is mostly based upon their classification and framework (see 2.2).

Modern work on candlestick patterns is mostly related to the development of various artificial intelligence based trading algorithms including methodologies like neural networks, fuzzy logic approach, localized generalization error models, genetic network programming with control nodes etc. (Huili et al. 2008, Chen et al. 2009, Jasemi et al 2011, Liu 2006). Most of the studies performed confirm successful usage of candlestick charts while forecasting stock market movements. Although it could be said that focus is rather shifting from candlestick patterns which illustrate the behaviour of stock market participants to complex trading systems that don’t so much try to explain the market as rather find a way to forecast the next movements with probabilistic approach.
There have been various studies about the effectiveness of candlestick charts while forecasting movements in financial markets. Results are quite contradictory.

Marshall (2009) has examined the usage of candlestick patterns in stock selection with a data set of 349 stocks and has found that there is little value in candlesticks. Marshall et al. (2006) found in a separate study analyzing a number of Dow Jones index stocks over the 1992-2002 period that none of the candlestick rules they used had any forecasting power that would exceed market performance. Marshall et al. (2007) performed the same study in the Japanese stock market and didn’t find any conclusive evidence from there as well. Fock et al. (2006) use the indicators to improve the performance of the candles but didn’t find any conclusive evidence that the candles would give an advantage in trading. A study has also been carried out in the Baltic stock market by Raimonds (2008) which found no conclusive evidence of profitable applications of candlestick patterns in such an illiquid market as the Baltic stock market.

Caginalp and Laurent (1998) performed a study on S&P 500 stock index data from 1992-1996 using candlestick chart patterns as buy and sell signal indicators. Their study was statistical and indicated a profit of almost 1% during a two-day holding period while using three day price pattern for predicting. Their interpretation of results was similar to this paper stating that patterns work because they identify the status when traders are influenced by price movements hence creating reflexive movement in the price.

There has also been some research in the area of results optimization that is targeted towards studying the conditions and criteria which influence the results. For example Nison (1991) and Pring (2002) argue that candlestick reversal patterns are notable when they occur in high-price or low-price areas. The second factor is volume because it is a measure of demand and supply and confirmation of price trends. Matheny (1999) argues that by combining intraday candlestick charts with other technical analysis methods such as oscillators and moving averages can result in profits although he doesn’t provide any hard evidence.

This paper contributes to existing research by providing a novel approach for candlestick usage. The basic idea behind this paper is that the analysis of stock markets should be approached dynamically by simulating recent data for a certain time period with a purpose of using the outcome of this data to optimize the conditions of specific patterns. Technical analysis should not be considered useless and it should only be used for assessing momentum of the stock market.

In this paper the author provides a methodology for doing that and tests the methodology against data from the US stock market. This paper demonstrates that by applying dynamic approach to stock market analysis recent historical data can be used to improve future profitability.

### 2.2. Candlestick charts

A candle describes the behaviour of share prices during a time interval. The trader is free to decide how long this interval may be. The body of the candle, i.e. the difference between the open and close price of the day, is called the “real body” of the candle. The difference between real body values and the high and the low price of the day define the upper and the lower “shadow” of the candle. A white body (sometimes marked in green or other colour) indicates that the close price is higher than the open price, consequently we have a positive return during that time interval. A black real body (sometimes marked in red or orange) indicates a lower close than the open price (i.e. a negative return). A candlestick pattern is usually built from up to five candles. See the following chart for visual definition of candles.
Chart 1. Definition of a candles in up- and down-day (Author’s drawing)

An example of a stock price movements expressed in a candlestick chart is presented in the following chart.

Chart 2. Example candlestick chart of Microsoft Corporation (Candlestickchart.com 2011)
In this paper two types of candlestick patterns are analyzed: dark cloud cover as bearish pattern and piercing pattern as bullish pattern. Both patterns are candlestick patterns consisting of two candlesticks hence including data from two trading days.

Dark cloud cover is a bearish pattern indicating a potential top reversal for the market. This pattern consists of a candlestick which has a white strong body (on that trading day the price went up strongly) and another following candlestick which had an opening price higher than the first candlestick’s closing price but lower closing price (on that trading day the price opened strongly but was sold down in the course of the day). The sign is considered bearish if the second day’s closing price is lower than 50% of the first days candle body. (Nison 1991) Example of a dark cloud cover can be seen on the following chart.

The pattern can be “translated” as follows. The price movements have been following an up-trend lately. On the first day of the pattern the trading day was dominated by buying pressure. On the following day the “bulls” (buyers) tried to drive the price even further but aggressive sellers entered the market and sold the price down quickly indicating a possible top for the market.

The piercing pattern in contrast is an opposite formation to the dark cloud cover pattern and is considered as bullish. This pattern consists of a candlestick which has a black strong body (on that trading day the price went down strongly) and another following candlestick which had an opening price lower than the first candlestick’s closing price but higher closing price (on that trading day the price opened weak but was bought up strongly in the course of the day). The sign is considered bullish if the second day’s closing price is higher than 50% of the first days candle body. (Nison 1991) Example of a piercing pattern can be seen on the previous chart.
The pattern can be “translated” as follows. The price movements have been following a down-trend lately. On the first day of the pattern the trading day was dominated by selling pressure. On the following day the “bears” (sellers) tried to drive the price even further down but aggressive buyers entered the market and bought the price up quickly indicating a possible bottom for the market.

2.3. Monte Carlo simulation and used distributions

Monte Carlo simulation is a method for taking into account the possible randomness in the model. For that the probabilistic distribution of the random variable has to be described. Monte Carlo simulation works in a way that the model is recalculated number of times with random values which are generated based on the probability distribution that was described. (Rubinstein et al. 2008). The most well known probability distribution is normal distribution. If some random event can be described with a normal distribution (the height of people for example) then around 68% of values are in the range of one standard deviation (in both directions) from the statistical average. When simulation is performed then in average 68 values out of 100 are taken from the range of one standard deviation while recalculating the model. Those 68 values are generated randomly and the bigger the number of times that the model is recalculated (called iterations) the more the probability distribution of picked values is closer to normal distribution.

In this paper three types of distributions were used in fitting the simulated data and calculating the expected value of a distribution. These probability distributions are continuous uniform distribution, triangular distribution and beta distribution. In ANNEX 1 there are some examples of different distributions that were simulated and fitted to a distribution while performing the analysis within this paper.

3. DATA AND METHODOLOGY

3.1. Data

The data set of this study includes the daily opening, closing, high and low values and trading volume for the S&P500 stock index from the period 01.01.2001-30.04.2011 consisting of 2,598 trading days in total. The period is divided to quarterly three month long trading periods so that there are 42 quarters in the period in total (40 from 01.01.01-31.12.10 plus first quarter from 2011 and second ongoing quarter). The data is downloaded from Google Finance public database for historical data for stock prices and index values (Google Finance 2011).

The S&P500 stock index was first published in 1957 and it includes 500 leading companies whose stocks are floated on the US stock market. Since the index covers around 75% of US equities (market capitalization wise) it is a good indicator of the overall US stock market performance. The index is calculated daily and its value is quotient of the total float-adjusted market capitalization of the index’s constituents and its divisor. The index is rebalanced if needed by the Standard & Poor’s Economic Committee (S&P 500 Equity Indices 2011).

Since US stock market is the most liquid stock market in the world (Bespoke Investment Group 2011) then using the S&P 500 stock market index’s daily values as test data can be considered as representative as stock market based data can be in terms of market effectiveness. The analysis of the data will hence show whether the methodology developed in this paper is feasible and whether it is possible to predict and react to future market movements by relying on purely historical data. However it has to be noted that the results of this paper are not directly transferrable to single equities and have to be researched separately.
The analytical approach introduced in this paper relies on the dynamic assessment of the market as already discussed previously. Instead of defining candlestick patterns as methods with certain fixed assumptions these assumptions are handled as dynamic with the help of Monte Carlo simulation. According to authors knowledge similar approach has not been yet before tested and published.

3.2. Methodology

Analysis phases

The analysis of the data is performed in three stages:

1. Designing the candlesticks and setting criteria for candlestick components;
2. Carrying out Monte Carlo simulation for each period to find the best possible set of conditions;
3. Comparison of results with simple buy-hold strategy.

Model design

Candlesticks in this paper are designed in a way that the strength of the buy or sell signals is evaluated based upon several criteria/conditions:

- **Changing price pattern** – when at period $T_0$ yesterday’s index ($T_{-1}$) changed in different direction compared to index change on the previous day ($T_{-2}$) then the pattern is confirmed;
- **Existing Piercing or Dark Cloud pattern** – this condition is only checked when there is a confirmed changing price pattern. In case of a bullish Piercing pattern it is checked whether yesterday’s ($T_{-1}$) closing value of the index is above the middle body value of the trading candle the day before ($T_{-2}$). The same goes vice versa for bearish Dark Cloud pattern. See example on Chart 3 or Chart 4;
- **The strength of the signal** – this condition is only checked when there is a confirmed Piercing or Dark Cloud pattern. The strength is defined as the trend length before the price change occurred. Trend is considered here as index change in the same direction for several days. Previous trend lasting for one day is taken into account with a score of 1, previous trend lasting for two days is included in the model with a score of 2 and trend lasting for three days before the price change is included in the model with a score of 3. In that way movements that occur after longer trends are taken into account with a heavier scale. See example on Chart 5;
- **The power of the signal** – is only checked when there is a confirmed pattern. The power takes into account the size of the movement on the signal day. Power is calculated by comparing the difference in candle body sizes in days $T-1$ and $T-2$ with the value of the index multiplied by 100. In that way big index value movements that occur after days with small index value movements compared to the value of the index are taken into account with a much heavier scale;
- **Confirmation of signal** – is only checked when there is a confirmed pattern. Confirmation condition checks whether today’s value of the index is opening in higher level than was yesterday’s (signal day) average candle body value (body is formed by opening and closing price) for confirmation of Piercing pattern and vice versa for Dark Cloud pattern. Hence if the price continues the strength (or weakness) which was identified from the signal position can be taken in the index (or position sold for bearish pattern). See example on Chart 6.
As can be seen from previous the main criteria for making buying or selling decisions are based upon the strength and the power of the candlestick pattern signal. Buying or selling decision score is then calculated by the following equation:
\[
\text{Decision score} = (\text{Strength focus} \times \text{Strength score} + \text{Power focus} \times \text{Power score}) \\
\times \text{Significance}
\]

where:

- Strength focus and Power focus are the amounts of importance that is placed upon each factor compared to each other at certain time point. As a condition it is always true that Strength focus + Power focus = 100% and each can have a minimum value of 0% and maximum value of 100%. Hence at very volatile market the trader might value more signals that are have more power compared to signal strength for example. Strength focus and Power focus are to be simulated during the Monte Carlo simulation.

- Significance is the stock index volume of the signal day compared to the average volume of the previous 100 days. Hence these days where signals occur with a larger volume on the market are included in the model as more significant.

The score of the decision is then compared against minimum score levels from which level a decision score can be taken seriously. So if there is a signal with a low decision score (either volume was very low that day or the strength or the power of the signal are not strong enough) no purchases or sells are made. These minimum score levels are referred to as confidence levels. Buying and selling decisions can have different confidence levels. For example in falling market you would need a much stronger buying signal in order to take position. These values are also simulated during the simulation.

Additional limits or conditions for the model include the missing of transaction costs which downsize the results marginally. It also has to be noted that whenever there is no active position on the market the capital used is invested in bonds with a yield rate of 2.5%. At the same time there can be active position only in one contract and no short selling is allowed (portfolio cannot have negative value, when selling signal is triggered but there is no active position then no sells will be made, same for buying signals – no subsequent purchases will be made when there is already existing position taken).

Monte Carlo simulation

As noted previously model components to be simulated include the Strength focus, Power focus (is dependent on Strength focus – Strength focus + Power focus = 100%) and confidence levels for both buy and sell decisions. The idea of simulation in this paper is to examine the best values for positive scenarios for each coming quarter. The model takes into account the applicability of the model in a way that all the best values are simulated based upon data from previous quarter and then applied for the coming quarter. So values for Strength focus, Power focus and confidence levels are simulated for Q1 and applied for Q2. Otherwise it would not be possible to apply this kind of approach in real market.

Simulation is performed by giving all these values (Strength focus separately for buying score and selling score, Power focus is dependent on this) a uniform distribution with an expected value of 0.5. Thus during a simulation all values from 0 to 1 can appear with a similar probability allowing to simulate all different possibilities. After the simulation all the results are sorted based upon the quarterly yields of the candlestick strategy and 1 000 best scenarios are filtered out. Only scenarios with positive yields were taken into account so for some periods there were less observed scenarios than 1 000.

Each of the scenarios includes values for Strength focus (for buying and selling score), buying confidence level and selling confidence level. The data set for each component is then compared against various possible distributions including beta, triangular and uniform distributions. See examples in
ANNEX 1. The expected value of each distribution (for each component) is the fixed value of the component for the coming quarter. In that way the expected value for Strength focus for buying score in quarter 1 for example is the fixed value for the Strength focus for buying score for quarter 2. The idea behind this approach is that market moves in momentum hence making it possible to evaluate the momentum (expressed through observed components) in previous quarter and assume that this momentum carries on to the next quarter.

Simulation is performed in a step-by-step manner where at first data for the first quarter of 2001 is simulated from where expected values for the second quarter of 2001 are extracted as an input for trading strategy. Before these values are inserted into the model components for the second quarter of 2001 are simulated. After this simulation expected values from the first simulation are inserted into the second quarter data after which model components for third quarter are simulated. This was done in that specific way so that previous quarter simulations would not be performed at the same time then other quarters in order to avoid possible dependency in expected values.

For each quarter a simulation with 5,000 iterations was performed which means that for all four simulated components there were 5,000 recalculations resulting in 5,000 different scenarios. Since the starting distribution for each component was uniform all possible values were simulated with equal probability. Simulation was performed with Palisade’s software @Risk.

**Comparison with buy-hold strategy**

Buy-hold strategy is a traditional way of benchmarking a trading strategy or investing approach. The idea with buy-hold strategy is to purchase a position of an asset and hold it throughout the observed period. Hence buy-hold strategy follows the value of index and is a good benchmark for that.

Comparison with buy-hold strategy includes comparing the total values of both portfolios (from different strategies) in the end of the observed period. It also includes comparison of yields in each year in order to bring out the strengths and weaknesses of candlestick strategy introduced in this paper.

4. **RESULTS**

The results of the analysis are presented below. On the first chart there is the overall performance of the candlestick chart strategy compared to buy-hold strategy. The initial starting point for both strategies was the value of S&P 500 index in the end of year 2000 which was 1320.28. In the end of the period (in 30.04.2011) the value of the portfolio for the candlestick strategy was 1689.82 while the buy-hold strategy had followed the movement of the index which had a value of 1363.61 in the end of the period. Over that period the average annual return for the candlestick strategy was 2.79% while the average return for the buy-hold strategy was 0.33%.
Chart 7. Comparison of two different trading strategies

Chart 8. Daily yields for both strategies compared with the value of S&P 500 stock index
In order to bring out most important differences between two strategies the results can be presented also in a chart where there are daily yields of both strategies. For illustration purposes the value of the index S&P 500 has also been added to the chart. It can be seen from the chart that candlestick charting strategy has outperformed buy-hold strategy in five years – 2001, 2002, 2006, 2008 and 2010. 2001, 2002 and 2008 were years when the value of the index fell. 2001 and 2002 were the years following the internet boom and year 2008 was the beginning of the financial crisis. In all these years dynamic approach to candlestick charting outperformed the buy-hold strategy. Years 2006 and 2010 were years when the index value increased.

Detailed data is presented in the following table. It can be seen from the table that the difference between daily averages was especially big during the years when the index value decreased.

<table>
<thead>
<tr>
<th>Year</th>
<th>BH yield</th>
<th>CS yield</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>0.099%</td>
<td>0.060%</td>
<td>-0.039%</td>
</tr>
<tr>
<td>2010</td>
<td>0.041%</td>
<td>0.050%</td>
<td>0.009%</td>
</tr>
<tr>
<td>2009</td>
<td>0.095%</td>
<td>0.062%</td>
<td>-0.032%</td>
</tr>
<tr>
<td>2008</td>
<td>-0.207%</td>
<td>-0.067%</td>
<td>0.139%</td>
</tr>
<tr>
<td>2007</td>
<td>0.018%</td>
<td>-0.039%</td>
<td>-0.057%</td>
</tr>
<tr>
<td>2006</td>
<td>0.050%</td>
<td>0.066%</td>
<td>0.016%</td>
</tr>
<tr>
<td>2005</td>
<td>0.016%</td>
<td>0.007%</td>
<td>-0.008%</td>
</tr>
<tr>
<td>2004</td>
<td>0.037%</td>
<td>0.022%</td>
<td>-0.015%</td>
</tr>
<tr>
<td>2003</td>
<td>0.091%</td>
<td>0.036%</td>
<td>-0.055%</td>
</tr>
<tr>
<td>2002</td>
<td>-0.112%</td>
<td>-0.053%</td>
<td>0.059%</td>
</tr>
<tr>
<td>2001</td>
<td>-0.066%</td>
<td>0.024%</td>
<td>0.090%</td>
</tr>
</tbody>
</table>

While minimum and maximum values for daily average yields were -0.2% (2008) and 0.1% (2009, 2011) for buy-hold strategy respectively then minimum and maximum values for candlestick strategy were -0.07% (2008) and 0.07% (2006). Therefore we can say that using the candlestick strategy provides much smaller variance compared to buy-hold strategy.

From the previous results it could be said that during the years of strong market corrections the candlestick strategy greatly outperformed the buy-hold strategy while during the steady growth years the candlestick strategy underperformed the buy-hold strategy. These results can also be presented through looking at different components of the model discussed above. The dynamics of component values can be seen from the following charts.
The chart demonstrates the balance between power and strength compared to the index value of S&P 500. It can be seen from the chart that during the years when the index value decreased greatly the emphasis shifted from strength to power while generating buy signals which means that however long was the trend before the bullish pattern emerged indicating possible reversal of trend it didn’t make
sense to consider it as a reliable signal. Much more important was the power component which indicated the movement size on the signal day. So the bigger are the movements on signal day with the correct piercing pattern the more emphasis has to be put to this. Similar chart can be constructed for selling signals.

It can be seen from the chart that there isn’t such a pattern in selling signals as there were in buying signals. That can be due to the fact that the falling of the stock markets usually occurs much faster than rising which means that correct buying signals are more important. However it can be seen from the chart that when the 2008 crash happened the emphasis went on strength rather than the power of the signal which means that long trend reversal indicates a bigger risk towards further falls.

The confidence levels for buy and sell signals are analyzed separately on different charts since they don’t add up to 100% and are independent from each other. The change in confidence level for buy signals is presented in the following chart.

![Chart 11. Confidence level of a buying signal](image)

The confidence level for buying signals indicates that during the period when stock index is falling the signal score has to be much greater in order to take position in the index. If no strong signals exist then according to the strategy no position is taken hence no loss is taken as well. This was also seen previously. Confidence levels are low during steady growth periods which means that even weaker buying signals can be considered as buy signals. The same chart can be constructed for selling confidence level.
Chart 12. Confidence level of a selling signal

The confidence level of a selling signal indicates that there are now clear trends in selling signal confidence. Highest values are achieved in steady growth period which indicates that there needs to be a stronger sell signal to sell in a growing market and vice versa.

5. DISCUSSION

The results of this study show that it is possible to use historical data while setting investment decision criteria for medium-term future (quarterly data in this study). The study and power concepts introduced in the model illustrate that different phases of stock market (rising vs falling stock market, volatile vs stable stock market etc.) require different criteria for investment decisions.

This is especially true in case of falling markets. The study shows that by setting stricter criteria for power and strength signals one can avoid big losses on falling markets. This means that more powerful (bigger intra-day movement) and stronger (patterns following longer trends) buy-signals are required in order to initiate a trade. Also less powerful and weaker sell-signals are required in order to liquidate position.

Results were not conclusive in case of rising markets. The reason here is that quarterly data used will react to short-term (3 months long) stock market corrections hence requiring stronger buy signals in order to acquire a position even though market might be rising. This can be avoided by using shorter time-frame for historical data manipulation. This is also one of the possibilities of further improving the model and performing further research.

The main limitations of the model include mainly two aspects – transaction costs and lack of leveraged short selling possibility. Since transaction costs negatively influence the total profitability of a trading strategy these have to be included in the model in following research. The main problem with transaction costs is that firstly the costs for performing a transaction have lowered greatly through time and secondly
while performing a transaction one would also have to predict the potential return before making a transaction. The latter is especially true in case of high transaction costs. While today’s transaction costs are very low they won’t make much of a difference in analysis sense (might be even less than 0.05% depending on the broker).

Second problem or possibility with the model is the lack of leveraged short selling possibility (possibility to borrow shares and sell them with the hope of buying the shares back with a lower price and returning to the owner thus profiting from the falling price). The biggest difference with buy-hold strategy for any flexible strategy is the possibility of taking short positions which means the possibility of profiting also from market decline. Hence the potential return could be much greater. Leveraged short selling wasn’t considered in the current model due to the complexity of calculating the including costs (interests have to be paid for borrowed assets which again varies greatly from broker to broker).

Further research has to be carried out with different stock indexes and regions, different stocks. Also different timeframes should be considered although evidence from further history might not be relevant in interpreting the results. The simulation could be performed with monthly or even weekly data and analyze how that influences results as discussed previously. Short selling and transaction costs could also be involved in the model which makes it much more realistic and applicable.

6. CONCLUSIONS

The purpose of this paper was to introduce a methodology for evaluating market momentum which could be applied in investment decisions. The study was performed on recent historical data of the S&P 500 index value where for each coming quarter the investment criteria were evaluated based on the previous quarter.

The main technique applied in the model was candlestick chart patterns, specifically bullish piercing pattern and bearish dark cloud pattern. The buy and sell signals which these patterns generate were split into power and strength where powerful signal indicates a reversal of a longer trend and strength indicates the size of the reversal when it occurred. Buying and selling signal scores were then calculated which were then compared against confidence levels for these signals – if the score was big enough and exceeded the confidence level then buying or selling activity was performed.

All these components of the model (power, strength and confidence levels for both buying and selling signals) were simulated with Monte Carlo simulation with a purpose of finding the best scenarios where the profitability was the biggest. The expected value of these component probability distributions that offered the highest average return on investment were applied as an input for making buying and selling decisions in the next quarter. This step-by-step simulation is novel to candlestick pattern analysis.

The results offer support for the approach for the period of 2001-2011. During that period the candlestick strategy outperformed the traditional buy-hold strategy with 2.79% yearly profitability compared with 0.33% for the buy-hold strategy for that period. The analysis of the components compared to S&P 500 index revealed that momentum does exist on the market making it possible to avoid major falls in the index value. The study showed that the strategy outperformed the buy-hold strategy in all years where the index value decreased due to the fact that negative momentum was taken into account and the buying signals in the following quarter had to be much stronger.
ANNEX 1. EXAMPLES OF DISTRIBUTIONS

Example of a simulated and fitted beta distribution.

Example of a simulated and fitted triangular distribution

Example of a simulated and fitted uniform distribution
REFERENCES


FISCAL POLICY AND REAL ECONOMIC ACTIVITY IN A SMALL OPEN TRANSITION ECONOMY (THE REPUBLIC OF MACEDONIA): COINTEGARTION MODEL

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Abstract

The objective of this paper is to assess long- term effect of fiscal policy on real economic activity in the small open transition economy: the case Republic of Macedonia. For this purpose we employ cointegration analysis and Vector Error Correction Model. The result reveals that there are two statistically significant cointegration vectors. The first cointegration vector reveals that an increase of the government expenditure for 1% will generate positive effect on real economic activity by 0.25%. The second cointegration vector shows that an increase of the government expenditure for 1% will generate positive effect on government revenue by 1.03%. To the best of my knowledge, this is one of the few study in countries in transition, using cointegration analysis and VECM to test long –term effect of fiscal policy on real economic activity. Therefore, this research improves earlier methodological efforts, which test short term effect of fiscal policy by using only SVAR methodology.

Key words: Fiscal policy; Economic growth; Cointegration analysis, Transition Economies

1. INTRODUCTION

The objective of this paper is to examine the long run relationships between government expenditure and revenue and real gross domestic product (real GDP-henceforth) in the period of 1997 to 2012. In this research I use Johansen’s cointegration analysis and Vector Error Correction Model (VECM-henceforth) in order to test the long run effect of fiscal policy on real economic activity. Reviewing the literature, from both developed and countries in transition, we find that there is large disagreement concerning the empirical evidence for the effect of fiscal policy on real economic activity than is the case with monetary policy (Bernanke and Mihov, 1998). The empirical studies show mix and inconclusive result regarding the transmission mechanism of fiscal policy on real economic activity. In the recent years, the questions for reexamination of the suitable fiscal action on real economic activity have been increasing the interest, since the appearance of the single currency within the Euro-Zone and during the global financial crisis.

The first argument for reinvestigation of the effect of fiscal policy is ever since the foundation a single European Central Bank has left the European countries that joined Euro-Zone with fiscal policy as their only instrument for smoothing business cyclical fluctuation (Fatás and Mihov, 2003). The other argument for reinvestigation of the effect of fiscal policy is to find out whether fiscal policy can be utilized as an effective instrument to smooth business cyclical fluctuation over the period of global financial crisis. Despite the fact that, countries in transition are interesting for different types of economic growth, however, those countries little attention have been paying as to the transmission mechanism of the effect of fiscal policy on economic growth. The argument for imposing different fiscal restrictions is based on the proposition that discretionary fiscal measure could disturb macroeconomic stability (Fatás and Mihov, 2003). On the other hand, it is unquestionable that the instruments of fiscal...
policy has the potential of being destabilizing, it is also clear that fiscal expansion can smooth out business cyclical fluctuations via public expenditure expansion or tax cuts over the periods of recession and policies contraction over the periods of expansion (Fatás and Mihov, 2003).

The empirical evidence is based on various methodologies. First, the effects of fiscal policy are examined using the structural macroeconometric models. Second, group of studies have attempted to identify large fiscal episodes. Recently, many econometric models are based on a Structural Vector Autoregressive (SVAR-henceforth), cointegration analysis and VECM aiming to evaluate the effect of fiscal policy on real economic activity (e.g. Blanchard and Perotti, 2002; Fatás and Mihov, 2003, 2004; Mountford and Uhling, 2009; Belullo and Duzman, 2011, Venkata, 2004, Restrepo and Rincón, 2006; Rarytska, 2003, Besnik Fetai, 2013).

Employing the SVAR by Blanchard and Perotti (2002) investigate the effect of fiscal policy on output and they show that both kinds of shocks: an increase in taxation has negative effects on output and consumption, while positive innovations in public expenditure produce positive effects on these variables. The positive output effects of increases in government consumption are also confirmed in the empirical studies undertaken by Fatás and Mihov (2003), which find that increases in government consumption are associated with increases in private consumption – not decreases as implied by Ricardian equivalence. Moreover, the numerous studies employing SVAR methodology prove that fiscal policy has positive effects on real economic activity. However, these studies relate only to OECD countries. On the other hand, investigating the effect of fiscal policy shocks on real GDP and prices using SVAR methodology, Mountford and Uhling (2009) find that spending shocks have a crowding out effect on investment and thus negate the effect of fiscal spending on real GDP. In addition, Perotti (2002) sets up a SVAR for 5 OECD countries to study the impact of fiscal policy on real GDP and prices. He finds that the effect of fiscal policy on real GDP and its components had become very much weaker over the preceding 20 years, with the exception of the U.S. The author explains this as being a result of the increased openness of economies and possible changes of monetary policy regimes.

Concerning countries in transition, applying cointegration analysis, VECM and SVAR there are few studies that examine the effect of fiscal policy on real GDP. Applying cointegration analysis Belullo and Duzman (2011) examine the relationships between budget revenues and real GDP in Croatia, and they find out that an increase real GDP for 1% will lead to an increase of the public revenue by 0.394%. Venkata (2004) in his study investigate the long- run relationships between budget deficit and macroeconomic variables, using VECM methodology and he has not found any cointegration vector in India. On the other hand Mohanty (2012), using cointegration analysis, examine the long run relationships between budget deficit and real GDP in India. He finds that there is a negative relationship between fiscal deficit and real GDP in long run. The study by Rarytska (2003) analyzes the Ukrainian economy using SVAR methodology and finds the effect of fiscal policy on output to be smaller in magnitude and persistence. In addition, she explains this result by reference to the strengthening of the fiscal policy institution in Ukraine and improved confidence in government policies as the economy experienced significant growth in the previous year. Besnik Fetai (2013) examine the coordination between monetary and fiscal policy, using SVAR methodology and he finds out that there is no coordination between monetary and fiscal policy in the Republic of Macedonia. The study by Restrepo and Rincón (2006) analyze Chile using SVAR methodology and find the effect of public expenditure (and taxation) on output to be minor and transitory.

In addition, since both sides of the budget are changed (increasing/decreasing government spending and reducing/increasing tax) aiming to promote rapid economic growth in countries in transition, as is the case in the Republic of Macedonia, which is the topic of my empirical research. Hence, this suggests a
need for ongoing analyses of the impact of fiscal policy in order to assess its effect on real GDP in the long run.

Therefore, in this research, I focus on identifying the long–term effect of fiscal policy on real GDP. Based on the available data from 1997 to 2012, our empirical research is supported by empirical testing, employing cointegration analysis. The theoretical and empirical literature, both in the developed countries and the countries in transition, provides the foundation of our empirical research on the Republic of Macedonia.

The rest of the paper is organized as follows: Section II research methodology: describes the data, econometrics model and interpretation of the research result; Section III Conclusions.

3. RESEARCH METHODOLOGY

In this part, I use and estimate a cointegration model to test the long–term effect of fiscal policy on real economic activity in a small open transition economy. The issue at hand is whether the fiscal policy plays a significant role in smoothing business fluctuation.

2.1. Data in empirical research

The variables used in our model are: government expenditure and revenue and real GDP. We analyses the data from 1997 to 2012. The sources of data are mainly from the NBRM, the Ministry of Finance, and the Official State Statistics Bureau of the Republic of Macedonia. I define the fiscal variables within the Cointegration analysis in the same manner as Blanchard and Perotti (2002) and Mountford and Uhling (2009). Hence, total government expenditure \( G \) is equal to total government consumption and government investment minus transfers and total revenue \( T \) is equal to total tax revenue minus transfers. Netting out transfer payments from the government expenditure and revenue variables is a non-trivial decision, and we choose to follow Blanchard and Perotti and Mountford and Uhling in doing so.

2.2. Econometric model and result

In the beginning, we perform test for integrated properties of the variables i.e. augmented Dickey Fuller test in order to check time series whether they are difference stationary or trend stationary, as well as check the time series are integrated in the first or second order. Then, we test the cointegration of the properties of the variables and long-run relationships between government expenditure and revenue and real GDP. Following Johansen method (1995), Mosconi (1999), Enders (2004) and Lütkepohl (2005), we examine the long-run relationships among the variables such as: government expenditure and revenue and real GDP in the Republic of Macedonia.

(a) Test for Integrated Properties of the Variables-A Testing for Trends and Unit Roots Test - Augmented Dickey-Fuller-Test

The difference stationary time series (henceforth DS) can be transformed into a stationary time series by differencing, whereas the trend stationary process (henceforth TS) can be transformed into stationary model by removing the deterministic trend. To examine integration properties of the time series, whether they are trend stationary or difference stationary, we are going to use Augmented Dickey-Fuller test (ADF henceforth). The null hypothesis of ADF test is: the process has unit root i.e. the process is nonstationary. Therefore if the calculated value \( \tau \) (tau) is higher than value that are reported by Dickey-
Fuller table the null hypothesis can be rejected; hence the time series don’t have unit root or they are stationary. Otherwise, if the $\tau$ is smaller than critical value, the null hypothesis can not be rejected whereby; the time series have unit root i.e. they are nonstationary. The choice of the number of lags is based on Schwarz’s Bayesian Information Criterion.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Test Statistics</th>
<th>Deterministic</th>
<th>k</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNG.EXPENDITURE</td>
<td>-2.5342</td>
<td>t,c</td>
<td>0</td>
</tr>
<tr>
<td>LNG.REVENUE</td>
<td>-2.1256</td>
<td>t,c</td>
<td>1</td>
</tr>
<tr>
<td>LNGDP</td>
<td>-2.3492</td>
<td>t,c</td>
<td>1</td>
</tr>
</tbody>
</table>

Critical value for 93 observations: ADF: -4.04 (1% significance); -3.45 (5% significance); -3.15 (10% significance). The critical values for the ADF test are taken from Hamilton (1994) and Enders (2004).

Source: Author's calculations

Table 1: Tests for integration properties of the variables in levels with linear trend (t) and constant term(c): level

The first column in table 1, reports the variables that will be estimated by the ADF test, such as: log of EXCH.R, log of MPI, log of RPI, log of M1 and log of real GDP. All variables are in levels. The second column shows the Dickey–Fuller statistics. The third column shows the deterministic components that are used for testing. The last column shows the number of lags selected by Schwarz Bayesian Criterion (SBC), (Enders, RATS, 2004 and Mosconi, MALCOM, 1999 and 2007). The critical values of ADF test are denoted in the button of the table 1. Using trend and constant as a deterministic component for the variables in levels, it can be seen from table 1, that all variables have unit root and they are nonstationary, because none of variables can reject null hypothesis of a unit root against the alternative of stationary. Therefore, we may conclude that variables are not trend stationary (TD) but they are differenced stationary (DS).

We continue analyses by taking first difference in order to examine in which order the properties of variables are integrated. It can be seen from the table 2, that taking the first difference with deterministic component constant by all variables (expect GDP) the null hypothesis strongly was rejected at significance level 1%, 5%, 10%. The test proves that the time series are stationary and they are integrated in the first order I(1). With respect to GDP, it can not reject null hypothesis in the first difference in any level and it does not become stationary and integrated in the first order. Further, taking the second difference GDP can reject strongly the null hypothesis at all levels of significance and therefore it become stationary process, but it was integrated in the second order I(2).

So we may conclude that GDP become stationary once it is account in the second difference. According to Johansen (1995) if one variable is I(2) is not such problem, because all other variables are integrated in I(1), and therefore I’m allow to establish VECM model (see more Mosconi 1999 and 2007 and...
Enders, 2004). Finally, we may conclude that all time series are not trend stationary (TS) process whereas they proved be difference stationary (DS) process and integrated in first order I(1).

Critical value for 93 observations: ADF; -3.51 (1% significance); -2.89 (5% significance); -2.58 (10% significance.)

Table 2: Tests for Integration Properties of the variables in first difference with constant: in differences

(ii) Test for cointegration of the properties of the variables and long-run links between exchange rates, money stock, GDP and prices

In order to examine cointegration of time series in which they have to be integrated in the first difference, we must also include in the standard VAR error correction terms i.e. to analyze problem in the VECM. The main advantage of this methodology is that it allows to impose restriction on long and short-run and to analyze both types of dynamic process in the system. According to Augmented Dickey-Fuller test we could investigate the cointegration link among the variables since the variables have been differenced stationary (DS) and integrated in the first order. Is there any linear combination among the variables in the long-run equilibrium?

Based on Johansen methodology the VECM specification model is given:

$$ \Delta x_t = \sum_{i=1}^{p-1} \Gamma_i \Delta x_{t-i} + \Pi x_{t-i} + \mu_0 + \Psi D_t + \Theta w_t + \epsilon_t $$ (1)

Where, $\Gamma_i \Delta x_{t-i}$ is matrix of parameters relating to the short-run dynamics of the model, whereas $\Pi = \alpha \beta'$ contains information of the long-run relationships of the variable in the models. Whereby $\alpha$ and $\beta$ are $p \times r$ matrices, and $r$ is the number of cointegrating relation. The columns of $\beta$ are cointegrating vector, whereas $\alpha$ is loadings matrix of cointegrating vector shows the speed of adjustment towards the long-run equilibrium, $\mu_0$ is a vector of constant; $D_t$ is vector of intervention dummy; and $\epsilon_t$ is a vector of disturbance. The linear combination $\beta' x_{t-1} = ECT_{t-1}$ express the cointegration relationships (error correction terms) between the variables.
Let’s start with specification of tests such as: the maximum lags, the trend polynomial, cointegration ranks and testing hypothesis on I(1) model. The maximum lags are based on AIC, HQ and SC criterion. All criteria have shown that three lags are optimum number of lags, and therefore we are going to use three lags in my model. The test for trend polynomial clearly supports the model with constant in the short-run matrix whereas, it did not support alternative model with trend in the cointegration space. In this model, the restriction that the trend coefficient is zero in the cointegration space can not be rejected against the model with trend in the cointegration space. Therefore we establish model with constant in the short-run matrix and no trend in the cointegration space.

The next steps we examine the trace test statistics for cointegration rank, reported in table 3 which is estimated using Johansen’s maximum likelihood procedure. The trace statistic tests, the null hypothesis that the number of cointegration vector rank ($\Pi$) is less than or equal to $r$, against a general alternative hypothesis are examined. Moreover, I use Johansen and Nielsen’s (1993) critical value of the $\hat{\lambda}$-trace statistics for dummy variables include in the system, which they should be appropriate since the impact of impulse dummies on the asymptotic distribution of the rank test is usually negligible (see more Hubrich 2001).

The null hypothesis is rejected if the trace statistic is larger than the critical value. As seen from the table 3 that under the null hypothesis $r = 0$ and $r \leq 1$, are strongly rejected because the trace statistic is higher than critical value at 95 and 90 percent significant levels. On the other hand the alternative hypothesis of two or more cointegrating vector is accepted. Since 0.18 is less than 95 and 90 percent critical values, we can not reject null hypothesis. Based on the result of the trace test we accept a rank $r = 2$, which imply that we have to find two independent long-term relationships.

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>Alternative Hypothesis</th>
<th>$\hat{\lambda}$-trace</th>
<th>90% critical value</th>
<th>95% critical value</th>
<th>97.50 critical value</th>
</tr>
</thead>
<tbody>
<tr>
<td>$r = 0$</td>
<td>$r &gt; 0$</td>
<td>66.72</td>
<td>54.84</td>
<td>48.52</td>
<td>41.50</td>
</tr>
<tr>
<td>$r \leq 1$</td>
<td>$r &gt; 1$</td>
<td>16.55</td>
<td>7.95</td>
<td>4.21</td>
<td>5.35</td>
</tr>
<tr>
<td>$r \leq 2$</td>
<td>$r &gt; 2$</td>
<td>0.18</td>
<td>6.65</td>
<td>9.68</td>
<td>11.56</td>
</tr>
</tbody>
</table>

Note: The hypothesis is accepted when the calculated value < table value, Source: Author’s calculations

Table 3: Test for cointegration rank ($r$) (Johansen’s likelihood ratio test)

In following we have examined the linear restriction on loadings matrix and matrix of cointegration vectors, and therefore normalized with one real GDP and government revenue. Table 4 shows the result for the first and second cointegration vectors and their statistical significance. In parenthesis are calculated t statistics, which show higher significance for both matrixes of the cointegrations vectors 2.
<table>
<thead>
<tr>
<th>Variables (cointegration vector 1)</th>
<th>β</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>G.expenditure</td>
<td>-0.2492</td>
<td>(-27.887)</td>
</tr>
<tr>
<td>Real GDP</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>(Cointegrations vector 2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G.expenditure</td>
<td>-1.032</td>
<td>(-32.921)</td>
</tr>
<tr>
<td>G.revenue</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>LR- test</td>
<td>5.137</td>
<td></td>
</tr>
</tbody>
</table>

Note: α adjustment coefficient, β cointegration vector, coefficient is normalized on real GDP and the government revenue. Source: Author's calculations

**Table 4:** Linear restriction on loading and cointegration vector matrices

For easier interpretation we can rewrite the first cointegration vector as follow:

Real GDP = 0.2491 g. expenditure

\[ t (\text{27.887}) \]

As seen from the table 4 and equations (2), the real GDP moves positively to changes in the government expenditure and the coefficient is statistically significant. The coefficient of the government expenditure should be interpreted as a long-run coefficient of elasticity, indicating that 10 per cent increase of government expenditure results in a 2.491 per cent rise of the real GDP in the long-run in Republic of Macedonia.

In addition, we can rewrite the second cointegration vector as follow:

G. revenue = 1.032 g. expenditure

\[ t (\text{-32.921}) \]

Table 4 and equations (3) show that government expenditure also has positive impact on government revenue and the coefficient is statistically significant. The coefficient of government expenditure is long run coefficient of elasticity of the government revenue. An increase of government expenditure for 1 per cent will lead to 1.032 per cent rise of public revenue. With other wards, the coefficient of elasticity indicates that 10 per cent increase of government expenditure generate a 10.032% increase of the government revenue.

Regarding \( \alpha \) - the coefficient of adjustment that real GDP will adjust to its long-run equilibrium after 15 months by endogenous government expenditure adjustment. Almost is the same result with government revenue, which will adjust to its long-run equilibrium after 14 months by endogenous government expenditure adjustment.
Finally, based on the result obtain by the cointegration vectors we may conclude that in the long –run government expenditure expansion have positive effect on real GDP and government revenue, which is consistent with theoretical expectations.

3. CONCLUSIONS

The research examines the long run relationships between government expenditure, revenue and real economic activity over the period from 1997 to 2012. Based on the available theoretical and empirical evidence, we employ cointegration analysis and VECM methodologies in order to investigate the long term effect of government expenditure and revenue and real economic activity in a small open transition country: the case Republic of Macedonia.

For countries in transition with short spans of data (which are sometimes of questionable quality), empirical results are to be indicative rather than definitive. With that caveat in mind, my main findings and their implications are as follows:

ADF test show that all variables are difference stationary, once taking first difference they are integrated in I(1) or first order. Hence the I(1) process is appropriate for cointegration analysis. Based on the Johansen methodology we find two cointegration vectors, which are statistically significant. With other wards, we find a long run stable relationship between government expenditure, revenue and real GDP. The cointegration vectors show that the government expenditure has positive effect on real GDP and government revenue and normalized the vectors with real GDP and government revenue. For the sake of easier interpretation, the results of first cointegration vector reveal that the government expenditure has a long run coefficient of 0.2492, indicating that 10 per cent of increase of government expenditure results in a 2.492 per cent rise of the real GDP in the long-run in Republic of Macedonia. The result of the second cointegration vector reveals that government expenditure also has positive long term coefficient of 1.032 per cent, indicating that 10 per cent increase of government expenditure will generate 10.32 per cent increase of government revenue. Finally, based on the result obtain by both cointegration vectors we may conclude that in the long –run government expenditure expansion have positive effect on real GDP and government revenue, which is consistent with theoretical expectations.

REFERENCES


IMPACT OF SELECTION METHODS OF REINSURANCE
IN THE ECONOMY FINANCIAL INSURANCE

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Abstract

The financial economy insurance defined as taking any kind of action to achieve the financial objectives involves risks. Risk is inherent in the insurance and reinsurance decisions. In today's risk insurance acts as a catch-all. This multifaceted understanding of risk, and therefore look for different ways to reduce its effects and weight makes it particularly important to the problem of risk transfer insurance risk.

Financial Decision-makers are looking for effective ways and instruments to mitigate this type of risk. These capabilities creates a number of methods and tools in the field of operations research that can be successfully used to solve problems related to the purchase of reinsurance. In this paper we will present some models and optimization methods used to select the optimal reinsurance and thereby effectively to the financial benefit of the insurer.

Key words: insurance company finance, insurance protection, reinsurance, risk selection, risk management, operational research.

1. INTRODUCTION

Insurance company with a view to achieving the highest possible financial gain and maintain liquidity, undertakes a number of financial decisions. A special kind of decisions in a reinsurance. Transfer of insurance risk requires analysis of many factors making and application of appropriate methods of identifying and establishing a hierarchy.

Methods and models of operations research for many years been successfully used to solve optimization problems associated with the purchase of insurance and reinsurance. Especially noteworthy is primarily game theory, linear programming, quadratic programming and stochastic dominance.

Game theory is applied in solving issues related to the reciprocal reinsurance agreements (agreements to exchange interest) relating to reinsurance quota, especially in situations where the aim is to minimize the variance of the portfolio of insurance while the utility index depends on the level of free technical provisions. The linear programming is used to estimate the upper limit of the amount of the premium for the stop loss reinsurance agreement. Methods of quadratic programming is used when dealing with international problems of reinsurance contracts with particular emphasis on excess of loss reinsurance contracts.
Stochastic dominance, in turn, a tool in the field of operations research applied to be applied when taking financial decisions have a choice between two portfolios: reinsurance and reinsurance.

2. REINSURANCE

The basis of the insurer’s financial operations including proper assessment of the level of insurance risk, expressed in the relevant insurance premium. From an economic point of view, this contribution is part of the policyholder in the creation of an insurance fund, which is used to cover insurance claims due to arising as a result of previously concluded contracts of insurance, and other expenses related to insurance business. The insurance premium is due, which the policyholder or the insured must pay the insurer for the guarantee (protection) insurance for a specified period of insurance. It is a basic income insurance, and also provides a basis for the establishment created by the insurance fund. Because it should be set at a height that provides funding for:

- compensation and benefits,
- the creation of technical provisions-insurance,
- creating other reserve funds,
- the cost of insurance.

So the premium is calculated gross premium income and includes overhead consists of various additives to net premiums underlying its construction. Net insurance premium reflects the policyholder in the apportionment of damages and is intended only to cover the cost of compensation and benefits. Therefore, the net contribution rate is equal to the probability of an accident insurance for each type of risk, and the net contribution is even increased by the so-called. allowance for the risk of forming a multiple of the standard deviation of the sum of the expected claims payments. Allowance for risk is the sum intended to cover the rest of the current year operating surplus of the actual amount of insurance claims over the projected sum of compensation or benefits. With not used in a given year allowance for risk and the excess of the sum of net premiums claims arise extra cash intended to cover the losses incurred in the period in which the amount of premiums collected did not cover the amount of claims for damages. Amount of the allowance for risk depends primarily on the structure and size of the insurance portfolio, the size of the deviation compensation claims in recent years and the amount of technical reserves accumulated in previous years.

The risk of the insurer in this case is related to the possibility of incorrect predictions about the probability of occurrence of accident insurance for a group of risk at the relevant time. For each distribution under consideration is the possibility of deviations in excess of the limits adopted by the insurer in its calculations. The positive discrepancy as to the size of future claims could lead to financial imbalances insurance operations, and in extreme cases, to the ruin of the insurance company. It is known from the theory of statistics that for every random variable is possible deviations of its value in plus and in minus the expected value of the variable of virtually any size with a probability greater than zero. Therefore, the total amount of net premiums determines the amount of funds accumulated for the payment of insurance claims. The same amount of net premium is calculated based on the expected number and size of random damage that may occur during the insurance period in the group insurance.
Reinsurance provides additional insurance protection against the risk of underestimation of the net contribution rate.

Reinsurance business is always accompanied insurance business, changing its form and extent as with the progress technical there are new risks and increasing size of the existing ones. The natural consequence to the insurance market growth is the increase in the reinsurance market. The problem we have to solve is to choose the best insurance for themselves combinations of forms of reinsurance. Each of the options will be used in various ways affect the type and amount of damages recovered by the insurer. Reinsurance contract amount, surplus and excess of loss based on individual risks will reduce the size of the damage caused in the individual events. Agreement excess of loss arising from a single event, in turn, will reduce the exposure of an undertaking in catastrophic events, or accumulation of events in the year. The agreement of the excess claims, in turn, is the most appropriate in order to avoid the negative effects of mass events occurring in a particular year. Forms and methods employed by the transferor undertaking will depend on many factors such as:

- level of development of the reinsurance market,
- type of reinsured risks,
- size of the portfolio insurance company,
- current financial position of the insurer,
- their experience in the field of reinsurance,
- management skills.

Each insurance company has a policy of reinsurance and that it runs better the more you know the market is flexible with respect to the changing environment and effectively provides for changes in the environment. Reinsurance is the transfer of the risks already insured in the insurance company to continue coverage from another insurer called a reinsurer in this case. This behavior occurs insurer if adopted by him to the security risks are too large (in terms of the sum insured of the risk), since the adoption of the portfolio of such risks may disrupt the financial balance of the insurance operations, and even lead to the insolvency of the insurer.

Reinsurance fulfills so very important to stabilize the financial performance of the insurer. In addition, reinsurance significantly increases the possibility of covering the risks of dangerous or expensive, often exceeding the so-called. Acceptance absorption insurer. Reinsurance is a highly effective tool for improving the size of the minimum capital adequacy ratio, which is one of the key parameters to assess the financial management of the insurer for insurance supervisors. However, even after the division of risk between insurer and reinsurer may be that the value of the risk ceded in turn exceeds the financial capacity of reinsurer. In such a situation it is necessary to subdivide this risk, the retrocession. Retrocession is therefore the transfer of the shares of the reinsurer adopted its risks to other reinsurers. This way of further risk-sharing may occur repeatedly until the very far-reaching fragmentation of the risk.

It is therefore important to choose the optimal reinsurance exchange policy on foreign markets for the adoption of certain limitations related to the conduct of that exchange that is taking insurance, and investment activities and retrocession. Considering the reinsurance as a mechanism for the exchange of money will get on one side of the reinsurance premiums, and the other funds reinsurer. Contractor undertaking acquires the right to claim (subject to the occurrence of random events described in the
agreement), which can cause significant changes in the level of its future financial resources. Therefore reinsurance wallet can be treated as consisting of two parts:

- contingent liabilities arising from reinsurance contracts,
- contingent claims and financial investments.

Since these two parts of the portfolio are not independent, because of the general rules of economic activity, the task can be defined as a reinsurer seeking optimal combination of contracts and investments. In practice, this amounts to determine the composition of the portfolio which gives the maximum total return while maintaining the financial balance and minimal risk (as measured by the variance of returns). Therefore, this article attempts to propose a method for the insurance of property on the optimal choice of form and reinsurance in the context of the transfer of insurance risk.

3. APPLICATION OF OPERATIONS RESEARCH IN INSURANCE

Consider three types of reinsurance:

- Reinsurance model,
- Model of retrocession reinsurance quota arrangements,
- Model of retrocession reinsurance excess of loss.

The purpose of each model is to minimize the variance of the expected return for given limits of the types of business insurance - reinsurance.

Suppose the reinsurer conducts reinsurance activities for \( k \) types of insurance, while \( n-k \) investment activities. The rate of return of each activity \( r_i \) is a random variable with a known distribution \( u_i \) with finite expected value and variance of a finite non-zero. Thus, the total rate of return \( y_n \) is a linear combination of random variables:

\[
y = \sum_{i=1}^{k} a_i r_i + \sum_{i=k+1}^{l} b_i r_{2i} + \sum_{i=l+1}^{m} c_i r_{3i} + \sum_{i=m+1}^{n} d_i r_{4i}
\]

where:
- \( y \) - the total rate of return on investment
- \( i = 1,...,k \) - types of insurance reinsurance acceptances
- \( i = k+1,...,n \) - investing activities
- \( a_i \) - a fraction of the investment for the \( i \)-th reinsured insurance
$b_i$ - a fraction of the investment for the $i$-th class of shares

c_i$ - a fraction of the investment for the $i$-th property

d_i$ - a fraction of the investment for the $i$-th type of deposit claims

$r_{1i}$ - the rate of return of the $i$-th type of reinsurance (for $i = 1, \ldots, k$)

$r_{2i}$ - the rate of return for the $i$-th class of shares (for $i = k + 1, \ldots, l$)

$r_{3i}$ - the rate of return for the $i$-th type of claim (for $i = l + 1, \ldots, m$)

$r_{4i}$ - the rate of return on the $i$-th type of deposit liabilities (for $i = m + 1, \ldots, n$)

The above designations adopted a fraction of the investment for $i = 1, \ldots, k$ can be represented as follows:

$$a_i = \frac{w_i}{W} \quad (2)$$

where:

$w_i$ - the value of investments in the $i$-th type of reinsurance or investment

$W$ - share capital of the company

For $i = k + 1, \ldots, l$ fraction of the investment is written as follows:

$$b_i = \frac{w_i}{W} \quad (3)$$

On the other hand, for $i = l + 1, \ldots, m$ fraction has the form:

$$c_i = \frac{w_i}{W} \quad (4)$$

and for $i = m + 1, \ldots, n$

$$d_i = \frac{w_i}{W} \quad (5)$$
The objective is to minimize the variance of the reinsurer total return $y$ for all possible values of the expected total return $y$, or find a set of combinations of fractions $a_i$ investment that minimizes $\text{Var}(y)$, with constraints:

\begin{align*}
a, b, c, d & \geq 0 \quad (6) \\
a_i & < 1 \quad (7) \\
\sum w_i & \leq 0.3F \quad \text{for } i = k+1, \ldots, l \quad (8) \\
\sum w_i & \leq 0.25F \quad \text{for } i = l+1, \ldots, m \quad (9) \\
\sum w_i & \leq 0.45F \quad \text{for } i = m+1, \ldots, n \quad (10) \\
\sum w_i & \leq F \quad (11)
\end{align*}

where: $F$ - means insurance fund of the insurance and reinsurance company

\begin{equation}
1 + \sum_{i=1}^{k} a_i - \sum_{i=k+1}^{j} b_i + \sum_{i=l+1}^{m} c_i + \sum_{i=m+1}^{n} d_i = 0 \quad (12)
\end{equation}

Constraint (12) is the limit resulting from the balance sheet to ensure balance between total assets net of liabilities arising from reinsurance business.

In addition, you should also take the following additional assumptions:

- any type of activity is characterized by the income stated rate of return,
- reinsurer known distributions of individual rates of return,
- reinsurer bases its decisions on these distributions (in particular, the expected rate of return and the likelihood of achieving it),
- reinsurer of the many types of investments with the same expected rate of return will select the one for which the variance is smaller,
- from investment activities of equal variance rate of return reinsurer chooses the one for which the expected rate of return is highest.

4. RETROCESSION

In case of retrocession comes to subdivide the risk that the reinsurer has in its portfolio. Not all forms of reinsurance can be directly transferred to the retrocession. This applies in particular excess retrocession that cannot be used due to the lack of detailed data on individual risks. The same applies to the retrocession of the excess claims.
4.1. QUOTA RETROCESSION

These problems do not occur in the case of retrocession quota. This type of retrocession is brought into further reassurance appropriate, specific percentage of each risk to reinsurance assumed earlier. Reinsurance model using such retrocession will be as follows:

\[ y = \sum_{i=1}^{k} (1 - p) a_i r_{i1} + \sum_{i=k+1}^{l} b_i r_{i2} + \sum_{i=l+1}^{m} c_i r_{i3} + \sum_{i=m+1}^{n} d_i r_{i4} \]  

where:

\( p_i \) - percentage of the size of the i-th retroceded risks

Other symbols as in the model above. All limits are identical in form to the model without retrocession.

4.2. EXCESS OF LOSS RETROCESSION

In the case of excess of loss retrocession model is more complex. First of all, this kind of retrocession agreement covers all classes i.e. retroceded all risks pertaining to one class of insurance. Therefore, the next model will introduce subscript \( j \) to determine the group of risks that will be passed to the retrocession.

If we assume that the income generated will mean for the \( j \)-th type retroceded risks then we have:

\[ z_j = X_j(D_j) - P_j(D_j) \]  

where:

\( D_j \) - means the deductible retroceding in the i-th type of insurance

\( X_j \) - means retrocession compensation for the j-th type of insurance

\( P_j \) - is retrocession premiums

For this kind of retrocession rate of return refer to as:

\[ s_j = \frac{z_j}{P_j} \]  

Given the above assumptions, the total rate of return for insurance and reinsurance company that uses the retrocession excess of loss can be written as follows:
In order to apply the classical mean-variance procedure, it is necessary to have a normal distribution. Proof of the admissibility of such assumptions is given in his work (Louberge, 1983).

Very difficult to solve is the problem of estimating the expected return for each type of insurance being put into retrocession. The inputs can be obtained only on the basis of historical data for the same contracts concluded by the undertaking in the previous periods.

The estimation of $E(s)$ and $VAR (s)$, it is necessary to assume that estimates of expected rates of return are independent of retroceding deductible for this type of insurance in the past. This is due to the fact that changes in the excess amount entail a change in the amount of retrocession premiums, and thus at a rate of compensation. It can be assumed that the probability distribution of the expected rate of return for retrocession is not affected. The proposed method is a method of programming stochastic.

The insurance in their business aims to achieve certain objectives of a certain hierarchy. The hierarchy in turn determines preferences and criteria for the selection of possible variants of decision-making. Variants of decision-making, in turn, determine the possible measures which fulfill the conditions limiting insurance designed to lead to the implementation of selected targets. This leads to the necessity of making decisions under uncertainty and risk.

Under the conditions of uncertainty and risk typical items included in the decision situation are:

- the decision-maker (insurance),
- a set of decision limit (variants of forms and reinsurance),
- the set of states of the external world (the set of possible realizations of the random variable),
- the utility function representing the gain or loss resulting from the adoption of a particular decision,
- the degree of uncertainty about the implementation status of the external world.

Direct impact on the efficiency of the implementation of the objectives have state of the external world also called states of Nature. It is purely random with possibility of only one state in the period under consideration, and are the result of external factors beyond the control of the decision-maker (insurance company).
Decision making under conditions of risk and uncertainty, there is always a choice of utility function. This determines the utility (the amount paid) accompanies each decision (each chosen strategy) for each state of nature.

The implementation of a particular state of nature subject to uncertainty expressed by the probability of occurrence of a specific event. When it is known to talk about decision-making under risk. If not we familiar talking about making decisions under uncertainty.

In determining the set of states of Nature must meet the following conditions:

- states of nature have to be mutually exclusive events,
- the probability of all states must add up to 1,
- should include all possible states of nature,
- the probability of each state must fall in the range (0, 1),
- the probability of the sum of the two states is equal to the sum of the probabilities of occurrence of each of these states.

In many cases, the decision-making decision-maker has the full information needed to formulate a mathematical model. From this point of view the issue of decision-making can be divided into:

- decisions made under conditions of certainty (linear programming, programming targeted, square and other programming)
- decision-making under risk (rule of maximizing the expected benefits, the rule of maximizing expected utility)
- decision-making under uncertainty (minmax rule, the rule maxmax, maxmin rule, the rule Hurwicz, Bayes rule, the rule Savage)
- decision-making under conditions of risk and uncertainty (the methods of statistical inference).

5. THE USE OF SOME OPTIMIZATION METHODS IN THE SELECTION OF BUYING REINSURANCE

Consider the following example. The insurance has an option to protect your portfolio of insurance:
1. No purchase reinsurance (no additional protection),
2. Purchase of quota reinsurance (amount = 30%),

Let also the total premium income of PLN 100 million. The cost of purchasing reinsurance protection quota of 30% of the portfolio is PLN 20 million (net of reinsurance commissions).

In turn, the cost of purchasing excess reinsurance I is PLN 15 million, and the second PLN 10 million.

In addition, states of nature characterizing the amount of possible losses in the portfolio are as follows:
- no damage,
the total damage of PLN 20 million,
the total damage of PLN 40 million,
the total damage of PLN 60 million,
the total damage of PLN 80 million.

With the above assumptions, the payoff matrix showing the actual cost of operating loss for the amount shown in Table 1.

<table>
<thead>
<tr>
<th>INSURER</th>
<th>NATURE</th>
<th>NO DAMAGE</th>
<th>TOTAL DAMAGE PLN 20mln</th>
<th>TOTAL DAMAGE PLN 40mln</th>
<th>TOTAL DAMAGE PLN 60mln</th>
<th>TOTAL DAMAGE PLN 80mln</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO REINSURANCE</td>
<td></td>
<td>0</td>
<td>-20</td>
<td>-40</td>
<td>-60</td>
<td>-80</td>
</tr>
<tr>
<td>QUOTA REINSURANCE (quota = 30%)</td>
<td></td>
<td>-20</td>
<td>-34</td>
<td>-48</td>
<td>-62</td>
<td>-76</td>
</tr>
<tr>
<td>EXCESS REINSURANCE Legitim 25mln I excess (Line)</td>
<td></td>
<td>-15</td>
<td>-35</td>
<td>-40</td>
<td>-50</td>
<td>-70</td>
</tr>
<tr>
<td>EXCESS REINSURANCE Legitim 25mln II excess (II Lines)</td>
<td></td>
<td>-25</td>
<td>-45</td>
<td>-50</td>
<td>-50</td>
<td>-55</td>
</tr>
</tbody>
</table>

Table 1. The optimal choice of reinsurance

Based on the selected decision rules insurance should have the following options for undertaking:

- for the rule maxmin excess reinsurance with two lines,
- for the rule maxmax total lack of reinsurance,
- for the rule Hurwicz by a factor equal to such precautions 0.6 excess with reassurance with two lines,
- the rule Bayes (no sufficient reason) the total lack of reinsurance,
- for the rule Savage excess reinsurance with two lines.
The above considerations can be extended to other versions of reinsurance and further possible states of nature, depending on the needs of the decision maker. Applying this approach allows you to support optimal decisions under uncertainty.

The above considerations can be extended to other versions of reinsurance and further possible states of nature, depending on the needs of the decision maker. Applying this approach allows you to support optimal decisions under uncertainty.

6. SUMMARY

The above methods of operations research can be an effective tool for rational decision-making and the achievement of financial targets, inter alia, by supporting the process of buying reinsurance, the optimal conditions of risk and uncertainty. Examples presented in the paper do not exhaust all the possibilities of making choices. However, there are no obstacles to the possibility of extending both the set of permissible decisions related to the choice of form and reinsurance as well as the possible states of nature, according to the financial needs of the decision maker.

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ENTREPRENEURS’ TAX STRATEGIES IN THE SCOPE OF INCOME TAXATION
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Abstract
The search for the optimal tax solutions for income taxes is not only a goal for finance management, but also a challenge for entrepreneurs. Efficient use of fiscal policy for taxes on business income can provide a way to protect the financial benefits achieved, and a source of competitive advantage in today's market. Tax optimization processes are applicable in companies operating across the nation and internationally (particularly European Union). They can equally apply to planned and ongoing activities.

The aim of the publication is to demonstrate that it is possible to apply - by the taxpayer - the right to choose under the rules and structure of income taxes to optimize the tax burden on income earned in the course of business.

Assumed aim will be achieved by presenting planes and the possibilities of a tax strategy in the corporate income tax. Results of the survey will be used as a basis for evaluation.

Key words: corporate finance, tax management, tax strategy, tax risk

1. INTRODUCTION
In times of increasing competition between economic entities, enterprises look for ways to achieve the best possible financial position. A possible solution is optimisation of tax burden and building tax strategy of an enterprise.

Decisions aimed at optimizing taxation and building tax strategy can be undertaken both in enterprises operating across national and international boundaries. Enterprises operating within a single tax system can formulate tax strategies that make a use of legally acceptable solutions in such system. The national tax strategies can be based on choices, for example, of a place and a form of business activity or a form of taxation. Entrepreneurs may also consider their right of choice in the scope of determining the value and moment of tax categories that affect the value of the tax base or application tax advantages. Entities formulating international strategies may primarily use the differences in the tax systems of individual countries.

A special place in the search for optimal solutions to deal with taxes is occupied by income taxes. This is mainly due to the fact that in almost all tax systems of individual states, there are legally sanctioned solutions enabling a taxpayer to make tax choices. Furthermore, the lack of harmonization of solutions for income taxation allows for using the economies of tax competition.
2. AREAS OF TAXATION STRATEGY IMPLEMENTATION IN INCOME TAX

Every entrepreneur seeks stabilization and improvement in their financial situation especially in maximizing financial benefits in respect of the conducted business activity and maintaining financial liquidity. The size of the financial performance and ability to settle liabilities are significantly affected by the taxation of income. Entrepreneurs wanting effectively to pursue the financial objectives need to shape their capital and property decisions in such a way that they would account for the tax aspect of the action taken. The point is, that it is not only a declaration of the tax burden, but such a decision-making process that will result in determining the optimal tax liability. Entrepreneurs can, therefore, take into account the existing legal solutions in the tax structure that allow for the optimization of choices or system loopholes (building national taxation strategies) and additionally to consider the differences in the taxation of income in different tax jurisdictions, constructing international tax strategies.

Entrepreneurs seeking to build a tax strategy and choosing in connection with it relevant instruments of fiscal policy should be guided by the specifics of their business operations and use these ones that allow them to reduce the effective tax rate and tax risk. Hence they look for the possibilities to minimize the amount of revenues recognized for income tax, to eliminate non-deductible costs and to use tax preferences and to carry forward the maturity to offset tax liability. Additionally, they try to find possibilities to limit the tax risk, both at the level of identification of tax obligation and determination of tax liability.

When considering the issue of building tax strategy, which aims at optimizing tax liabilities in relation to income derived from economic activity, it should be noted that different strategic attitudes of taxpayers are observed, usually determined by the nature of economic activity. There are economic events, which in order to be undertaken, need to be carefully prepared, considering all the pros and cons, calculating costs and tax benefits resulting from the possible scenario of solutions. There are also such economic events, of which the tax consequences for the realization of the undertaken objectives are the subject to current, most systematic managerial decisions. And there are also such events, of which tax consequences are realized after the fact and only when determining the tax liability entrepreneurs try to mitigate tax burden (Tarka, 2008, p. 15). The presented behaviour of taxpayers causes that building tax strategy can take various shapes and in practice, according to the strategic attitudes represented by enterprises, is carried out in three areas: tax planning, tax optimization of current business operations and mitigation of the tax effects of economic events which have already occurred (Dymek, 2006, p. 10).

The most effective way to optimize the tax burden is, of course, planning the tax behaviour before undertaking business activity that raises tax obligation. Fiscal decision-making during the implementation of economic activity usually brings a much smaller effect of tax optimization, but when the action was taken without considering tax consequences, which arising from the existing state of affairs can only be mitigated. At the same time, a possible attempt to try to change or modify the actual state after undertaking a transaction should be treated as an unlawful act of an entrepreneur, which absolutely cannot be considered as an implementation of tax strategies.

Tax decisions made by entrepreneurs may apply to long- and short-term periods of activity. The former include the decisions about the place and form of business activity or how to finance investment projects. The latter can include every decision of which the tax consequences generally expire during the fiscal year. Of course this does not prevent the possibility of extending their validity for the next fiscal year. Thus, the original tax decision regarding one tax year is converted into a long-term decision. For this type of decision may include, among other decisions on the selection of the depreciation method and decisions about the use of tax preferences, particularly those whose right of use is verified during several tax years.
3. LONG-TERM TAXATION PLANNING – SELECTED ISSUES

The major entrepreneur’s decisions of long-term fiscal implications are the decisions about the choice and form of business activity. The taxpayers’ decisions, regarding a place of business activity, are essentially unlimited. Usually, however, entrepreneurs starting an economic activity as a place of this activity choose their home country territory. Only after having achieved market stability, they undertake activities aiming at a partial or complete change of the place of business taking into account, alongside economic factors, the solutions to taxation systems in other countries (Szymański, 2009, p.96).

3.1. LONG-TERM TAXATION PLANNING – NATIONAL STRATEGIES ON THE EXAMPLE THE POLISH TAXATION SYSTEM

The decision to base operations in the home country territory means, for an entrepreneur, operating in one taxation system and confining building taxation strategy to domestic solutions only. In these circumstances, for Polish entrepreneurs the choice of the legal form of business activity is an essential element of tax planning. Polish regulations allow conducting business activity in the form of a natural or legal person. The choice of legal status means, at the same time, the choice of tax solutions for income taxation. The entrepreneurs choosing for their activity the status of a natural person, in principle, their income will be taxed on the income of natural persons (Journal of Law 2012, item. 361). In the case of choice of a legal person status the right form of taxation is the income tax from legal persons (Journal of Law 2011, No. 74, item 397). In Poland, the most common legal form of conducting a business activity is a form of a natural person. It is a form typical for start-up entities as well as for those with a longer period of operation, but belonging to the sector of small and medium-sized enterprises. However, the form of a legal person is usually taken by entities with a complex organizational structure and operations on at least a medium scale.

Analysing the problem of creating a taxation strategy by entrepreneurs earning their income on Polish territory it should be noted that there is no single, universal standard tax strategy, every entrepreneur looks for the right solutions in terms of their objectives and their capacity to absorb the taxation rights of choice. At the basis of such decisions lies economic calculation, which allows scheduling the most beneficial form of the income tax behaviour from the enterprise’s point of view. An entrepreneur planning to take action in the search for the optimal tax solution considers many possible, alternative legal regulations and estimates the tax risk connected with their use (Ciupek, 2012, pp. 168-179).

Among the possible decision-making choices, a few fundamental ones can be pointed at, which in the end may become an opportunity or a threat to tax optimization in a particular business entity.

An entrepreneur who decides to choose the status of a natural person should take into account, on the one hand, the special treatment of a natural person as a taxable entity, on the other, the principles of liability for obligations arising in connection with business activity.

Firstly, in the structure of income tax from natural persons there are specific solutions for the subject of taxation and rules for determining the tax base. First of all, the subjects to this taxation are particular natural persons, who own single-member enterprises or are shareholders of a private company. This means that in the case of companies the taxpayer is not a company, but each partner separately. Tax income of each of them is determined by the size of their share in the company. At the same time, if an entrepreneur generates income from more than one enterprise, he is obliged to settle it in total. On the one hand, this approach results in the need to sum up income and increasing the tax base, and this, in the case of tax progression, increases the tax liability, on the other - allows for balancing income and tax losses of different enterprises, which in turn results in the reduction of entrepreneur’s tax liability.
Secondly – system solutions in the field of income tax from natural persons – give entrepreneurs – taxpayers the right to use the so-called personal preferences. In particular, the right to joint taxation of spouse, which together with the income from business activity of a taxpayer and a spouse who receives no income or whose income is low, will reduce the final tax burden. A similar effect is obtained when an entrepreneur is a single parent of a child / children. Here, it is possible to apply the rules for determining the tax liability from a half of the income earned.

Thirdly, in the case of natural persons the responsibility for obligations is a personal liability, meaning the responsibility for all assets, both present and future. Such normalization is seen as a significant risk of a business activity. For this reason, entrepreneurs look for such tax solutions, among others, that would allow them to limit the liability to the value of business assets, even at the cost of higher tax liability. Such opportunities arise from the establishment of a limited liability company (the Polish legislation allows for the creation of a single-member limited liability company) or the use of advantages of a limited partner of a limited partnership. An entrepreneur seeking to limit obligations for liabilities and deciding to set up for this purpose a limited liability company, will be forced to tax double the income generated: once, as the income generated by the capital company founded and again, as an individual, in the event of a transfer of income in the form of dividends. This procedure will significantly increase the burden of income tax, but will reduce the liability for the obligations of the company. This situation is illustrated in Figure 1.

Figure 1: Taxation cost of reducing the settlement risk of liabilities by taking advantage of a limited liability company solution

* In comparison, natural person’s income tax for earning income of PLN 100,000 and taxable with the linear tax rate amounts to PLN 19,000.

Taxation cost of reducing the settlement risk of liabilities: PLN 15,390 (34,390 – 19,000)

Source: own studies.
The increase in the tax burden by more than 80% in exchange for reducing the entrepreneur’s financial risk is not a particularly satisfactory solution, but encourages to seek further for more complex solutions. In this quest it is worth to take into consideration a limited partnership, in particular, limited to the amount of contribution, the scope of liability of a limited partner. However, the problem of unlimited liability of the general partner can be solved by setting up a limited liability company established by a natural person. The limited partnership, as an entity with a physical personality does not tax the income earned. In such a case taxpayers of income tax are individual shareholders. In addition, while striving to reduce the double tax burden relating to taxation of income of a capital company and dividend paid, the share of a capital company in the structure of a limited liability amount should be minimized. The solution is illustrated in the Figure 2.

Figure 2: Taxation cost of reducing the settlement risk of liabilities by taking advantage a limited liability company and a limited partnership

Source: own studies

The presented solution, though complex, is legal, and as it is clear from Figure 2, significantly reduces the taxation cost of limiting the financial risks associated with the liability for obligations.
The choice a legal person status for conducting business activity as opposed to the status of a natural person means that the subject to taxation is each enterprise separately and there is no possibility of combining the income of individual entities, even if there would be capital or personal ties between them. This constitutes a major problem for the functioning of groups of companies (holding companies), partnerships with capital ties and which pursue a common economic objective, and thus – the tax one. There is, therefore, no means in the tax solutions for legal persons for the possibility of combining the income and losses of enterprises constituting the capital group. Hence taking action aimed at such development of economic relations that would ultimately result in the reduction of the tax basis is considered at variance with the laid tax law and may lead to estimating income for tax purposes. Despite this threat, behaviour "on the edge of the law" aimed at taxation optimization can be observed. Entities incorporated in a capital group striving to compensate for the loss of one entity / entities provide intangible reciprocal services to each other of highly differentiated character. Most often these are the services in the field of: management, marketing and consulting. Differentiation of intangible services makes it difficult or even impossible for the tax authorities to qualify them as an unlawful means of a profit transfer from profitable entities to the ones showing a loss and that ultimately allows the capital group entities to reduce the level of tax levies.

It should be noted that the choice of a legal person status allows (under certain conditions) for the appointment of a tax capital group, which, contrary to a capital group, is a special subject to the income tax. The tax status of the taxation subject allows the tax capital group to combine income and losses of individual companies within the group and to establish a single basis for taxation. In practice, this solution provides the immediate ability to cover losses of one company with the income from other company/companies forming the group. Therefore, this solution is highly recommended to those groups, which include even one company that bears tax losses. The solution is illustrated in Table 1.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Company X</th>
<th>Company Y</th>
<th>Company Z</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Option A</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revenue</td>
<td>1000.00</td>
<td>1500.00</td>
<td>3000.00</td>
<td>5500.00</td>
</tr>
<tr>
<td>Costs</td>
<td>950.00</td>
<td>1425.00</td>
<td>2700.00</td>
<td>5075.00</td>
</tr>
<tr>
<td>Income</td>
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<td>75.00</td>
<td>300.00</td>
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</tr>
<tr>
<td>Profit margin</td>
<td>5%</td>
<td>5%</td>
<td>10%</td>
<td>7.7%</td>
</tr>
<tr>
<td>Tax</td>
<td>9.50</td>
<td>14.30</td>
<td>57.00</td>
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<tr>
<td>Tax rate</td>
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<td>19%</td>
<td>19%</td>
<td>19%</td>
</tr>
<tr>
<td>Effective tax rate</td>
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<td></td>
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<tr>
<td><strong>Option B</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Revenue</td>
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<td>3000.00</td>
<td>5500.00</td>
</tr>
<tr>
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<td>3075.00</td>
<td>5335.00</td>
</tr>
<tr>
<td>Income</td>
<td>150.00</td>
<td>90.00</td>
<td>-75.00</td>
<td>165.00</td>
</tr>
</tbody>
</table>
Table 1: The tax effects of a tax capital group

Source: own studies

<table>
<thead>
<tr>
<th>Profit margin</th>
<th>15%</th>
<th>6%</th>
<th>-2.5%</th>
<th>3.0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tax</td>
<td>28.50</td>
<td>17.10</td>
<td>0.00</td>
<td>9.50</td>
</tr>
<tr>
<td>Tax rate</td>
<td>19%</td>
<td>19%</td>
<td>-</td>
<td>19%</td>
</tr>
<tr>
<td>Effective tax rate</td>
<td>27.6%</td>
<td>-</td>
<td>19%</td>
<td></td>
</tr>
</tbody>
</table>

In a situation where all companies are profitable (Option A), it does not matter whether business entities will form a tax capital group or not. In each entity of the group and in the tax capital group the effective tax rate will be 19%. However, when one of the entities bears a loss, the income of tax capital group is reduced and the overall tax burden decreases. In this situation, if each entity were taxed separately, then the set tax would be charged on the financial result earned by the profitable companies at the effective tax rate of 27.6% [(28.50+17.10)/165]. The total tax burden of the profitable enterprises would amount to 45.60 units, whereas, in the case of a tax capital group, the effective tax rate would stay at 19% and the established tax obligation would only amount to 9.50 units.

Moreover, the entities of a legal person status, for the tax optimisation purposes, are allowed to establish a company of a natural person status. Such a company is a particular "type" of a capital group of entities that share a common economic and tax objective. In terms of taxation, similar to capital groups, the objective is to cover tax losses quickly and reduce the tax burden. Entities pursuing this tax objective setting up a partnership, arrange business relationships in such a manner that a partnership would suffer tax loss. They connect this loss indirectly with income generated in their parent partnerships taking advantage of a rule of law, which requires items of income and costs related to participation in the partnership, which is not a legal person, connect with the revenues and costs of each shareholder in proportion to their share owned. This solution is illustrated in Table 2.

As shown in Table 2, the entities with the status of legal persons, which have a common tax objective, and of which the economic relationships - resulted in the creation of the income tax in the former case and the tax loss in the latter case, must determine a net tax liability in the amount of 1,140 units (Company X) and acquire the right to tax loss (Company Y), but only in the next fiscal years. These companies, however, are interested in the acceleration of tax loss by covering it with the income gained. In order to do that they establish a partnership, bringing in equal shares. As a result of performed economic transactions they show a loss in the partnership, simultaneously remaining profitable entities themselves. Settling the income tax return, in accordance with the law in force, they add items of income and expenses incurred in a partnership to the income and expenses incurred in companies and establish the basis for the taxation of corporate income. Even though each entity pays tax, the total amount of tax equal 570 units is significantly lower than when only one of the entities were profitable.

It should also be noted that the choice of the legal form of economic activity determines the choice of simplified forms of taxation. As a rule, entities conducting economic activity in form of a natural person in addition to the tax on general principles can choose flat rate schemes. These schemes are characterized by simpler rules of identifying the basis for taxation and simpler rules of accounting for economic events. Simplified schemes do not apply to entities conducting economic activity as legal persons.
3.2. LONG-TERM TAX PLANNING – INTERNATIONAL STRATEGIES

Planning and implementation of a long-term tax strategy in the scope of income taxes is the domain of international capital groups, or affiliates, in which as a rule companies have the status of a legal person. Taking a decision to locate some or all of their economic activities (of one or more companies forming a group) in another country allows them to build a tax strategy based on differences between the tax systems of different countries. These differences lie primarily in the subject of taxation, the level of tax rates, different rules for determining the tax base and in the scope of the tax preferences.

Given the subject of taxation in different countries it should be generally stated that in the tax arrangements for income taxes the subject of taxation is income understood as a surplus of tax revenues over the tax cost. The differences lie in the way of identifying these categories, in particular, the tax cost category. Generally, the tax costs either include costs incurred in order to obtain or retain income or secure the source of this income. In most countries, however, entire directories of costs can be found that despite the definitional condition are not considered tax deductible. Tax solutions provide several to dozens of such exceptions. Among these exceptions are costs associated with the purchase and operation of fixed assets (particularly means of transport), burden borne in favour of employees and certain financial costs. (Andersen, 2001, p. 24)

Creating a tax strategy, entrepreneurs seek locations in countries with more lenient rules of determining tax categories. At this point it is difficult to specifically indicate which are these countries. This choice must be made by every entrepreneur accounting for appropriate tax environment for their economic activity in a country in which they want to operate (Gorter, Mooij, 2001, p. 86). The systematically published rankings of countries due to the complexity of the tax system by the World Bank may provide

<table>
<thead>
<tr>
<th></th>
<th>Revenue</th>
<th>Cost</th>
<th>Income</th>
<th>Tax</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Option A:</strong> Companies with a legal status operate independently</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company X</td>
<td>16,000</td>
<td>10,000</td>
<td>6,000</td>
<td>1,140</td>
</tr>
<tr>
<td>Company Y</td>
<td>10,000</td>
<td>13,000</td>
<td>-3,000</td>
<td>-</td>
</tr>
</tbody>
</table>

| **Option B:** Companies with a legal status establish a partnership |         |        |        |        |
| Company X      | 13,000  | 10,000 | 2,000  | 380    |
|                | + 50% x 1,000 | + 50% x 3,000 | = 11,500 |        |
|                | = 13,500  | = 11,500 |        |        |
| Company Y      | 12,000  | 10,000 | 1,000  | 190    |
|                | + 50% x 1,000 | + 50% x 3,000 | = 11,500 |        |
|                | = 12,500  | = 11,500 |        |        |
| Partnership    | 1,000   | 3,000  | -      | -      |

* Loss to be settled in the next 5 fiscal years

**Table 2: The tax effects of the establishment of a partnership by legal persons.**

Source: own studies
some advice in this respect. Countries with least and most complex tax system solutions are shown in Table 3.

<table>
<thead>
<tr>
<th>Countries with the most favourable tax solutions</th>
<th>Position in ranking</th>
<th>Countries with the least favourable tax solutions</th>
<th>Position in ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maldives</td>
<td>1</td>
<td>Belorussia</td>
<td>183</td>
</tr>
<tr>
<td>Qatar</td>
<td>2</td>
<td>Venezuela</td>
<td>182</td>
</tr>
<tr>
<td>Hong Kong (China)</td>
<td>3</td>
<td>Ukraine</td>
<td>181</td>
</tr>
<tr>
<td>United Arab Emirates</td>
<td>4</td>
<td>Republic of Congo</td>
<td>180</td>
</tr>
<tr>
<td>Singapore</td>
<td>5</td>
<td>Central African Republic</td>
<td>179</td>
</tr>
<tr>
<td>Ireland</td>
<td>6</td>
<td>Uzbekistan</td>
<td>178</td>
</tr>
<tr>
<td>South Arabia</td>
<td>7</td>
<td>Bolivia</td>
<td>177</td>
</tr>
<tr>
<td>Oman</td>
<td>8</td>
<td>Republic of Gambia</td>
<td>176</td>
</tr>
<tr>
<td>New Zealand</td>
<td>9</td>
<td>Mauretania</td>
<td>175</td>
</tr>
<tr>
<td>Kiribati</td>
<td>10</td>
<td>Jamaica</td>
<td>173</td>
</tr>
</tbody>
</table>

Table 3: Selected countries with the simplest and the most complex tax solutions.

Source: World Bank, 2011, p.11

The assessment of tax liability beyond the basis for taxation is also determined by the tax rate. The basic rates of income tax in selected countries are shown in Table 4.

<table>
<thead>
<tr>
<th>Country</th>
<th>Income tax</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PIT</td>
</tr>
<tr>
<td>Austria</td>
<td>23 %, 33, 50 %</td>
</tr>
<tr>
<td>Belgium</td>
<td>25%, 30%, 40%, 45%, 50%</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>10%</td>
</tr>
<tr>
<td>Cyprus</td>
<td>20%, 25%, 30%</td>
</tr>
<tr>
<td>Croatia</td>
<td>15%, 25%, 30%, 45%</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>15%</td>
</tr>
<tr>
<td>Finland</td>
<td>from 16% to 21%</td>
</tr>
<tr>
<td>Greece</td>
<td>from5% to 40%</td>
</tr>
<tr>
<td>Holland</td>
<td>33%, 42%, 52%</td>
</tr>
<tr>
<td>Ireland</td>
<td>41%</td>
</tr>
<tr>
<td>Country</td>
<td>Min Rate</td>
</tr>
<tr>
<td>-------------</td>
<td>----------</td>
</tr>
<tr>
<td>Lithuania</td>
<td>27%</td>
</tr>
<tr>
<td>Latvia</td>
<td>25%</td>
</tr>
<tr>
<td>Germany</td>
<td>0% to 45%</td>
</tr>
<tr>
<td>Portugal</td>
<td>10.5% to 42%</td>
</tr>
<tr>
<td>Romania</td>
<td>16%</td>
</tr>
<tr>
<td>Slovakia</td>
<td>19%</td>
</tr>
<tr>
<td>Slovenia</td>
<td>16% to 41%</td>
</tr>
<tr>
<td>Sweden</td>
<td>0% to 56%</td>
</tr>
<tr>
<td>Ukraine</td>
<td>13%</td>
</tr>
<tr>
<td>Hungary</td>
<td>18% and 36%</td>
</tr>
<tr>
<td>Great Britain</td>
<td>20% and 40%</td>
</tr>
<tr>
<td>Italy</td>
<td>23% to 43%</td>
</tr>
<tr>
<td>USA</td>
<td>0% to 35%</td>
</tr>
</tbody>
</table>

Table 4: Income tax rates in selected countries.

Figure 3: Profit transfer by pricing services or goods
Source: own studies
The implementation of a tax strategy accounting for the differences in tax structures of individual countries cannot be reduced to simple choices of the subject of taxation and the tax rate. In practice, the main reason for tax planning is a transfer of income to those countries where the tax burden is the lowest. The transfer of profits, in its essence, lies in such manipulation of transfer prices that profits are reported in this entity, which is under the tax jurisdiction of the state with the most lenient system of the income taxation and so that the tax jurisdictions of individual states have not found the basis for estimating the prices of those transactions for tax purposes. In practice, the transfer of profits may be carried out using different techniques. One of them is the understating or overstating of transfer prices. The scheme of profit transfer in the sale and purchase transactions is presented in Figure 3.

The transfer of profits by the sale transaction means the sale of services (or goods) to a company of the holding structure (Company Y). Sale is below the market price, which means creating lower costs in a Company Y. The Company Y then makes further sale transactions, but at the market prices. The transaction structured in such a manner results in a substantial profit in the company Y, and not in the parent unit (Company X). Lower taxation of profits of the Company Y means larger total retained earnings of the holding structure. A similar effect is achieved by purchasing transactions. In this situation, the Company Y buys goods at the market value, and then resells them to the parent company, but at a higher price than the purchasing price.

The transfer of profits can also be made through the use of lending instruments. This strategic solution is based on determining high interest rates, but within the limits of the law. As a result, the borrower will incur high tax costs and the lender will earn high revenues on this account. The scheme of profit transfer with interest from loans is shown in the Figure 4.

![Figure 4: Transfer of profits by lending instruments](source)

Obviously, conducting a tax strategy on an international scale is not only the domain of complex holding structures. Own strategies on an international scale can be led by single entities that invest outside their home country in foreign plants. In the system solutions of many states there is a category of a company’s foreign establishment. In embodiments of the Polish tax system it is understood as a permanent establishment (branch, office, factory, dealership, workshop) through which an entity founded in Poland conducts wholly or partially its economic activity on the territory of another state. Conducting business activity in the form of a foreign establishment may enable to use strategic solutions of capital groups, and solutions arising from the principles set out in the agreements for the avoidance of double taxation with countries in which foreign establishments operate. Concluded agreements and contracts generally provide that the income of a foreign establishment is exempted from taxation. However, this is not
characteristic of all agreements and contracts. In a situation where the agreement on the avoidance of double taxation does not anticipate such an exemption, the responsibility for overlapping of income rests with the company that founded the foreign establishment. In this situation, in relation to the assessed liability, admittedly, there is a right to deduct the tax paid in another state, but it is a limited right. This limitation comes the fact that the amount of the deduction cannot exceed that part of the tax, as calculated before the deduction that is proportionally attributable to the income earned in a foreign country. The tax effects of the solutions contained in the agreements on the prevention of double taxation are shown in Table 5.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Agreement on double taxation avoidance</th>
<th>Lack of agreement on double taxation avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxation income of foreign establishment</td>
<td>100,000</td>
<td>100,000</td>
</tr>
<tr>
<td>Foreign income tax (15%)</td>
<td>15,000</td>
<td>15,000</td>
</tr>
<tr>
<td>Income after taxation of establishment</td>
<td>85,000</td>
<td>85,000</td>
</tr>
<tr>
<td>Income in Poland</td>
<td>-</td>
<td>100,000</td>
</tr>
<tr>
<td>Tax due</td>
<td>-</td>
<td>19,000</td>
</tr>
<tr>
<td>Deductibility of tax paid</td>
<td>-</td>
<td>15,000</td>
</tr>
<tr>
<td>Tax to be paid</td>
<td>-</td>
<td>4,000</td>
</tr>
<tr>
<td>Income after tax</td>
<td>85,000</td>
<td>81,000</td>
</tr>
<tr>
<td>Effective interest rate</td>
<td>15%</td>
<td>19%</td>
</tr>
</tbody>
</table>

Table 5: The tax effects of conducting economic activity in a form of a foreign establishment

Source: own studies

Taking into account the possibility of building an international strategy, from the point of tax risk, the founding of a foreign establishment than operating in the form of holding structures is a more favourable option. Restrictions on the pricing between related entities force down a search for such transactions in which an applied rate cannot be undermined by the tax authorities otherwise the profit transfer will be unprofitable.

4. CURRENT TAX OPTIMIZATION DECISIONS – SELECTED ISSUES ON THE EXAMPLE OF THE POLISH TAX SYSTEM SOLUTIONS

Another area of building a tax strategy by an entrepreneur is a day-to-day process of an economic decision-making process that takes into account the short-term tax consequences. Optimization of tax burden in the current economic activity of an enterprise is carried out by organizational adjustment and the use of instruments available (the rights of choice) by the taxpayer. These instruments may include development of individual tax categories, as well as the use of tax preferences.
Among the instruments that shape the value of tax categories, a special place is taken by the selection of the basis and methods of tax depreciation. An entrepreneur adhering to the principles stipulated by the tax law may:

- not depreciate fixed assets,
- use the straight-line method,
- use the declining-balance method,
- take advantage of the right to one-time depreciation.

Tax solutions in the field of income taxation allow for the possibility of non-depreciation of fixed assets and passing on their acquisition costs to the cost of revenues. Firstly, taxpayers may not make depreciation or amortization charges of assets whose initial value is not more than PLN 3,500. Secondly, if they plan to sell the asset before the expiry of one year, than the expenditure for acquiring this component may also lower the tax cost. In terms of tax risk, attention should be paid to the obligation to verify the intended plan - if after one year the fixed asset is still in use in the enterprise, there is a need to verify the tax cost and, in case of arrears - their settlement together with interest.

The choice of the straight-line method means the distribution of the initial value of a fixed asset into equal instalments, usually monthly. Depreciation charges are calculated, in principle, at the rate based on the list of depreciation rates annexed to the Act. Moreover, there is a possibility to use coefficients increasing the rates or the application of an individual rate. Coefficients raising the rate equal from 1.2 to 2.0 and can be relevant in the situation when over a useful life of a given asset poor or degraded conditions occurred. The use of individual rates of depreciation is possible in situations where previously used fixed assets (for at least 6 months) are subject to depreciation, improved (their upgrade expenditure accounted for at least 20% of their original cost), or they were entered in the records for the first time.

The use of higher depreciation or individual rates is subject to the statutory requirements. Taxpayers who do not comply with the requirements, and want to increase depreciation cost by shortening the depreciation period, may apply the declining balance method to fixed assets depreciation. In such a case the depreciation charges are made using a coefficient, increasing the statutory rate, but not higher than 2. The depreciation charges are determined from the original value minus the deductions already made until the depreciation using the declining balance method will be lower than fixed straight-line depreciation charges. This method does not apply in the case of amortization of intangible assets or depreciation of buildings and structures as well as motorcars. The tax implications of declining balance method are such that in the initial period of depreciation the taxpayer recognizes as the cost of revenue higher charges in comparison to the straight-line depreciation method.

Apart from the straight-line and declining balance methods, there is also a possibility of using one-time depreciation charge. This method can be used by those who establish an economic activity or by small taxpayers. One-time depreciation charge does not apply to motorcars, buildings and structures. One-time depreciation is limited. Fixed assets of a value not exceeding the equivalent of EUR 50,000 can be subject to one-time depreciation. The use of one-time depreciation results in an immediate introduction of the expenditure for the acquisition of a fixed asset to the tax burden, which means a reduction in the tax base and lower tax burden, which, in turn, has a significant impact on the liquidity of a start-up or small entrepreneur.
Another instrument for the current tax optimization is a possibility to charge bad debts to the taxation costs. The basic principle of recognizing amounts due as tax revenue, regardless of the fact of receiving a payment constitutes an important part of entrepreneur’s financial risk. In a situation where a debtor does not pay their obligations, the taxpayer, in addition to the burden of already paid tax levy, does not recover the funds involved and as a consequence the problems with maintaining liquidity are exacerbated. This is a prerequisite for a taxpayer to take action aiming at recovering the tax levy paid. The recovery of tax levy is indirect and is realized by the inclusion of tax cost of bad debts and reduction of the tax base, and thus paying a lower tax. It should be noted, however, that exercising this right may be established through providing *prima facie* evidence of irrecoverability of debt or giving an appearance of probability of irrecoverability of debt.

And another group of instruments that allow for the optimization of the tax liability resulting from current decisions of an enterprise, is the right to use tax preferences, in particular the right to a tax credit, the right to relief on the purchase of new technologies, the right to settlement of tax losses and the right to relief from the payment of tax liabilities.

The right to a tax credit is a special instrument allowing shifting forward the date of the amount of tax due proportionally – at 20% of the amount of tax payable for a period of five consecutive fiscal years. The right to its use have entrepreneurs who start economic activity and meet the requirements to generate a minimum of average monthly income of EUR 1,000 and average employment 5 people. Entrepreneurs meeting the conditions can take advantage of the tax credit in the tax year following after:

- the year in which this economic activity began when in the year of launching this activity it was carried out for at least 10 full months,
- the second year, if the above condition has not been met.

A special risk of executing the right to a tax credit is the possibility of its loss. Taxpayers lose their right to exemption, if appropriately in the year or next year of executing the exemption or in the next five fiscal years, they closed down the business activity or were declared bankrupt, or did not fulfil the conditions of the level of turnover and employment size. A direct consequence of the exemption right loss is an adjustment of the tax return, payment of income tax advance due and the need to determine the interest for late payment.

Another instrument of tax optimization, as indicated by the legislature, is the right to reduce the taxable amount by the expenditure incurred on the acquisition of new technologies. Legislature defines new technologies as technological know-how/knowledge that enables the production of new or improved products or services and it has not been used in the world for more than five past years, which is confirmed by the opinion of an independent research unit. Therefore, the right to deduction is granted to an entrepreneur who invests in new technologies. The use of tax relief has clearly been defined by the legislature, and:

- deductions can only be made in weight and up to the amount of income derived from economic activity,
- the basis of the deduction is the amount of expenditure incurred by the taxpayer for the acquisition of new technology,
- the deduction may not exceed 50% of the expenditure incurred
- the deduction is made in the tax return for the fiscal year in which the expenditure were incurred.
Noteworthy is the fact that the use of this tax relief does not limit the entrepreneur’s right to make depreciation charges on the entire value of expenditure incurred, which in turn reduces the tax base and the tax burden on the use of new technologies in the coming years.

However, as in the case of tax credit, the relief on the use of new technologies is a subject to the risk of losing that right. The taxpayer loses the right if, before the expiry of the three-year fiscal period, they provide in any form or its part to the other parties the right to a new technology, or is declared bankrupt or will receive reimbursement of expenses. In these circumstances, the entrepreneur is required in the fiscal year, in which the loss of the right to relief occurred, to increase the tax base by the amount of deductions made.

Another instrument in the current tax optimization is the right to deduct a tax loss. A tax loss is a specific tax category, which as the negative, tax result of activities taken in the tax year by an entrepreneur, has an impact on the amount of the tax base in the next few years. This is determined by legal solutions, which established the right of a taxpayer to deduct losses incurred in one fiscal year out of the income in the next five fiscal years, in addition the amount of reduction in any of those years cannot exceed 50% of the loss.

The list of preferences provided in the acts of law relating to taxation of income extends the relief on the repayment of tax liability. Reliefs in the settlement of liabilities may take the form of:

- deferment of tax payments (tax arrears)
- distribution of tax payment (tax arrears) in instalments,
- remission of tax arrears in whole or partially.

Reductions in tax payment are granted by tax authorities, in cases justified and grouted by an important interest of taxpayer or public interest, however, the assessment of the merits and validity of the interest remains in the hands of this tax body. Reductions in payments are granted upon written request of a taxpayer, and the tax authority has the right to verify it both on the formal and substantive ground, as well as request a taxpayer to submit additional explanations or documents. After conducting the tax proceedings the tax authority issues a decision on granting or refusing to grant relief from payment of tax liabilities.

When considering the problem of current decisions and tax optimization of enterprises paying income tax, attention should be paid to another aspect of the use of tax preferences, namely the issue of state aid. The essence of state aid for an entrepreneur lies in direct or indirect creation of financial benefits for specified entrepreneurs. As a consequence, they gain a privileged position in relation to their competitors. Such compensation, among other things, can be realized by the reduction of benefits due from enterprises in the interest of the public finance sector. Nevertheless, it should be noted that in certain circumstances common forms of state aid might allow an enterprise to develop or to survive periodic economic difficulties. Therefore, in some situations it is considered to be admissible. Additionally, it is recognized that competition is not affect by de minimis aid. It is a low-value aid, which in accordance with the Regulation of the European Commission does not exceed EUR 200,000 for a period of three years.

In the light of the present considerations the state aid is not considered to be the right to deduct tax loss. Relief in the form of the right to a one-time depreciation, tax credit and relief for the purchase of new technologies are treated as limited de minimis aid. However, reliefs from payment of tax liabilities are
both incentives that are not state aid or are treated as *de minimis* state aid as well as reliefs treated as state aid. The Act does not regulate directly when providing relief from payment of tax liabilities does not constitute state aid, its provisions relate to general solutions, here in particular to the European Commission Notice on the application of rules on state aid to measures relating to the direct taxation of economic activity (Commission Regulation, 2006). The Commission has established that the actions of the tax administration with a view to optimize the debt do not constitute state aid, while stressing that the decisions lowering public revenues cannot be regarded as optimization of the collection of public receivables, but only as actions to enforce them, except that at a later date.

### 5. FEASIBILITY OF TAX STRATEGIES IN THE ASSESSMENT OF ENTREPRENEURS

The presented solutions for the possibility of building a tax strategy in the scope of income taxes have been assessed by entrepreneurs. Using assessment survey, the evaluation was made by 50 entrepreneurs representing various industries and operating on a different scale. The respondents were operating both in the form of a legal person as well as a natural person.

When asked about solutions for income taxes, which make it possible to build a tax strategy in 43 instances they pointed to different system solutions. Indicating a wide range of tax solutions that allow building strategies for income taxes proves high tax awareness among the surveyed entrepreneurs. However, they mainly focused on solutions for the current optimization. Activities connected with taxation planning accounted for a small percentage of responses and related mainly to the form and place of conducting economic activity. The distribution of responses received from entrepreneurs is presented in Table 6

<table>
<thead>
<tr>
<th>Tax solution</th>
<th>Number of responses</th>
<th>Structure of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concerning selection of the legal form of economic activity</td>
<td>2</td>
<td>4.0%</td>
</tr>
<tr>
<td>Concerning selection of the place of economic activity</td>
<td>2</td>
<td>4.0%</td>
</tr>
<tr>
<td>Concerning income tax forms</td>
<td>6</td>
<td>12.0%</td>
</tr>
<tr>
<td>Concerning determining tax deductibility of expenditure</td>
<td>4</td>
<td>8.0%</td>
</tr>
<tr>
<td>Concerning the timing of tax deductibility of expenditure</td>
<td>8</td>
<td>16.0%</td>
</tr>
<tr>
<td>Concerning the principles for determining the costs of revenues</td>
<td>13</td>
<td>26.0%</td>
</tr>
<tr>
<td>concerning dividends</td>
<td>2</td>
<td>4.0%</td>
</tr>
<tr>
<td>Concerning the tax period</td>
<td>6</td>
<td>12.0%</td>
</tr>
<tr>
<td>None of the above</td>
<td>7</td>
<td>14.0%</td>
</tr>
<tr>
<td>Total number of enterprises</td>
<td>50</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

*Table 6: Solutions for income taxes allowing to conduct a tax strategy.*

Source: own studies based on conducted research.
Those entrepreneurs when asked about tax factors in the taxation of income that they had taken into account while building financial strategy of their enterprises, on the one hand, found that they analysed the tax consequences of possible behaviour, and on the other, only several have taken action in this regard. These respondents indicated that following the financial objectives aimed at maintaining liquidity (40% of entrepreneurs) and maximizing profit for shareholders (54% of surveyed entrepreneurs), they were considering taking a variety of actions aimed at taxation optimization (62% of entrepreneurs). However, only slightly more than 20% of the surveyed entrepreneurs demonstrated an active approach towards the taxation of income derived from economic activity. The rest pointed to the passive acceptance of the existing conditions of taxation, as shown in Table 7.

<table>
<thead>
<tr>
<th>Reaction</th>
<th>Number of responses</th>
<th>Structure of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceptance of terms and conditions of taxation</td>
<td>32</td>
<td>64.0%</td>
</tr>
<tr>
<td>Taking action to increase selling prices</td>
<td>15</td>
<td>30.0%</td>
</tr>
<tr>
<td>Taking action to reduce the purchase price</td>
<td>5</td>
<td>10.0%</td>
</tr>
<tr>
<td>Taking action to reduce labour costs</td>
<td>9</td>
<td>18.0%</td>
</tr>
<tr>
<td>Looking for loopholes in the law</td>
<td>1</td>
<td>2.0%</td>
</tr>
<tr>
<td>Withdrawal from economic activity that is the subject of taxation</td>
<td>2</td>
<td>4.0%</td>
</tr>
<tr>
<td>Total number of enterprises</td>
<td>50*</td>
<td>x</td>
</tr>
</tbody>
</table>

* Entrepreneurs could have indicated a number of objectives, hence the number of indications is greater than the number of the entities

Table 7: The reactions of enterprises to the income tax burden on economic activity
Source: own studies based on conducted research

It should be noted that, when the entrepreneurs were asked about the details of tax behaviour, they pointed to a much greater extent to the different types of tax factors which they had taken into consideration while starting economic activity and which they use on a day-to-day basis while conducting economic activity. On this basis it can be stated that, in practice, a greater number of entrepreneurs actively shape tax categories than indicate such behaviour.

The entrepreneurs asked about the conditions that they had taken into account when choosing a legal form of economic activity indicated, in more than half of their responses, the amount of capital needed to start up an economic activity. The rest of the respondents when choosing a legal form of economic activity, however, had been guided by tax considerations, in particular the level of rates and the liability for obligations. Distribution of responses from the entrepreneurs is shown in Table 8.
Determinants | Number of responses | Structure of responses
---|---|---
Amount of capital needed to start up economic activity | 29 | 58%
Owner’s scope of responsibility for liabilities of enterprise | 4 | 8%
Form of taxation of income from economic activity | 3 | 6%
Level of tax rates on owner’s taxable income | 5 | 10%
Level of tax rates on taxable income of enterprise | 3 | 6%
Register requirements | 2 | 4%
Amount of tax on the transfer of profit onto ownership level | 1 | 2%
None of the above | 3 | 6%
Total number of enterprises | 50 | 100%

Table 8: Determinants of the legal form of economic activity as assessed by entrepreneurs

Source: own studies based on conducted research

Moreover, as indicated by the study group of entrepreneurs, current decisions often accounted for the right of choice in the scope of income tax solutions. In particular, the respondents took action in fixed asset management. Here, in particular, they pointed to the use of accelerated depreciation, direct posting to the cost of low-value assets. In principle, all start-up enterprises used a small taxpayer status entitling them to a one-time depreciation and quarterly tax period.

Some of the surveyed entrepreneurs also pointed at the possibility of using the solutions for the domestic and international capital groups through the transfer of intangible services or the development of transfer pricing policy (16% of respondents) in order to optimize the tax burden of the earned income.

6. SUMMARY

The presented solutions do not exhaust the catalogue of possibilities and ways of building entrepreneurs’ tax strategy for the taxation of their income. The paper only indicates the solutions most commonly used by entrepreneurs and only those whose use is consistent with the applicable law. The study shows that some entrepreneurs actively respond to the tax levy established by a public authority, although they do not always call their behaviour a tax strategy. They just look for such solutions that, in terms of pursued financial objectives, would make it possible to establish a satisfactory level of tax burden. In their search they take into account both the national tax system solutions as well as tax solutions used in other countries. As a result, in many cases, they create a variety of tax strategy solutions, both in terms of long-term financial planning as well as day-to-day management of events raising tax liability in the scope of income taxation.
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REINSURANCE OF THE CATASTROPHIC RISKS

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Abstract

Risk transfer between insurance companies and is currently on the background of significant changes in the insurance and financial markets around the world. This is reflected in the increasing number of product innovations in the form of alternative risk transfer and financial reinsurance. A little-known form of insurance contracts, especially in Poland, are a contracts type trigger and double trigger. Agreements of this type are very different from conventional insurance and reinsurance contracts. Most are related to the determination of the scope of the temporary insurance liability for damages. Particularly difficult to insurer are the catastrophic risks, especially environmental risks. Due to this fact, according to the author is particularly important to search for new tools and methods (such as financial reinsurance) to ensure the reality of the situation cover new types of threats.

Key words: insurance company, insurance protection, reinsurance, catastrophic risks, risk selection, risk management

1. INTRODUCTION

In the case of insurance, we can distinguish three types of risk, depending on who is exposed to:

- the risk of the insurer (this is the risk associated with the insurance company),
- the risk of the policyholder (this is the risk of the entity purchasing insurance coverage),
- insurance risk related to the subject of insurance.

In contemporary insurance risk is a catch-all term. This term is fundamental both for the theory of insurance and the insurance practice, which determines the classification of insurance risks by divisions and groups, as well as subdividing them in constructing rates. An additional difficulty makes the fact that with the development of civilization and a very fast progress in the development of technology, there are new types of threats (risks). This leads to the need to find new solutions for the insurance coverage. Risk until recently considered in the theory of insurance as uninsurable are increasingly the subject of insurance coverage. The effect of these changes is the emergence of new forms and types of insurance products designed to protect the increasingly complex needs expressed by the participants of the insurance market.
2. MEANING OF RISK IN INSURANCE

In one of the meanings of risk considered as the probability of occurrence of a loss. It should be noted that the level of risk is not equivalent to the size of probability. Furthermore, the risk as opposed to the probability is measured by the relative variable, and it requires (to correct the measurement) of a viable population statistics, as only in accordance with law of large numbers can be observed objectively correct subject to statistical analysis. The same probability value may correspond to a completely different levels of risk. For example, in the case of endowment insurance of the insured risk is the possibility of death under the age specified in the insurance contract, the insurer's risk is the possibility that the number of people who survive the age specified in the insurance contract will exceed the size of the statistically determined. In both cases, the probability of a particular random event (survival by an x-year-old n consecutive years) is the same.

Another meaning of the term risk is the possibility of loss. In this definition is negligible magnitude of loss probability, if it is not zero or a number one. This approach has drawbacks from the point of view of technical and insurance. However, the possibility of occurrence of a specific event random plays a very important role in the civil law, insurance law, which in art. 806 Civil Code makes the validity of the insurance contract as understood possibilities.

In recognition of risk as a dispersion of actual and expected results, we find first of all the statistics. The measure of a similar interpretation in this case is the standard deviation or the standard deviation of the regression residuals. Risk for the insurer in this case, it may be that his predictions about the number and size of claims in different classes of insurance will be irrelevant. Thus, estimating the value of his interest rates (random variables) the insurer will calculate the amount of errors (deviations) of these estimates, which is the average error.

Define of risk as the probability of obtaining a non-expected presupposes the existence of an objective probability that the actual outcome or, rather, the result will be different than expected. The size of this probability, it is understood in this case as the degree of subjective beliefs, knowledge or individual needs, but as a measure of the relative frequencies. The most important idea in this definition is the recognition of risk as the probability of deviation of actual results from those anticipated in the processes of mass scale collective threats.

2.1 RISK AS A COMBINATION OF HAZARDS

Risk as combination of hazards which carry a risk for the insurer is another meaning of the term risk. The special nature and dynamics of risk defined as the process depends on many factors and circumstances, thus creating the risk matrix. These factors may be physical, subjective and even legal. This combination of factors, including the circumstances of their occurrence is referred to in the literature as gambling. They have a very significant impact on the size and severity of the risk. The circumstances of the occurrence of gambling are called factors of risk, and provide a starting point for technical and insurance identification and quantification of risks in deciding the tariff pricing.

Physical hazard is a set of external conditions (beyond the entity) or physical characteristics which have a direct impact on the chance of a particular risk, especially affecting the growth of the objective probability of occurrence of the insured event (a loss). In the context of the risk of fire as a physical hazard can be considered such factors as the type of building, its construction, type of construction materials used, the type of fire protection, location, purpose facility. Physical hazard should be distinguished from physical danger, which is the source of risk. Physical hazard is in fact a physical factor that increases the possibility of loss.
Moral hazard relates to a subjective conditions of the person (insured) that are expressed in the negative tendencies of his character or personality. This manifests itself in the form of dishonesty, fraud prone to, conclusion of insurance contracts in order to extort undue compensation. This type of gambling is very difficult to diagnose and detect the insurer ex ante, while it is very dangerous for him. For this reason, insurers seek to eliminate or reduce the effects of moral hazard in insurance, for example, by specific legal solutions in the form of penalties for willful insurance accident insurance or recourse directed to the perpetrator civilly responsible. Another type of conduct of the insurer in this case are the solution of a technical and insurance, such as franchise or deductible, in extreme cases limit the amount or even total refusal to pay compensation.

Moral hazard is a subjective reaction caused by the insured knowing you have insurance coverage, consisting of less care, negligence or indifference to the risks involved. This type of gambling is an insurance much less dangerous than moral hazard mainly due to the fact that it is easier to be limiting. It does so mainly technical measures ubezpieczniowe having the character of disciplinary or preventive (eg addiction provide insurance coverage to compliance with the general conditions of insurance GTC). The possibility of one or more types of gambling is to the insurer the risk of an insurance claim. For negligible insurance is a form of gambling that causes the occurrence of the insured event and the damage, and thus the claim, but the fact that such a claim may arise and at the same time it can be justified. Otherwise, the insurance company must first prove the justification for the claim.

Last, yet very important definition of risk is the subject of insurance. It is a term used only in technical and insurance. The theory and practice of actuarial risk is formalized and modeled. The basis of this formalization is that there is a need to protect people from the harmful effects of random events that can touch them. For the protection of established security institutions. Insurance practice, however, requires formalization and express everything in terms of money. Therefore, the file containing the risks were actually reduced to a set whose elements can be attributed to the economic value including all options. This value must be in the correct relationship to the current economic value of the subject property insurance. This is due to the fact that as mentioned in his work Łazowski economic security is a device that provides cover future needs of the property, caused in particular by individuals characterized by a certain regularity of random events by spreading the burden of coverage for many individuals, the same events threatening.

3. SOURCES AND FORMS OF ENVIRONMENTAL RISK IN THE COMPANY

Particularly noteworthy subjects related to the existence and insuring environmental risks, especially those with a catastrophe. In the literature, many different terms and definitions of environmental risk. Understanding these definitions leads to the ultimate conclusion that the Polish literature, there is no single definition of environmental risk insurance down its most important features. This problem also applies to the environmental risk enterprise. In the literature, there are two sources of environmental risk in the enterprise: external and internal. The internal sources include the effects of actions taken in the company related to its functioning. External sources are the result of the impact of the forces of nature, as well as a consequence of the negative effects of human impact on the environment.

In another approach distinguishes between environmental risk in the strict sense and the broad sense. Environmental risk in the strict sense (also called environmental risk) determined the damage caused by natural forces (forces of nature), and damage to the environment. For this type of risk is also a risk of damage to the environment, which usually forces the company to take specific measures to prevent or reduce the potential future financial loss resulting from this type of damage. More and more frequent
failures of industrial equipment contributed to the creation and development of new areas of knowledge referred to as engineering risks. Its most important task boils down to three main area:

- risk identification,
- risk estimation and
- risk management.

The environmental risks in the broad sense includes the risk giving rise to the possibility of losses due to damage caused to the environment. These losses may be due to:

- restrictive national environmental policy,
- loss of reputation and market position of the company,
- increase in the prices of resources and factors of production,
- the effects of random events leading to the loss or destruction of company property.

4. ENVIRONMENTAL RISK MANAGEMENT

Risk identification as a first step in the process of risk management is a step that should take place regularly and continuously. For the insurance risk identification is of great importance. In the interest of insurers is to recognize new risks that may arise with the development of technology and society.

This is particularly important in the identification of new types of ecological risks. This allows insurers to create new insurance products. Equally important is also the identification of risks already insured. This is called "adverse selection". For this purpose, conduct risk identification process, which is the basis for that procedure. The risk should be recognized also by the insured. This process should precede the conclusion of an insurance contract, thus giving it an element of risk management particularly for businesses engaged in activities that may endanger the safety of the environment.

The next stage of the proceedings related to the insurer’s risk management process (risk management) to quantify or measure of risk. If we assume in accordance with the collective risk theory that a good model describing the insurance risk is a random variable, rather random process, the proper measure of this process at the moment which is a measure of risk at any given time is the probability distribution of the random variable. Where the insurer has adequate statistical data can make all the statistical methods of estimation of parameters of interest to him both classic and positional distribution describing the risks being explored. In the case of environmental risks of a catastrophic nature such behavior is not possible due to lack of a sufficiently large population statistics describing the occurrence of such events.

The third step in the risk management process (including environmental risk) is to control risk, by taking specific actions to reduce the size and frequency of losses. There are two types of risk: the physical and financial. Physical inspection is to use action reducing size or prevent losses. Financial control is a turn for the detention or transfer of risk. The stop we have to do when a company decides to cover the loss of any single stopping the disposal of the funds that would be used to cover the cost of insurance (insurance premium).

4.1. RISK MANAGEMENT METHODS

The methods of enterprise risk management include:
risk avoidance,
risk retention,
risk control,
risk transfer,
distribution losses and dispersion of risk,
insurance.

Avoiding the risk of a negative method of risk management occurs where there is a conscious refusal to accept any risk. But it has a negative impact on the initiative and decision-making, especially in the case of corporate entities.

Risk retention is one of the most commonly used methods of risk management. This method can be caused by two types of reasons: the decision consciously or ignorance. For this reason, we can distinguish two types of risk retention methods: active and passive. Active risk stopping occurs when a person or entity, in full awareness of the occurrence of the risk and its potential consequences, decides to stop it in its entirety or in part.

A specific form of risk retention is captive. It is a specific form of business insurance designed to provide insurance companies forming captive. In the case of environmental risks generated by captive gains are an important factor in reducing the risk of its owner. This form of environmental risk management also has the disadvantage that results from the lack of technology and knowledge on prevention and settlement of claims of this kind.

Risk transfer is the transfer of the same to another entity. This can be done under a contract of insurance, storage contract, contract supervision facility, etc. As stated in their work Rejda are three ways to transfer risk:

- agreement,
- clauses prices or rates,
- merge or merger of companies and enterprises.

A relatively new development in the transfer of environmental risk is the possibility of the sale and purchase of emission certificates entitling the company to issue certain quantities of selected pollutants. Therefore, any company operating in the industry, where there is a market for emission rights given pollutant is exposed to the risk of having to purchase the rights to the broadcast. This is particularly relevant to the financial performance of the company, as the prices of these certificates are rising substantially while yielding very high volatility.

According to reports, the European Environment Agency (EEA) in 2003-2007 there was almost a fourfold increase in the price of rights to emit carbon dioxide. In 2009, air pollution caused by the 10,000 objects that are the biggest culprits of pollution in Europe cost citizens between 102 to 169 billion EUR. One of the findings of a new report prepared by the European Environment Agency (EEA), which examined the costs of air pollution damage to human health and the environment confirms that only 191 companies responsible for half of the total damage cost (between 51 and 85 billion euros). Given these figures we can say that this is the risk of an environmental catastrophe. In addition, according to reports
and studies EPA pollution trading market steadily expanding to include new gases and substances harmful to the environment.

Distribution losses is unfolding financial impact of risk on the group (for example, an insurance pool). The dispersion of risk takes place within a single entity. It consists in dividing and dispersion of risk in order to reduce the level of danger threatening him.

The last of the aforementioned ways of handling risk is insurance. Insurance is essentially a combination of the previously mentioned methods. Like these methods, the same security also has some disadvantages, such as:

- limited financial capacity of the insurer,
- lack of insurance certain types of risks,
- lack of full compensation of losses,
- refusal to provide insurance coverage by the insurer,
- no guarantee of payment of compensation or benefits in the event of bankruptcy of an insurance (for voluntary insurance).

Insurance companies became the owners are forced to risk management to ensure the maximum level of their financial security. For this reason, insurance companies are the most involved in the development of engineering risk (including environmental risk it) before insurers are more new challenges resulting from the increase in the complexity of insured risks. This requires taking the appropriate activity that ensures the development of methods and tools to assist insurers to conduct the analysis and calculation of new forms and types of insurance. It manifests itself in an increasing number of product innovations in the form of alternative risk transfer and financial reinsurance.

A little-known form (especially in Poland) are a type of reinsurance contracts trigger and double trigger. Agreements of this type are very different from the usual proportional reinsurance contracts and disproportionate, and are related to the determination of the scope of the temporary liability insurance for damages.

4.2 CATASTROPHIC BONDS

Catastrophic bonds are the most common form of securitization risks in non-life insurance. At the same time they are the oldest widely used form of bonds given security the insurance risks. These bonds protect specific types of risks by engaging in this process many entities. They are characterized by a large variety of solutions. In the case of a contract entered into between the sponsor and the SPV (Special Purpose Vehicle) we are dealing with some kind of substitute insurance product. Under this contract, the sponsor is required to pay a fee in exchange for receiving protection and the SPV to provide this protection. Payment of benefits specified in the contract only after the incident as defined in the contract, a random event. In this case, the sponsor of the bond issue is a way to purchase insurance if the sponsor is an entity outside of the insurance industry. If the sponsor is an insurance contract, there is a reinsurance contract. On the other hand, when the sponsor is a reinsurer that is already retrocession.

As in the classical reinsurance contract payment of compensation only after a specific event occurs randomly defined by the following parameters:

- the risk (in terms of geographical coverage and quality)
- the moment of the incident,
the extent of the risks to be protected.

New to this type of contract is to define additional parameters such as:

- defining the trigger mechanism and circumstances of the start of payments,
- the number of events that trigger the level of coverage and
- the period for estimating losses (development period).

Bonds protection insurance risk in non-life use various indexes underlying mechanism of compensation payments startup:

- the size of the damage caused in the portfolio sponsor of the issue (trigger portfolio),
- the loss amounts to be fixed for a select group of entities, usually the industry (trigger-index),
- the physical characteristics of weather phenomena (parametric trigger),
- estimate the damage caused as a result of the random events specified in the contract made on the basis of appropriate models of damage (trigger modeled).

Bonds issued in the case of trigger dependent on the portfolio sponsor called indemnity trigger may depend on the following parameters of the portfolio:

- the number of bad risks in the portfolio,
- the loss ratio in the portfolio.

If the case indexed trigger an index does not take into account the size of the payment of damages or the number of claims in the portfolio sponsor. In this case, the index takes into account the number of entities or the industry.

When using an index of losses for the industry is not used according to payment of bonds linked to the level of the number of claims or the number of claims in the portfolio sponsor. In this case, take into account the index for the entire industry, and most of the entities in the industry. The main disadvantage of bonds based on the index trigger is that from the point of view of the sponsor may generate a risk of damage to the sponsor results significantly different from the results for the industry in question. On the other hand, from the point of view of the investors advantage of this type of contract is (through the use of industry indexes) limiting the possibility of manipulating the statistics by the sponsor.

The basis for compensation in case of damage modeled in damage estimated. The estimation is dependent on the intended application of the model to a particular protection program. For each such model is introduce physical parameters of a random event causing damage. This is particularly important in view of the fact that the scale of damage is constructed on the basis of the characteristic for the type of catastrophe statistics.
Particularly important in the case of such agreements risk modeling agency plays. Her role in the construction of the instrument estimates the risk compensation mechanism actuator and reset the trigger is fundamental. In the case of trigger-based modeling agency loss is usually the sponsor provides software to handle the risk model. The most well-known and active agencies risk modeling are:

- Risk Management Solutions (RMS),
- AIR Worldwide,
- EQECAT.

Damage models currently used are increasingly used together with the indices of losses for the industry. Based on the model determines the weights for most of the regions corresponding to the portfolio sponsor. In this case, the damage index is generally determined by the risk modeling agency.

However, the owner of the index loss is responsible for the estimation of the size of the underlying glass trigger calculation. Parametric trigger is constructed on the basis of physical parameters describing the insured risk. For cyclones, hurricanes and tornadoes is the wind speed, the earthquake magnitude and location of the epicenter, with a depth of flood water.

4.3 TRIGGER CONTRACTS IN INSURANCE LIABILITY

Trigger as a method of temporary special insurance coverage has many variants. In the case of catastrophic environmental pollution associated with the activities of the insured when an accident causes the illness and the effects of the disease as the consequences of an accident are revealed after a longer period of time in spite of the addition are included in the total loss. This theory works well when the illness occurs during the period of insurance and the insurer is solvent.

Manifestation trigger theory is another case of the temporal scope of insurance coverage. According to this theory, the accident which caused catastrophic environmental contamination does not occur until the disease does not show up on its own. In many cases, however, this rule will reduce coverage insurer shall refuse to sign a new contract especially when it becomes obvious that the time of disclosure, and thus the inflow of claims approaching. To obtain insurance, it is necessary to disclose the injury suffered by the victim occurred during the term of the insurance contract. The insurer may find itself in a situation of impossibility cover the insured, where the disease has not yet been revealed. The effectiveness of protection in the case of these two methods depends on the solvency of the insurer in a given time.

Another type of trigger is called continous trigger theory. In this method, it is assumed that the disease was the result of catastrophic contamination of the environment is growing slowly, but the moment of accident must have occurred between the date of conclusion of the contract of insurance (exposure) and the moment of disclosure of the disease (manifestation). Damage must be reported during the period of insurance. This method avoids the risks associated with the method of disclosure. This method forces the insurance companies for continuous monitoring of risks insured and collect premiums at the right height. This method is extremely effective in insuring risks of chemicals.

Double trigger assumes that the damage occurs in the time between the conclusion of the contract and the disclosure of the damage, but the condition does not necessarily have to be met. In this case, there may be the possibility of paying additional compensation deferred over time due to the time of the injury, which may take place after the expiry of the insurance contract.
One of method is a relatively new theory gives credibility quantitative tools for estimating the size of the insurance risk on the basis of previously collected statistical data. Risk groups in homogeneous population for which estimates the amount of the premium. In a variant of the basic formula of reliability is based on the calculation of expected loss.

The key to this method is to separate the contributions of the two components of the so-called weighted coefficient of reliability. The first component depends on the risk in the portfolio, and the second is a random variable describing a given damage.

As more and more frequently confronted with situations where there are known risk factors have a significant impact on the amount of the premium calculated more frequently used tool to prevent this dangerous in terms of potential financial consequences situations is the use of insurance underwriting audits.

A very important role is played in this case, probabilistic modeling of a technical object, with particular emphasis on estimating the reliability of machines and equipment, and the probabilities of occurrence of failure. Very useful for this type of analysis is widely used in the optimization methods event tree.

5. SUMMARY
The above considerations lead to the conclusion that the agreement trigger type are very beneficial for policyholders while providing temporary insurance coverage. This is particularly important in the case of fast-growing threat of an ecological catastrophe. In the case of these risks, the main problem is the insurance companies estimate the actual cost of the insurance coverage. And thus the amount of the insurance premium. A perfect tool for effectively supporting the insurance companies in the management of these risks, especially in the calculation of insurance premiums is the theory of reliability (credibility theory), as well as an insurance audit.

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EDUCATION'S EFFECTS ON CRIMINALITY IN ALGERIA

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Abstract

We develop an econometric approach aimed at estimating the effect of education on crime rates in Algeria. Starting from a semi exhaustive model that includes crime rate as dependent variable and a set of variables on education, economic indicators and deterrence factors as independent variables, we propose to make comparison between education effect and the other variables effects on criminality. Based on this model, we prefer to estimate separately four equations to clearly identify the effects of selected variables on crime. The main findings of our study show that education is negatively related to criminality in Algeria; a 10% increase of enrollment rates in higher education lowers crime rates by 5%. Also, a 10% increase of population rates with secondary education attendance reduces crime by 2%. By contrast, deterrence variable is positively related to crime rates. This leads us to conclude that education is effective to prevent crime in Algeria.

Key words: Education; Crime; Algeria.

1. INTRODUCTION

The rise of criminality in the world today is a source of instability for individuals and nations alike. As a result, governments assume annually considerable funds to face criminal activity. In Netherlands, for instance, the total costs of criminality were estimated at €9.3 billion per year, about 2.5% of GDP each year. (Wim groot 2004). The total cost of crime in England and Wales in 1999/2000 was £60 billion of which total property crime contributed 22%. (Machin & Meghir 2000).

In order to fight crime, Policymakers focus often on enforcement and punishment; yet, recent research suggests that other policy mechanisms can also be effective. For example, Focusing on education can prevent crime activities. In recent years, Researchers in the field of economics of education tend to determine the link between education and crime; Estimate social returns to education by lowering criminality, define channels by which education may reduce crime.

Empirical evidence, in fact, shows the strong negative correlation between education and crime. Research indicates that about 75% of America’s state prison inmates, almost 59% of federal inmates, and 69% of jail inmates did not complete high school (Harlow 2003). In Italy, more than 75% of the overall convicted population in 2001 had not graduated from high school. (Buonanno 2003).

Figure (1), in the appendix, reports the negative relationship between secondary education enrollment rates and homicides in the world. Many other education measures were used in several studies to determine their effects on different types of crime.

Scholars argue that enlarging schooling and enhancing education quality can reduce crime and, thus, save considerable funds. For example, a 1% increase in the high school completion rate of all men ages...
20-60 would save the United States as much as $1.4 billion per year in reduced costs from crime incurred by victims and society at large. (Lochner & Moretti 2003).

In this paper, we develop an econometric approach aimed at estimating the impact of education on the rate of criminality. Other economic and deterrence variables are used in the regression function in order to make comparison between their effects and the effects of education measures on crime.

In fact, the prevalence of criminality in Algeria in last decade is of constant concern to policymakers. From 2001 to 2008, crime rose by 63.63%. Many factors are contributing in this evolution. In spite the increased student’s numbers and educational institutions in last decade; the bad education quality is seen as one of many socio-economic factors leading to increased criminality. Schools dropouts estimated over the period 1999-2006 turn around 536.000 per year with 68.9% coming from the compulsory teaching cycles (Benhabib & Ziani 2003). This will lead inevitably to increased unemployment rates which in turn lead to increased potential criminal activities.

Based on national statistics (ONS, Official Journal 2009), the average annual cost per inmate is estimated at 201454.54 DZ (Algerian currency) which represents 3.86 times what spends Algeria on average to educate a student (52059.03 DZ). If education reduces criminality, Algeria should spend more funds on educational system to raise enrollment at all levels and enhance education quality and thus it would be possible to lower crime rates in the future.

The remainder of the paper is structured as follows. In Section 2 we review literature on education-crime relationship. Section 3 presents Data and empirical model used in the study. Section 4 discusses the results and Section 5 concludes.

2. LITERATURE REVIEW

There is a relatively large literature linking education to crime behavior. Recent studies argue that there is a strong negative correlation between education and criminality worldwide.

In fact, there are a number of reasons to believe that education can reduce crime. Figure (2) in appendix summarizes the effects of education on crime based on the literature. A recent survey suggests that there are three main channels by which education affects crime behavior. Firstly, schooling is expected to raise individuals’ skills and abilities, thus increases the returns to legitimate work (legal earnings), raising the opportunity costs of illegal activities (Lockner 1999, Lockner & Moretti 2003). In fact, higher wages raise the opportunity costs of crime in two distinct ways; first, since crime may require time to commit, that time cannot be used for other productive purposes like work. Here, it is useful to think of all of the time involved in planning a crime, locating a target and, potentially, evading detection and arrest. Second, each crime committed entails an expected period of incarceration, which is more costly for individuals with better labor market opportunities and wages (Lochner 2007). Secondly, education should not be considered only as a means to attain a better job; it has, however, a non-market effect on crime since it affects the youth preferences. Schooling, therefore, makes committing criminal activities more costly in psychological terms. This effect is usually known as the “civilization effect” of education on crime. To the extent that schools “socialize” students to become better citizens and to treat others better, education may also reduce the psychic returns to crime causing individuals to forego lucrative criminal opportunities. (Lochner 2007, Buonanno 2003). Education promotes good citizenship. It does more than teach skills to enhance one’s capacity to earn income. (Usher 1997).

Thirdly, school enrolment alone (independently of the level of educational attainment) reduces the time available for participating in the crime activity (Witte & Tauchen 1994, McMahon 2004). School
attendance means much time is devoted by students to schooling and little time to streets. Youth cannot be in two places at once, schools avoid them from street dangers and peer’s bad effects. Staying long time inside school is a preventive tool from committing criminal activities and delinquency at large. Anderson (2009), for instance, estimates that increasing the compulsory schooling age from 16 to 17 or 18 years of age reduces arrests at the affected ages by nearly 10%, with similar impacts on both violent and property crime.

On net, we expect that these channels will lead to a negative relationship between education and crime. However, many studies argue that education can increase crime by enabling people with skills that help them in committing special types of crimes, which are called the white collar crimes such as embezzlement, fraud, cyber crime, forgery and counterfeiting. (Hjalmarsson & Lockner 2012). Education may actually increase these types of crime if it increases the rewards from crime more than it increases legitimate wages.

Empirical evidence suggests that education can lower criminality, for instance, a one-year increase in average education levels in a state in America reduces state-level arrest rates by 11 percent or more (Lochner & Moretti 2004). Another study estimates the effects of educational attainment on crime rates using a panel of 20 Italian regions 1980 to 1995 (Buonanno & Leonida 2006). These estimates suggest that a 10% increase in high school graduation rates would reduce property crime rates by 4% and total crime rates by about 3%.

According to Lockner and Moritti (2001, pp12), high school drop-out in US increases the probability of incarceration by 0.72 to 0.78 % points for white males and 3.2 - 3.6 % points for black males, a 10 % point rise in the graduation rate would cut the murder arrest rate by 14 and 27%. Moretti (2005) estimates that a 10% increase in the male graduation rate in US would reduce murder and assault arrest rates by about 20 %, motor vehicle theft by 13%, and arson by 8%.

3. DATA AND EMPIRICAL MODEL

3.1. Data: Source and Description

Crime Data, that represent the dependent variable, are taken from World Prison Population List edited by The International Center for Prison Studies in London. We use the number of prison inmates (56000 in November 2011) to calculate the crime rate in Algeria as a crime indicator used in this study (number of inmates per 100 thousand people). For independent variables, we choose three distinct groups of variables; drawn from the National Office of Statistics Database, as follow:

A. Education variables:

The measurement used for education is namely:

a- Enrollment rate in higher education (UNIVENROL).

b- Enrollment rate in secondary education (SECENROL).

c- The percent of population graduated from secondary (SEC).

d- Dropout rates (DROP).
B. Economic variables:

Two important economic variables which may impact the decision to commit crime are used here:

a- GDP per capita (in US dollar);
b- Unemployment rate (UNEMP).

C. Deterrence variables:

The crime deterrence effect refers mainly to the strength of police and the judicial system that increase the probability of apprehension and punishment. We use for this kind of effect three variables:

a- Police rate (POL): measured as the number of police per 100 thousand residents.
b- Crimes committed by unknown criminals as percent of the whole crimes (UNKNO) as means to judge the deterrence effectiveness.
c- Lagged Crime Rate per capita (LGCRIM).

A summary of these variables is presented in the table (1).

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Standard Deviation</th>
<th>Mean</th>
<th>Expected sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crime</td>
<td>0.0002</td>
<td>0.0035</td>
<td></td>
</tr>
<tr>
<td>Education Variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNIVENROL</td>
<td>1.131</td>
<td>3.02</td>
<td>-</td>
</tr>
<tr>
<td>SECENROL</td>
<td>0.05</td>
<td>4.39</td>
<td>-</td>
</tr>
<tr>
<td>SEC</td>
<td>0.065</td>
<td>6.57</td>
<td>-</td>
</tr>
<tr>
<td>DROP</td>
<td>0.341</td>
<td>2.86</td>
<td>+</td>
</tr>
<tr>
<td>Economic Variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP</td>
<td>0.317</td>
<td>7.94</td>
<td>-</td>
</tr>
<tr>
<td>UNEMP</td>
<td>0.33</td>
<td>2.83</td>
<td>+</td>
</tr>
<tr>
<td>Deterrence Variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLC</td>
<td>0.087</td>
<td>5.94</td>
<td>-</td>
</tr>
<tr>
<td>UNKNO</td>
<td>0.216</td>
<td>0.94</td>
<td>+</td>
</tr>
<tr>
<td>LGCRIM</td>
<td>0.0002</td>
<td>0.003</td>
<td>+</td>
</tr>
</tbody>
</table>

Table (1): Descriptions of Variables
3.2. Model specification

We suggest an empirical model based on the model presented by Alison (2005) and applied on US case. We use crime rate as a function of the main variables mentioned earlier:

\[
CRIME = a + b \ln UNIVENROL + c \ln SECENROL + d \ln SEC + e \ln DROP \\
+ f \ln GDP + g \ln UNEMP + h \ln PLC + i \ln UNKNO + j \ln LGCRIM
\]  

(1)

Using four measures of education in this equation will enable us to assess the different effects of education on crime. Firstly, higher rates of people enrolled in university may be associated with higher expected legal earnings in labor market which at the end increase the opportunity costs of committing crime and getting illegal earnings. Secondly, higher enrolment rates either in secondary or university means that most time of teenagers is devoted to study inside educational institutions and thus they will be kept from the street problems. Thirdly, graduation from secondary education at least enables population with moral convictions and “socializes” them which in turns avoid them to commit criminal activities. Finally, dropout is a driver to unemployment which is seen among the direct effect on crime. In sum, education by empowering people with better earnings and avoiding them unemployment contribute in reducing crime. The last variables on deterrence are included in the model to test weather educational policy or deterrence policy is the most effective in fighting criminality?

All the variables of the three distinct groups are put in the exhaustive equation (1) but the study will tend to assess separately four equations; in each one we choose some variables among each group in order to get further results and make comparisons between different variables.

It is worth noting, therefore, that the main purpose of assessing the crime function is twofold; first to compare the effects of the different measures of education on crime namely school enrolment, school attainment and dropout. Second, make comparison between education effect on one hand and the economic and deterrence effects on committing crime on the other one.

4. RESULTS AND DISCUSSIONS:

Results of the linear-log regression using Crime rate as dependant variable and enrollment rates in higher education, GDP per capita, unemployment rates and police rates as independent variables are summarized in table (2). It is obvious that both enrollment rate in higher education and earning are negatively related to crime. These robust findings argue that education is contributing to reduce crime in Algeria either directly by preventing students from street dangers (time effect) or indirectly by increasing the returns to legitimate work (earning effect). Besides, Unemployment is positively related to crime in Algeria. All of these results were expected while the deterrence variable, police rate, which is positively related to crime, was not. Alison (2003) in his study also found the same result for United States. From this regression, one can conclude that education is significantly effective to prevent crime.
Table (2): First Log-Linear Regression Results (adj $R^2$=82.2)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-0.10</td>
<td>-8.57</td>
</tr>
<tr>
<td>Education Variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNIVENROL</td>
<td>-0.005</td>
<td>-4.83</td>
</tr>
<tr>
<td>Economic Variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP</td>
<td>-0.001</td>
<td>-2.85</td>
</tr>
<tr>
<td>UNEMP</td>
<td>+0.002</td>
<td>5.21</td>
</tr>
<tr>
<td>Deterrence Variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLC</td>
<td>+0.022</td>
<td>8.58</td>
</tr>
</tbody>
</table>

Results shown in table (3) confirm the effect of education in reducing crime rates in Algeria since population rate with secondary education is negatively related to crime and dropout rates are positively related to crime. By contrast, deterrence factors, unfortunately, are not effective in combating criminality in the society as police rates are positively related to crime rates. Previous criminal activities are also positively related to crime.

Table (3): Second Log-Linear Regression Results (adj $R^2$=97.2)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>0.016</td>
<td>12.38</td>
</tr>
<tr>
<td>Education Variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEC</td>
<td>-0.002</td>
<td>-2.24</td>
</tr>
<tr>
<td>DROP</td>
<td>+0.00007</td>
<td>2.62</td>
</tr>
<tr>
<td>Deterrence Variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLC</td>
<td>+0.002</td>
<td>2.81</td>
</tr>
<tr>
<td>LGCRIM</td>
<td>+0.002</td>
<td>23.34</td>
</tr>
</tbody>
</table>

In table (4), we report that the secondary attainment variable is statistically insignificant. Only enrollment in higher education and GDP per capita are negatively related to crime. The findings about the effect of police rates are the same as in the previous estimations.
In table (5) we make comparison between education variable, enrollment rates in higher education, and GDP per capita as economic variable and both police rate and unknown criminals rate as deterrence variables. We find that education is the most important variable which affects crime behavior.

### Table (5): Fourth Log-Linear Regression Results (adj R²=69.5)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-0.06</td>
<td>-4.92</td>
</tr>
<tr>
<td>Education Variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNIVENROL</td>
<td>-0.003</td>
<td>-2.20</td>
</tr>
<tr>
<td>Economic Variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP</td>
<td>-0.002</td>
<td>-4.09</td>
</tr>
<tr>
<td>Deterrence Variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLC</td>
<td>+0.015</td>
<td>4.94</td>
</tr>
<tr>
<td>UNKNO</td>
<td>-0.00002</td>
<td>-0.14</td>
</tr>
</tbody>
</table>

5. CONCLUSION AND POLICY OPTIONS

Education is negatively related to crime in Algeria even that the correlation is not strong. Based on the estimates of the crime function, a 10% increase of enrollment rates in higher education lowers crime rates by 5%. Also, a 10% increase of population rates with secondary education attendance reduces crime by 2%. Dropout, which is a sign of poor quality of education, is positively related to crime even that the correlation is so week. Unemployment, as a result to dropout among other raisons, is positively related to crime.

It is found also that income is negatively related to crime. This means that education through this indirect effect (increasing legitimate earning) contributes in reducing criminality.
All these findings are with line to literature on the education-crime relationship, but what it worth mentioning indeed is the positive correlation between police rates and crime rates, i.e., the deterrence is not effective in combating criminality. By contrast, it is shown that education is negatively related to crime. Thus, education policy should be seen as an alternative crime-fighting strategy.

Given the consistency of our findings, we can advance the following policy options:

Firstly, increasing enrollment rates at all educational levels is vital because this will keep teenagers and youth from streets and avoid them delinquency and peer pressures.

Secondly, enhancing school quality is a sine qua none condition to enable future workers with better skills and attitudes. It is important also to lower dropout rates at different educational levels, because this in turn will lead to lower rates of unemployment.

Thirdly, since the income is negatively related to crime behavior and education is associated with increased returns to legitimate work. Hence, it is recommended to government to enhance opportunities in labor market for graduates either from universities or vocational education institutions.

Appendix:

*Figure (1): Homicides and Secondary Education Enrollment Rates in the World*

Figure (2): Education’s effects on crime

Education

Reducing time devoted to crime

Civilizing people

Increasing opportunity costs of crime

Increasing legal earnings

Decreasing crime returns

Crime reduction

Source: Authors.

REFERENCES


THE ECONOMIC CRISIS IN THE CONTEXT OF GLOBALIZATION

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Abstract

The economic crisis which started in 2008 is considered by the economic analysts to be without precedent after World War II. This crisis forced measures of change by rethinking some plans to protect the financial banking systems on national and international level in the context of worldwide globalization. The aim of the present research is to achieve a comparison between the results obtained by the European states by certain economic indicators before and after the economic crisis. Considering that a modern nation-state approach is required in the current world order we attempted to identify its ability to adapt to the new requirements imposed by the economic globalization. In this sense we conducted an analysis of the effects that globalization brings by interlinking the economic actors on the world market. A comparison was drawn by grouping the European countries into two distinct groups: those in Eastern Europe (former communist) and the rest of Europe (considered as more developed). In conclusion it can be said that the current effects of globalization on the economy during the economic crisis could not make possible to overcome the discrepancies that exist in the Eastern European countries compared to the rest of the Europe, as the former recorded values below the EU average in nearly all indicators comprised in the study.

Key words: economic globalization, financial crisis, development

1. INTRODUCTION

In the specialized literature it is considered that globalization is a modern term used to describe in one form or another the changes recorded on macro- and microeconomic levels resulting from international trade and cultural exchanges. When speaking of globalization, the literature considers that it can be treated considering four aspects: flows of goods / services, of people (migration), capital and technology. Zygmunt Bauman claims that "globalization divides as it unites; the causes of division being identical with those which promote the uniformity of the globe. (...) Mobility becomes one of the most coveted values, and freedom of movement - always a rare and unevenly diffused feature – rapidly becomes the main factor of stratification in the postmodern era we live in. We are moving, although physically we stay still". (Bauman, 2007)

At the core of globalization are considered to be: the internationalization of trade flows driven by exports (of goods and financial services), transnationalization or financial and "borderless" investment flows,
the effects of the strong development of communication and the transfer of information leading to networks of technology transfer and information worldwide.

World globalization is defined as "the very dynamic process of increasing the interdependence of the national states as a result of the expansion and deepening of transnational ties in the ever wider and more varied economic, political, social and cultural spheres, the issues become rather global than national, creating in their turn a global rather than national settlement". (Bari, 2001)

2. GLOBALIZATION AND ITS INFLUENCE ON GOVERNMENTS WORLDWIDE

The phenomenon of globalization is based on several concepts: technological development, financial market development and cultural development, each contributing to a greater or lesser degree to the changes in economies of the states subject to this phenomenon.

Technological development has enabled progress as well as its transmission as a result of the electronic devices that have been developed and which enable remote communication. Overcoming the spatial dimensions led to the spread of information, thus exceeding the temporal dimension as well, and all this led to a rapid intervention on every market in the world, a step which contributed to the development of global financial markets.

The financial development enabled the fluidity of the capital flows which led to the development of new tools and mechanisms which allow the usage also in financial matters of the principle of communicating vessels, i.e. moving financial assets where there are opportunities for transactions, where there exists market demand.

The financial revolution is deemed to have been achieved when the conservative approach of the financial markets as simple intermediate tangible (financial assets) passed to its derivatives (forwards, futures, options). The derivatives were meant to provide the lowest cost for transactions such as contracts, currency values, certificates of deposit, commodities, etc.. Later they became the target for speculators and even betting tools. An important role in the financial development of the capital markets was played by the actions of deregulation of capital markets, which led to the removal of restrictions on operations, of the control of the risk associated with them and moreover it erased the political boundaries separating the states to allow the free movement of capital.

The cultural development did not stay still, but allowed the flow of information and helped to eliminate the boundaries through globalization, leading to the media and behavioral globalization. It is believed that both the financial and the technological development could not have known such a development lest the cultural development by means of distance communication, which eliminated, where there existed, the isolationist tendencies of some states and led to the spread of information on a global scale.

Following in his study three aspects (considered important): economic integration, social integration and political integration, Axel Dreher demonstrates that globalization causes economic growth in all countries (Dreher, 2003). He makes an analysis by means of two indicators measuring the degree of economic globalization: one index measures the current flows: trade, foreign direct investment and portfolio investment (all in percent of GDP); the second index measures the restrictions on trade and capital using hidden import barriers, mean tariff rates, taxes on international trade (as a share of current revenue) and an index of capital controls.

We consider that the economic globalization seen from the point of view of the beneficial effects that it propagates within a country can be addressed by three categories of effects: 1) monetary effects based
on the decision of the states to control the inflation, the rate currency exchange and interest rates through macroeconomic policies, 2) social effects regarding social welfare that can be produced depending on the financial policies of the governments or conversely to reduce the dependence on these policies, labor market deregulation measures and encouraging the privatization of the public sector, 3) structural effects which do not pertain to a single state policy, but target the global financial market, being caused by systemic risks and the great financial powers that can sway and influence the national financial systems. These monetary, social and structural effects allow the emergence of financial flows of the type shown in Table 1, which are the resultant effects of globalization.

Table 1. International financial flows generated by globalization

<table>
<thead>
<tr>
<th>Types of financial flows</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>- direct foreign investments</td>
<td>- are past the concentration stage in the main industrialized countries being deployed globally;</td>
</tr>
<tr>
<td>- international bank loans</td>
<td>- are granted by banks in the national currency but also in Euro-currencies;</td>
</tr>
<tr>
<td>- international bonds</td>
<td>- the process of financial deleveraging occurs (being no longer necessary to establish direct relationships between buyers and equity bidders) to help reduce operating costs and to adapt the transactions to the specific needs of the borrowers. The issuers are governments and multinational corporations, while the main holders are the institutional investors, especially the pension funds. On the European continent, the main state holding international bonds are Sweden, France, Germany and the UK;</td>
</tr>
<tr>
<td>- derivated financial instruments such as futures and options</td>
<td>- are based on major currencies, assets linked to interest rates, stock indices and several main goods. The development of trade with derivative exchange products loomed ever larger after the creation of the largest market in the world of this type: &quot;Chicago Options Exchange&quot;;</td>
</tr>
<tr>
<td>- Transactions in foreign currencies</td>
<td>- are the main source of demand for the traditional currency market, at present the value of these transactions being higher than that of global trade flows. Most currency transactions are performed on the markets in London, Tokyo, New York, Hong Kong, Frankfurt, Zurich and Paris.</td>
</tr>
</tbody>
</table>

3. THE FINANCIAL CRISIS BEYOND GLOBALIZATION, CAUSES AND EFFECTS

The National Bureau of Economic Research’s defines a recession as "a significant decline in economic activity spread across the economy, lasting more than a few months, normally visible in production, employment, real income, and other indicators" (excerpt from Jordà, 2010, who quotes from NBER 2008).

Studying the financial crisis triggered and felt for the first time in the U.S. economy, V.V. Chari noted its following effects: 1) several major financial institutions have failed, 2) various stock markets have fallen dramatically, especially in the week after the bailout plan was passed, 3) spreads on a variety of different types of loans over comparable U.S. Treasury securities have widened dramatically (Chari et all, 2008). Subsequently Gerst and Wilson in their study highlight how after the financial crisis occurs the fiscal crisis in most of the states as a result of macroeconomic slippage, added to their inability to introduce effective policies to combat the shock (Gerst & Wilson, 2010).
A first cause that contributed to the crisis was excessive credit granting, such as subprime credits, which included mortgage loans secured by the value of goods purchased and which were granted to American citizens without fulfilling the conditions of creditworthiness. Converted through financial mechanisms (securitization) into bonds (CDO - Collateralized Debt Obligation), they were transferred to banks and investors worldwide (Barnett-Hart, 2009). The effect grew when the real estate assets began to lose value, while the loans were not paid and were neither possible to repay, leading to losses for buyers of securities based on such loans.

Another reason was that the saturation of the markets in former socialist countries, which led to a global economic blockage generated by the three engines simultaneously involved: relocation, credit and consumption. A). Relocation has been used by the large corporations which led to the displacement of production facilities to areas with cheap labor, usually in the less developed countries (former socialist countries). These changes led to big profits for corporations and unemployment in the countries they left, leading to the relocation of production, the need for a transfer of technology and knowledge. In the first stage globalization reduced the price of production, but in the second stage, the trend was reversed: salaries in target-states of relocation were followed by growth and, although they did not reach the level of the ones in the countries of origin, due to differences in productivity, it was found that the gain brought by relocation was canceled by the lack of technology and human resource skills. B). Credit has become easy to access, creating the image of a substitute of wealth. By easing the credit conditions was created the possibility of buying expensive goods by the population, thus encouraging consumption without being linked to the production by the population in the same states. On the other hand the profits of the large corporations did not have as effect the investments in those countries but rather their relocation to other countries of origin or sometimes to tax havens. If during the previous period the profits were distributed among the shareholders (as dividends) and employees (as wages) in the same state, relocation resulted in diverting part of the profits that were deserved by the employees in the countries of origin to the employees of the target-state. On the other hand the availability of some economic agents to purchase luxury properties led to an artificial increase of the latter, in most cases these investments being carried in the countries developed due to the wealth acquired in the emerging countries. In the capitalist countries was noted the presence of a mass phenomenon that led to a growing number of citizens acquired properties through loans, realizing a chain effect of increasing the value of these properties. The amounts available for borrowing as a result of owning the property also increased, allowing other new acquisitions, which in turn have resulted in the chain increase of the price of real estates. C). Consumption, which should have been a positive engine of economic growth, was affected by the uncontrolled and unjustified growth in property prices and the increase of the amounts that could be accessed by loans. This general trend of consumption and of encouragement of the lending policies was embraced both on the level of the individual, of the enterprise, but also on national level, being trasformed into a state policy.

If the first effects of the economic crisis were felt in the U.S., subsequently they were spread through the global financial system within all countries. The main effects were: the bankruptcy of financial banking and credit institutions, bankruptcy of some companies due to the decrease of stock market shares (domino effect: withdrawing shareholders - decrease of capital - financial jam), making mergers and takeover of assets by the large companies, actions based on financial decisions of survival and strengthening the market position.

These effects were forwarded to the labor market by increasing unemployment due to lower labor demand both nationally and internationally (Spain, Italy, Germany, Portugal, and England faced the problem of rising unemployment).
In his study Robert Hall presents the changes in the second quarter of 2008 in the four components of GDP (Gross Domestic Product) during the crisis (net export, Government purchases, consumption: non-durables and services, investment: consumer durables, business residential) that recorded a continuous decrease in the second quarter of 2008 until the second quarter of 2009, by processing data from the U.S. National Income and Product Accounts (Hall, 2010). The effects of the international financial crisis have spread amid globalization in all countries due to the interdependence between economies, resulting in larger or smaller effects on the financial system of each country. It is considered that the financial crisis begun in October 2008 in the U.S. and other countries is the largest after the crisis of 1929-1933, which was triggered by the financial sector. In his study John B. Taylor emphasizes the existence of a deficient system in the U.S. that allowed overgrowth of household lending; the heavy growth in asset prices, especially housing market; crediting the traders who were not creditworthy and had high risk (Taylor, 2009). He believes that in order for an economic recovery to take place a cleanup of the financial system should be performed, which can only be achieved by following the following principles: 1) returning to the set of principles for setting interest rates that worked well during the Great Moderation; 2) basing any future government interventions on a clearly stated diagnosis of the problem and a rationale for the interventions; 3) creating a predictable exceptional access framework for providing financial assistance to existing financial institutions". (Taylor, 2009)

On international level the major institutions like the International Monetary Fund, World Bank, European Union Council etc., intervened post-factum with measures to counter the effects of the crisis, these imposing certain restrictions on the states to which they offered loans or financial support (especially prudent measures as far as credits were concerned, to restore confidence in financial markets).

In April 2011, the permanent subcommittee on investigations led by Carl Levin presented the US Senate a report on: how high risk lending by U.S. financial institutions (securitizations, high risk mortgages, hybrid ARMs, pick-a-payment or option ARMs, home equity loans, alt a loans, stated income loans, volume and speed); regulatory failures; inflated credit ratings (credit ratings generally, structured finance, cash CDOs, syntetic CDOs, ratings used to market RMBS and CDOs, record ratings and revenues, conflicts of interest, market downgrades); and high risk, poor quality financial products designed and sold by some investment banks (shorting the mortgage market, proprietary trading, market of lenders, oversight of securities firms, statutory and regulatory barriers, systemic risk), contributed to the financial crisis (Levin, 2011).

Peter Datels together with his team in the International Monetary Fund report (April 2013) also drew a comparison between October 2012 and April 2013 of the main indicators which define financial stability, and through the global financial stability map there is noted a significant reduction of the risk on global level of the indicators: emerging market risks, credit risks, market and liquidity risks, and less significant on the level of the macroeconomic indicator risks and also a slight increase in the indicators: monetary and financial conditions and higher risk appetite (Datels et al., 2013 ). In Chapter 3 of the same report Erick S. Oppers, along with his team, presents empirical evidence that measure the financial stability. He quantifies the monetary policies of the four central banks: the Federal Reserve, the European Central Bank (ECB), the Bank of Japan (BOJ), and the Bank of England (BOE), and then identifies possible risks to domestic financial stability and to the financial health of banks.

In his study John Krainer asserts that "a key ingredient of an economic recovery is a pickup in household spending supported by increased consumer debt" (Krainer, 2012). Evidence suggests that the process of regaining creditworthiness is lengthy. Borrowers who terminated their mortgages for reasons other than default returned to the market about two-and-a-half times faster than those who defaulted. This has
important implications for the housing recovery (Hedberg & Krainer, 2012). Another study made a comparison between the economic crisis and inflation expectations, making a comparison between the U.S. and the United Kingdom, where until 2008 there existed only formally the term inflation (Trehan & Zorrilla, 2012). Most finance specialists agreed with the need to increase the bank reserves as a measure of financial stability. Explaining why it is necessary to create reserves by the bank holdings, Todd Keister and James J. McAndrews motivated that "first, we showed that the liquidity facilities and other credit programs introduced by the Federal Reserve in response to the crisis have created, as a by-product, a large quantity of reserves in the banking system; second, we showed that while the lending decisions and other activities of banks may result in small changes in the level of required reserves, the vast majority of the newly created reserves will end up being held as excess reserves" (Keister & McAndrews, 2009). On the other hand Michael Bauer makes a prediction about the future evolution of short-term interest rates expected on monetary markets. He uses data on financial derivatives that have a higher degree of uncertainty (Bauer, 2012).

It is considered that the effects of the financial crisis were stopped in the first half of 2012, Travis Berge showing in his study of 2011 a prediction on the probability to exit from recession, taking into account the domestic venture (2010 and 2011), international risk resulting in combined risks that were linearized in 2012 (Berge et all, 2011).

4. ANALYSIS OF THE EFFECTS OF THE FINANCIAL CRISIS ON THE EUROPEAN COUNTRIES

In order to analyze the effects of the economic crisis on the countries in Europe we conducted a comparative study using the Eurostat data on the situation of these countries before and after the crisis. For this analysis were formulated three hypotheses:

Hypothesis 1: The countries in Europe noted a decline of the economic indicators in 2009 due to the global financial crisis;

Hypothesis 2: The effects of the economic crisis are visible in the eastern European states that were affected by the economic, technological and cultural gap;

Hypothesis 3: The year 2012 marks a stabilization of the financial effects induced by the financial crisis.

These effects were studied taking into account three points:

• recorded monetary effects which were followed by the evolution of the indicator: central bank interest rates - annual data (official deposit rates, official lending rates, official refinancing operation rates);

• social effects regarding social welfare were followed through the evolution of indicator labour productivity per hour worked, government deficit / surplus;

• structural effects that are not connected to a state policy but target the market on global level have been studied in terms of the indicators: research and development (R&D) expenditure, general gouvernment expenditure, general government revenue.

5. RESULTS

The monetary effects based on the decision of the states to control the interest rates by economic policies were studied for the years 2003-2012 (Figures 1-3).
From the analysis of Figures 1-3 we note a decrease in these rates due to some financial policies of the central banks in each state since 2004 and then the largest decrease recorded is around the years 2008 and/or 2009 (for some countries) when the financial crisis emerged, whose causes could not be controlled and removed. We also note that the chief differences were present in Turkey, Romania and Hungary, on the one hand because of the existence of some measures of uniformization imposed by the European Union but also because of the effects of the financial crisis. A relatively constant level was recorded by Poland, Latvia and the Czech Republic, where it appears that the crisis did not produce significant differences from one year to another. This analysis took into account only a limited number of countries due to the lack of data about other countries (in the Eurostat database).
Social effects regarding social welfare are highlighted by the labour productivity per hour worked indicator, whose evolution is shown in Figures 4 and 5 below:

![Figure 4. Labour productivity per hour worked in the states of Eastern Europe](image1)

![Figure 5. Labour productivity per hour worked in other European countries](image2)

Source of data: http://epp.eurostat.ec.europa.eu

The analysis of Figures 4 and 5 shows that although there is a significant difference between the values considered, the two groups of countries (eastern European countries and the other countries in Europe) all recorded a fall in GDP in labour productivity per hour worked in 2009, which were to further increase until 2011. Also it is observed that the highest values recorded in the Eastern states were in countries such as Slovenia, the Czech Republic and Slovakia, while the lowest values were recorded in the following countries: Latvia, Romania and Bulgaria. In the other European countries the highest growth was recorded in the following countries: Norway, Luxembourg and the Netherlands, and the lowest in Cyprus, Malta and Portugal.

The labour productivity per hour worked indicator expresses by the measured values and the output level from the economic crisis registered worldwide and also shows the economic growth which the states succeeded to register. Due to the economic crisis it is seen that the Eastern European countries could not offset through the measures imposed by the EU the economic gap distancing them from the developed countries.

Gross domestic product (GDP) is a measure for the economic activity in an economy. It is defined as the value of all goods and services produced less the value of any goods or services used in their creation. GDP per hour worked is intended to give a picture of the productivity of national economies expressed in relation to the European Union average. Basic figures are expressed in PPS, i.e. a common currency that eliminates the differences in price levels between countries allowing meaningful volume comparisons of GDP between countries. Expressing productivity per hour worked will eliminate differences in the full-time/part-time composition of the workforce.

In Table 4 are given the values recorded by the countries in Europe in the period 2008-2011 for the indicator: government deficit / surplus, debt and associated data.
### Table 4. Government deficit/surplus (% of GDP)

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Net lending (+)/Net borrowing (-) under the EDP (Excessive Deficit Procedure)

Source of data: http://epp.eurostat.ec.europa.eu

The analysis of the table shows that in 2009 was registered the largest deficit in most countries (except for Norway) and in 2011 it appears that following the efforts and policies adopted by these countries, in some countries were recorded surpluses (Estonia, Hungary, Norway). Of course this deficit does not take account only by the financial crisis, but in our opinion, the jump between 2008 and 2009 is influenced mostly by this crisis. This deficit can be attributed to the financial crisis due to the following reason: the public sector costs were recorded at a level (the same or different), while in the private sector the revenues have decreased as a result of problems in the market and thus on the economic level these countries recorded deficits (to this effect can be noted the evolution recorded in figures 10 and 11).

Structural effects that are not connected to the politics of the state but have in view the market on global scale have been studied in terms of the indicators: total R&D expenditure (% of GDP), total general government expenditure for sector general government (% of GDP), total general government revenue for sector general government (% of GDP).

The total R&D expenditure indicator was chosen because we consider that the level of this indicator expresses the values which each country assigns for research and development, with direct implications on their ability to support these expenses, which subsequently lead to effects in the economy of these
countries. The evolution of total R&D expenditure indicator (% of GDP) is shown in Figures 6 and 7 below:

It is also noted that all of the Eastern European countries have values below the average of the EU 27, the lowest values being recorded in Romania, and the highest are in 2011, above the EU 27 average, as recorded by Slovenia (Figure 6). Regarding the developed countries in Europe (Figure 7), these values are higher or close to the EU 27 average, the highest values being recorded by Sweden and Finland, and the lowest by Spain and Italy. The indicator provided is GERD (Gross domestic expenditure on R&D) as a percentage of GDP. "Research and experimental development (R&D) comprise creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society and the use of this stock of knowledge to devise new applications" (Frascati Manual, 2002 edition, § 63 ).

The evolution of total general government expenditure indicator for the general government sector (% of GDP) is shown for the years 2003-2012 in the Figures 8 and 9 below:

From the analysis of the data in Figure 8 we note that the total general government expenditure indicator in Eastern Europe shows an increase in 2009. The highest values are recorded by Hungary and then Slovenia (in 2012), values that are close to the EU 16 average. In the other European countries (Figure 9), the highest values are recorded by Denmark and Finland (2012) and the lowest by Switzerland, Malta and Norway. We also note that in 2012 the values recorded in both groups of states are at a level above that of 2003, which implies stabilization and a recovery of those states, and an exit from the financial crisis respectively.
Another indicator studied is the total general government revenue for sector general government (% of GDP), which is presented for the years 2003-2012 in Figures 10 and 11:

It appears that these indicators recorded a decline around 2009, and subsequently this indicator would be stabilized. The lowest values (Figure 10) were recorded by Lithuania (2003 and 2012) and the highest by the Czech Republic (2003) and Slovakia (2012). Figure 11 shows the lowest values recorded by Switzerland (2003) and Spain (2012) and the highest recorded by Norway (2003 and 2012).
5. CONCLUSIONS

The study conducted shows that hypothesis 1: "The countries in Europe noted a decline of the economic indicators in 2009 due to the global financial crisis" has been verified through the results of the economic indicators illustrated in Figures 1-5. Hypothesis 2: "The effects of the economic crisis are visible in the eastern European states that were affected by the economic, technological and cultural gap" have also been verified by Figures 6 and 7; one can see that these states were unable to reach the other more developed countries. The indicator "total R&D expenditure" also presents the differences between the two groups: the countries in Eastern Europe have values ranging between 0.5-1.5 GDP per hour worked, while the other European countries have values in the range of 2.5-4 GDP per hour worked. Figures 4 and 5 indicate that there is difference in the labour productivity per hour worked indicator, where the values obtained by most countries in Eastern Europe are concentrated in the 50-80 range while in the other European countries this indicator is found with values concentrated in the range 100-150.

Hypothesis 3: "The year 2012 marks a stabilization of the financial effects induced by the financial crisis" is considered to be also checked both through the data presented in Table 1 and through the indicators: total general government expenditure and revenue (Figures 8-11).

The data recorded in this study also reveal a greater decrease in the indicators mentioned regarding the East European states, which in addition to the existing economic difficulties as a result of joining the European Union were also faced with the effects of economic crisis, which were felt especially by the population.

Through this study one may say that the beneficial effects that globalization can give are to reduce the economic disparities in the economic relations established among countries and which often create differencies in gain, which can be corrected and / or dimmed by politics of international globalization meant to correct the differences among countries.

We consider that the great challenge which globalization has to "manage" and which falls in the concern of the developed countries is to make policies to allow access on equal terms on the market and also to prevent through their own mechanisms the actions that can cause economic shocks. On the other hand the developed countries through the international forums are believed to have the responsibility to support and assist the less developed countries in their efforts to reduce the existing gap. Although the financial crisis affected the developed countries as well, still we believe that they have the experience, the means and the mechanisms that will allow them to take over the role of "actors" in the world space. This requires the coordination of the economic policies for managing issues of international trade and international financial relations, of global issues, of the conventional ones, by rethinking the institutional systems governing the international economic relations.

REFERENCES


EXPERT DECISION SUPPORT SYSTEM: THEORETICAL BACKGROUND AND PRACTICAL DEVELOPMENT

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Abstract

Decision making information systems (DMS) represent a special class of analytical software that belongs to the decision support systems family. The aim of decision making systems is to facilitate decision making processes resulting in a choice of a course of action or a variant among several alternatives, which may be estimated in terms of multiple criteria, within several problem situations, using appropriate mathematical methods and algorithms.

The Expert Decision Support System (EDSS) is decision making software developed by specialists of the Department of Business Analytics of the National Research University Higher School of Economics (Moscow, Russia). The system is oriented on automation of problem situation analysis and decision making by the means of preferable alternatives choice. For such kind of tasks the System includes a set of decision making methods (Decision Making module), as well as a set of decision making rules for the choice of suitable decision making methods depending on conditions of specific problem situations (Problem Situation Analysis module).

Key words: decision making methods, decision making information systems, information support of strategic management, Expert Decision Support System (EDSS), alternatives, problem situations.

1. INTRODUCTION

Decision making represents a process of selection of one or several objects among few possible alternatives. Such process involves certain procedures of assessment of a finite set of alternatives, relying on some established criteria. It allows to rank the alternatives according to their attractiveness for the decision maker from point of view of the evaluating criteria. A decision maker may apply either a single criterion, or several criteria that are considered simultaneously. In the second case the decision making process is called multi-criteria decision analysis (MCDA), or multi-criteria decision making (MCDM) (Figueira et al, 2005).

There are different decision making methods and algorithms. For example, the Analytic Hierarchy Process (AHP) and its generalization to dependence and feedback, the Analytic Network Process (ANP), are theories of relative measurement of intangible criteria that is performed relying on pairwise comparison (Saaty, 2003; Saaty and Peniwati, 2008). The ELECTRE (ELimination Et Choix Traduisant la REalité – Elimination and Choice Expressing Reality) family of decision making methods are based on two main procedures – construction of one or several outranking relations that aims at comparing in a comprehensive way each pair of actions, and an exploitation procedure, which is used to elaborate recommendations from the results obtained in the first phase (Roy, 1991). The PROMETHEE
(Preference Ranking Organization METHod for Enrichment Evaluation) family provides the decision maker both a complete and a partial ranking of the alternatives, relying on a preference function associated to each criterion as well as weights describing their relative importance (Brans et al, 1984). UTA (UTilités Additives) family represent regression based methods that not only adopt the aggregation-disaggregation principles, but also may be considered as the most representative examples of preference disaggregation theory (Jacquet-Lagrèze and Siskos, 1982). There are also some other decision making methods. However, there is a so called ‘decision making paradox’: the results obtained using exactly the same data, but different decision making methods, as usual, are also different.

Decision making methods, approaches and algorithms are supported by a special class of information systems – decision making systems (DMS). Such systems are designed to facilitate a person’s or group decision making process, relying on expert estimates (rather than quantitative data), which results in a choice of a course of action or a variant among several alternatives.

Decision making methods and information systems play a significant role in the corporate performance management information support system (PMISS), which represents a set of methods, processes, information systems and personnel skills, focused into the tasks of gathering, reconciliation, storage, analytical processing and presentation of information, which is critical for an organization’s information transparency and strategic decision making performed by external and internal stakeholders (Isaev, 2012b).

Such methods and information systems are relevant, first of all, to that PMISS functions, where assessment of some alternatives is required, but where quantitative data processing seems impossible or inefficient. The examples of such functions are corporate goals setting and determination of global strategic initiatives. Moreover, in some cases decision making methods and systems may supplement quantitative analysis and may be treated as complementary solutions. Particularly, such cases include forecasting, corporate appraisal and positioning, high-level objectives setting, scenarios determination, targets setting and preparation of plans and budgets (Isaev, 2012a).

A problem related with decision making software is that different products perform only one (or several) decision making methods. Restricted methodological functionality of such products does not allow users to apply different methods regarding the same data and to compare the results generated by different methods. So, a task of design and development of a ‘universal’ decision making information system, combining different methods in the common workspace, seems important for practical decision making.

2. A DECISION MAKING TASK: FORMAL DESCRIPTION

In general, a decision making task may be presented in the following form: \( \langle S, G, X, Q, F, K, V, X^* \rangle \). It means that a decision maker that is situated in a problem situation \( S \), based on established objectives \( G \), from a set of alternatives \( X \), that lead to different consequences \( Q \), should choose an efficient alternative \( X^* \) relying on preferences \( F \), criteria \( K \) and agreement principles \( V \).

**Decision making objective** (\( G \)) represents some ‘ideal’ state of an object, process, system or result of some actions. If there are few objectives then relevant significance estimates (weights) of the objectives may be used. Such weights may be described in quantitative or in ordinal scale.

**Alternative** (\( X \)) is a possible way to achieve established objective(s); all the alternatives are mutually exclusive. A set of alternatives in decision making may be finite (if it is defined by enumeration of its
elements), continual (if it is expressed as a subset of a n-dimensions space) or denumerable (if it is defined by enumeration of some attributes that make it possible to identify the elements of the set).

Preference (F) is an estimate of ‘usefulness’ or ‘quality’ of the decision. Such estimate may be presented in integral form, without any disclosure of any particular characteristics. Usually such estimate is based not only on analysis (experience, calculations, experiments), but also on subjective judgments regarding values and efficiency of decisions. Characteristics of quality of the alternatives may be defined in the explicit form. The examples of such characteristics are: the extent of established goals achievement, associated costs, consequences of decision making, etc. The preferences (the values of the ‘preference function’) may be presented in different scales; consequently, the resulting choice is quite difficult. A preference function may be defined in a quantitative scale (if all the estimates of the alternatives are expressed in a quantitative scale), or in an ordinal scale (if all the alternatives are ranked according to their preference, in descending order).

Criterion (K) reflects a particular aspect of an alternative’s usefulness. The total number of criteria is equal to the total number of characteristics, used for estimation of alternatives. The criteria may be comparable or incomparable. Criteria are incomparable if they represent the aspects of usefulness that have different nature and probably are contradictory. Criteria are comparable if they are mutually related, so that a single integrated criterion may be defined using the individual criteria. Sometimes criteria are partially comparable, in this case any criterion may be assigned to one of few groups, where criteria within the same group are comparable, but criteria of different groups are incomparable.

Decision making using several criteria requires some agreeing of the alternatives’ estimates related with different criteria. For this reason certain agreement principles \( V_k \) are used. The examples are: majority principle, Pareto principle, or sequential criteria analysis principle. According to majority principle one alternative is preferable in comparison with another one if such preference is available from point of view of the majority of criteria. According to Pareto principle one alternative is preferable if according to all the criteria the first alternative is not worse than the second one but from point of view of at least one criterion the first alternative is preferable. According to sequential criteria analysis principle the criteria are analyzed in turn, in the order of their significance; the set of alternatives is being reduced gradually, each step leads to rejection of one of the alternatives that is not satisfactory from point of view of the appropriate criterion.

Decision making using several criteria requires taking into consideration that fact that significance of the criteria may be not equal. So, the special weights \( Z_i \) are used. These weights are defined by experts and represent relevant significance of the criteria used. As a rule the weights are described in the [0; 1] scale, and their sum is equal to 1. If another scale is used (e.g. [0; 100]) than the weights should be normalized: each weight should be divided by the sum total. Significance of the criteria may also be expressed in an ordinal scale, when all the criteria are ranked by their significance.

Decision making is performed by a decision maker. The decision maker may be either single person (so called ‘individual decision maker’) or several persons (‘joint decision maker’). The decision maker may invite experts for the alternatives estimating. Often opinions of the experts involved are different, in such cases the estimates of experts’ competences \( W_d \) may be defined (as usual – in a quantitative scale).

For summarizing of the experts’ opinions agreement principles \( V_d \) are used. According to majority principle the group applies a policy that is considered as preferable by a majority of the experts. According to Pareto principle one alternative is preferable in comparison with another one if all the group members agree that the first alternative is not worse than the second one but from point of view of at least one expert the first alternative is preferable.
Decision making depends on conditions which form a problem situation. Sometimes all the conditions are known, in this case the problem situation $S$ is defined entirely (in this case there is only one problem situation). In other cases, an uncertainty in decision making conditions makes it necessary to take into consideration several possible problem situations $S = (S_1, S_2, ..., S_j, ..., S_J)$, any of which has its own probability. In such cases the decision maker has to estimate the probabilities of the problem situations $P = (P_1, P_2, ..., P_j, ..., P_J)$, or it is considered that the probabilities of the problem situations are not known. If it is difficult to estimate the problem situations’ probabilities, than the decision maker may arrange a ranking of the situations according to their probabilities.

Problem situations are not always observed (visible). However it is possible to observe events $C_n$ associated with the unobserved situations $S_j$ and to estimate probabilities $P(C_n/S_j)$ of interrelation between observed events $C_n$ and unobserved situations $S_j$.

Depending on availability of information about decision making conditions different approaches of agreement of estimates of alternatives $V_j$ may be applied. If the probabilities of the problem situations can be estimated, the majority principle or the Bayes principle may be used. According to the majority principle one alternative is preferable in comparison with another one if such preference is available in the majority of situations, taking into consideration the probabilities of their availability. According to the Bayes principle the most preferable alternative should provide maximum (or minimum) weighted average gain (or loss) in all the situations. The weights are equal to the probabilities of the situations availability.

If it is not possible to estimate probabilities of the problem situations or to rank the situations according to their probabilities, than such principles as Pareto, pessimism, optimism, Hurwitz, antagonistic player, Savage or Laplace may be used.

According to the Pareto principle one alternative is preferable in comparison with another one if in all the situations the first alternative is not worse than the second one but there is at least one situation where the first alternative is preferable. As usual, the result is a set of efficient alternatives $X^*$. This set contains alternatives that are preferable compared with any of the alternatives rejected during the analysis process. However there is no particular alternative in the efficient alternatives set that is preferable in comparison with some other element of the set.

According to the pessimism principle a decision maker takes into consideration the worst possible (from point of view of potential benefits) situation.

According to the optimism principle a decision maker takes into consideration the best possible (from point of view of potential benefits) situation.

According to the Hurwitz (‘pessimism vs. optimism’) principle the most preferable alternative should provide some weighted gain in comparison with gains provided using pessimism and optimism principles. The weight $B$ ($0 \leq B \leq 1$) is defined by the decision maker.

According to the antagonistic player principle it is assumed that the problem situations are managed by an ‘antagonistic player’ – a hypothetic person who is trying to minimize the decision maker’s gains.
According to the Savage principle the most preferable solution is defined using regret matrix that describes missing gain as a result of uncertainty in decision making conditions. Processing of the regret matrix is executed using ‘minimax’ criterion.

Finally, according to the Laplace principle the probabilities of problem situations $P_j$ are assumed to be equal. The most preferable alternative should provide the maximum of average gain.

Uncertainty in decision making process may be related not only with decision making conditions but also with outcomes ($Q$) related with the alternatives. Each alternative may lead to several outcomes with certain probabilities. Such outcomes may be analyzed either on a single stage, or during a set (finite or infinite) of discrete or continuous stages.

The final result of decision making is a choice of the most efficient alternative (a course of actions, style of actions, a plan, a project, etc.) from a certain set of alternatives.

One of the possible results of decision making is a single alternative, which is treated as the most efficient. However the result may be also associated with a set of suitable alternatives. Such set contains alternatives that are preferable in comparison with any of the alternatives rejected during the analysis process; however, there is no particular alternative in the efficient alternatives set that is preferable in comparison with any other element in the set.

Any decision making task may contain several variants of the task solution. Generally, a task solution variant is a solution of the task using some particular method. Any task may have several task solution variants that (depending on the method chosen) may differ by parameters set and source data structure. Moreover, it is possible to create few task solution variants based on the same method, but with different source data.

For every task solution variant parameters of the task solution variant are defined. These data define dimension of source data sets. The examples of the parameters are the number of alternatives, the scope of the problem situations, as well as the lists of experts, characteristics (criteria), observed events, stages of decisions consequences estimation, states of the decision making object. The set of parameters for particular task solution variants is usually defined by the decision making method chosen.

Each user of a decision making system is able to create some task solution variants for his tasks. Thus regarding to an individual user the task solution variants are subdivided into owned (created by this user for own tasks) and non-owned (created by other users). When creating a task solution variant the user can describe it as either opened (free for access by other users) or closed (inaccessible for other users). So, any individual user of a decision making task may view both the ‘owned’ task solution variants and ‘non-owned’ task solution variants that are opened by other users. As to editing detailed information, parameters and source data, as well as to deleting task solution variants, – such operations are permitted only for ‘owned’ task solution variants.

If a user plays the role of expert for some of the task solution variants – he can view information about this task solution variant, as well as about its parameters. However, the functions of view and input/editing source data (estimates of alternatives) are permitted only for particular (related with the expert) data.

A decision maker (the owner of a task solution variant) may also perform the role of expert. In this case he is included in the experts list (as all the external experts) but with the ‘own expert’ attribute.
3. EXPERT DECISION SUPPORT SYSTEM: GENERAL INFORMATION

The ‘Expert Decision Support System (EDSS)’ information system (hereinafter – ‘the System’) is an analytical application that combines advantages of both expert systems and decision support systems. It is focused on automation of problem situation analysis and decision making by the mean of the choice of efficient alternatives. For such tasks the System includes a set of decision making methods (Decision Making module) and a knowledge base – a set of decision making rules for the choice of appropriate decision making methods depending on parameters of existing problem situations (Problem Situation Analysis module).

The Decision Making module contains a range of methods which use the majority, Pareto and Bayes principles, decision making methods (applicable in the conditions of uncertainty), dynamic methods, methods of multi-objective optimization, as well as combined methods, which use some combinations of the alternatives assessment principles.

For data storage, description of tasks and of decision making methods, as well as for reporting purposes a relational database is used. It provides multi-language support, possibility of addition of new decision making methods without changing of the System’s program code and processing of large data volumes. For multidimensional analysis of information about the decision making tasks an Analytical Reporting sub-system is developed. The System also provides a fuzzy search of tasks using keywords. End users can get access to the system via Internet browser and web-server, using ‘thin client’ technology.

EDSS software is developed on MS Visual C# language in Microsoft Visual Studio 2005 environment. The System database is developed using RDBMS Microsoft SQL Server 2005. The analytical reporting functions are developed using ProClarity Analytics Server. Multidimensional data marts are developed using Microsoft SQL Server 2005 Analysis Services.

The system software installed on the server include:

- Operating system – MS Windows 2003 Sp1 Advanced Server;
- Application server – Microsoft Net Framework 2.0;
- Web-server – Internet Information Server 6.0;
- Database server – Microsoft SQL Server 2005 Enterprise Edition;
- OLAP-server – Microsoft SQL Server 2005 Analysis Services;
- Analytical reporting server – ProClarity Analytics Server.

Client software include Microsoft Internet Explorer version 6.0 or higher.
4. ACCESS TO THE SYSTEM

The System is available via Internet (http://82.179.249.12/edss/). When entering the System a user reaches the main page that consists of the following working areas:

- **The System’s short description area.** This area contains brief information about the System.
- **Registration and authorization area.** The functions of this area allow a user to arrange registration in the System and to enter the System.
- **Control area.** The hyperlinks of this area are duplicated on all the pages of the portal. For example, a User’s manual hyperlink allows a user (even he is not registered in the System yet) to get access to the System manual. After authorization of the user in the System the Login hyperlink is replaced with Logout hyperlink.

The System allows to choose the presentation language – between Russian and English. To choose the language use RU or EN hyperlinks that are available on any page of the portal.

To get decision maker’s rights it is necessary to be registered in the System. For this purpose a user should use Registration hyperlink that is available on the main page. Start of registration may be executed either from the main page, or from the authorization page. A non-authorized user can get access to this page from the main page using Login hyperlink that is available in the control area of the main page (the same result may be received if a non-authorized user tries use Personal page hyperlink). Anyway using Registration hyperlink a user can get access to the registration page. On this page a user should input such information as user’s name (login), password, confirmation of the password, e-mail address, his first name, patronymic name and family name, secret question and answer. All the above mentioned information is mandatory, except the patronymic name.

A password should contain no less than seven symbols; at least one of them should be special symbol. Confirmation of the password means that a user should repeat the password input; it is necessary to avoid any accidental mistake when inputting a password. The secret question and the answer are used if a user has forgotten his password. In this case the password may be restored with assistance of the System administrator.

After inputting all the information a user should use Create hyperlink. If a password entered does not match its confirmation the System generates a warning and a user is invited to repeat input of the password and the confirmation. If the verification of a password and its confirmation is successful the user becomes registered in the System.

The authorization procedure is accessible only for registered users. For authorization a user should input his name (login) and the password, in the registration and authorization area of the main page. After this the user should use Login hyperlink that is available under login and password lines. If both the login and the password are correct than the user gets access to all the functionality of the System, as a decision maker. At that the user remains on the main page, and his name is displayed in the registration and authorization areas of the page. If the verification is unsuccessful – the System generates a warning and a user is invited to input his login and password again.

If a user has forgotten the password – it may be restored with the assistance of the System administrator, using Forgot password? hyperlink. In this case the secret question and the appropriate answer (defined by the user on registration) are used.

Authorization may be executed either from the main page, or from the authorization page. A non-authorized user can get access to this page from the main page using Login hyperlink that is available in the control area of the main page (the same result may be received if a non-authorized user tries use
Personal page hyperlink). After correct input of the login and password and then – after using Login hyperlink the user reaches his personal page and gets access to all the decision maker functionality. As for the main page, the authorization page allows to repeat login and password input (in the case of mistake). As well as using Forgot password? hyperlink.

A user can change his password. For this he should perform the authorization procedure and use Change password hyperlink that is available on the main page. After this the user reaches the password change page: on this page it is possible to input the old password, the new one and confirmation of the new password. The new password should contain no less than seven symbols; at least one of them should be a special symbol. Confirmation is a repeated input of the password, to avoid possible mistakes. To save the changes the user should use Change password hyperlink, to cancel the changes – Cancel hyperlink. If the new password does not match its confirmation – the System generates a warning and a user is invited to repeat input of the information. If the verification is successful the old password is replaced with the new one.

An authorized user can exit the System using Logout hyperlink that is available on any page of the System portal. After exiting the user becomes unauthorized and reaches the main page of the System.

5. WORKING WITH TASKS

On the personal page a user can view the list of all the tasks available in the System, including both tasks created by the user (‘owned tasks’) and created by other users (‘non-owned tasks’).

For each task in the list the following information is presented:

- name of the task;
- description of the task;
- name of user created the task;
- date of creation.

Tasks in the list may be sorted by any of characteristics mentioned above, in alphabetical (ascending or descending) order. For this purpose a user can use hyperlinks of headings in appropriate columns. If descending sorting is necessary the column heading hyperlink should be used repeatedly.

A tasks list on the personal page is subdivided into two parts – owned tasks (created by this user) and non-owned tasks (created by other users). If the list is quite large – the System automatically breaks it on several pages.

To view detailed information about a particular task the hyperlink of the task name should be used. After using this hyperlink the task page is displayed with the following information:

- name of the task;
- description of the task;
- name of user created the task;
- date of creation;
- list of the task solution variants, for each of them name, description, free access status, decision making method (if already chosen) and status of the task solution variant (whether solution procedure for the task solution variant is already complete) are displayed.

The System allows making a search within the tasks list. For this purpose a user can use Find task hyperlink that is available on the personal page. The search is based on information from task name and
its description. To search tasks the user should input key words (separated by spaces, no more than 4000 symbols) into the search line. After using Find hyperlink the System displays a list of all the tasks which name and/or description contains the key words defined by the user. At that the key words may occur in the task name and/or description in any order (not necessary one after another). Inexact matching of the key words is also acceptable.

To create a new task the user should use Create task hyperlink that is available on the personal page. After this the user reaches the task information input page; on this page it is necessary to input the task name and its description. The task name is a brief characteristic of the task, it may contain up to 100 symbols. The task description is more detailed; the number of symbols is unlimited. To save the new task and information about it the user should use Save hyperlink, after this the task appears in the tasks list. The new task appears in the end of the list, but if necessary the list may be sorted by the user.

Users can edit information about tasks only for their owned tasks. To edit information about a task a user should use Edit hyperlink that is available on the detailed information about the task page. After this the System turns into editing mode where the user can change task name and/or description. Using Save hyperlink allows saving the changes, if Cancel hyperlink is used the changes are not saved.

Editing of detailed information about a task may be provided both from the detailed information about the task page (see above), as well as from the detailed information about task variant page (however the second option is available if at least one task variant has already been created for the task). It this case a user should use Edit hyperlink that is available in task description area on the detailed information about task variant page. After this the System turns into editing mode where the user can change task name and/or description. Using Save hyperlink allows saving the changes, if Cancel hyperlink is used the changes are not saved.

Any user can delete only owned tasks. To delete a task a user should use Delete hyperlink that is available on the detailed information about task page; at that the System requires to confirm the operation. If the user confirms his intention – the System deletes the task and all the task variants associated with this task. After completing the deleting procedure the System turns into the user’s personal page.

6. WORKING WITH TASK VARIANTS

A user can view information about his owned task variants, about opened (i.e. free for view by other users) non-owned task variants, and also about closed task variants where the user plays an expert’s role. The view of task variants is available on the detailed information about task page (this page is reached by using task name hyperlink that is available on the personal page). On the detailed information about task page (in addition to information about the task) the list of task variants associated with the appropriate task (accessible for the user) is displayed. If the task is non-owned then only opened (i.e. free for view by other users) task variants are displayed. In addition the user can view closed task variants where he acts as an expert. If the list is large – the System automatically breaks it on several pages.

For each task variant the following information is displayed:

- name of the task variant;
- description of the task variant;
- free access status;
- method associated with the task variant (if already defined);
- status of solution (whether solution procedure for the task variant is already complete).
7. CHOICE OF DECISION MAKING METHOD

The System permits two ways of decision making method solution choice – by answering questions that are generated by the System and by direct choice of the method.
Choice of the method by answering questions is associated with a chain of questions with several possible answers for each of them. As a result of each answer the System reduces the list of appropriate methods, by eliminating the methods which are not suitable from point of view of a set of answers given. Finally, only one method remains and this method is applied for solution of the task.

Direct choice of a decision making method is applied in the case when the user exactly knows which method should be applied for the solution of the task. It is assumed that the user has all the appropriate information about the method and its features.

To start choosing a method a user should use Choose method hyperlink that is available on the detailed information about task variant page.

A working page for decision making method choice consists of few working areas:

- **Answers history area.** This area displays all the answers given by the user during the questioning process. The answers are presented in a chronological order. Each new approach to choose a method leads to cleaning of the answers list.

- **Questions area.** This area displays the questions that are used for a decision making method choice during the questioning process. Each question reflects some particular characteristic of the task.

- **Prompts for questions area.** This area contains more detailed information (explanation) related with the particular question. The prompt is displayed automatically when a question appears.

- **Possible answers area.** This area displays possible answers associated with the question asked. The user can choose only one answer from the list.

- **Prompts for possible answers area.** This area contains more detailed information (explanation) about a particular answer. To display the prompt the user should point the appropriate answer, by activating a radio-button.

- **Possible decision making methods area.** This area displays possible decision making methods, i.e. methods that meet all the answers chosen by the user during the questioning process. At the start of the questioning process all the methods are displayed in the list, but according to the answers given the number of possible methods is reducing gradually. Finally only one method remains in the list.

- **Prompts for decision making methods area.** This area contains more detailed information (explanation) about a particular decision making method. To display the prompt the user should point the appropriate method in the list, by activating a radio-button.

When a user chooses an answer he should activate the appropriate radio-button and use Answer hyperlink. As a result the answer chosen will be registered in the answers history list. Then the System reduces the number of possible methods relying on new information received. If two or more methods remain possible – the System asks the next question to get more information. The questioning chain is interrupted when only one method remains possible.

Choice of a decision making method is necessary to turn to description of the task parameters and then – to input of source data and calculations.

Choice of a decision making method may be executed on any stage: at the start of the method choice procedure (when all the methods are accessible), after answering some question (when the methods list is reduced) or after the last question (when as a result of questioning only one method remains possible).

To choose a decision making method the user should activate the appropriate radio-button and use Choose hyperlink.
When the decision making method is chosen the information about it is displayed on the detailed information about task variant page. Using Show answers hyperlink allows to display a list of answers that clarify the method choice. Activation of the appropriate radio-button leads to displaying of a prompt for the answers.

8. INPUT OF TASK VARIANT PARAMETERS

A user can input task variant parameters only for owned task variants. After the decision making method is chosen a list of task variant parameters is displayed on the detailed information about task variant page. These parameters should be defined for further input of source data that will be used for calculations.

To start description of a parameter the user should activate the appropriate radio-button, after this the System automatically turns into the detailed information about task variant parameter page. This page contains both already inputted information about the parameter and fields for new information input.

The scope of information about a parameter depends on features of this parameter, for example:

- for alternatives – name and description of each alternative;
- for situations – name and description of each situation;
- for experts – their e-mail addresses (using the e-mails the System can determine the experts’ names) and «own expert» attribute (the designation of the expert that represents the decision maker himself). If an expert is designated as «own expert» than input of his e-mail is not allowed (because he is an owner of the task solution variant);
- for characteristics – name and description of each characteristic.

The input is carrying out line-by-line, to save the information inputted the user should use Add hyperlink.

Users can edit task variant parameters only for owned task solution variants. Editing operations are carrying out line-by-line. There are two types of editing operations: editing data in the line and deleting the line. These operations are performed using Edit and Delete hyperlinks accordingly. If line editing option is chosen the appropriate line becomes accessible for changes. The results of changes may be either saved (Save hyperlink) or abandoned (Cancel hyperlink).

Using Delete hyperlink leads to deleting the appropriate line from the list.

9. INPUT OF SOURCE DATA FOR CALCULATIONS

Source data is a set of information that is necessary to make calculations according to the algorithms of the appropriate decision making methods.

A decision maker can invite experts for assessment of alternatives for an appropriate task variant. Only registered users can act as experts. Inviting of experts is possible only after definition of all the task variant parameters and inputting all the data associated with these parameters, except expert estimates of the alternatives.

To invite experts the user should use Invite experts hyperlink that is available on the detailed information about task variants page. After this invitations are sent by e-mail to the experts invited (users whose details are described in the ‘Experts’ parameter of the task solution variant). If an expert has
‘owned expert’ status (i.e. if he is an owner of the appropriate task variant) than the invitation is not sent to him.

A user can input source data for owned task variants and for non-owned task variants, where he plays an expert’s role. If a user plays an expert’s role than input of estimates for the alternatives is permitted only for his own estimates (i.e. for estimates associated with this expert).

Source data input is permitted only when all the parameters are defined completely. To input source data a user should use Edit data hyperlink that is available on the detailed information about task variants page. Source data input is performed using a set of source data forms; each form may be chosen for input using a pull-down menu. When all the data are inputted into the form the user may either save the form (Save hyperlink), or turn to another form without saving the data (choosing another form using pull-down menu), or return to the detailed information about task variant page without saving the data inputted (Return to detailed information about task variant hyperlink).

A user can edit source data for task variants for owned task variants and for non-owned task variants, where he plays an expert’s role. If a user plays an expert’s role than editing of estimates for the alternatives is permitted only for his own estimates (i.e. for estimates associated with the appropriate expert).

To edit source data for a task variant the user should use Edit data hyperlink that is available on the detailed information about task variant page. In the editing mode the user can chose a form for data editing; each form may be chosen using a pull-down menu. Navigation between the sells of the form is carrying out using a mouse or Tab key. When editing is complete the user may either save the form (Save hyperlink), to turn to another form without saving the data (choosing another form using pull-down menu), or to return to the detailed information about task variant page without saving the changes (Return to detailed information about task variant hyperlink).

A user can copy source data from some another task variant (within the same task); this operation is permitted only for owned task variants.

The copying operation is available only between two task variants that are compatible from point of view of scope of source data (this, in turn, is defined by the decision making methods applied). The source data copying operation is permitted only if a decision making method is already assigned for the target task solution variant. At that the following requirements are met the following requirements:

- the source task variant should have source data inputted;
- the target task variant should not have source data inputted.

To make copying a user should define a task variant (either new or existing) to which the data are to be copied. Then he should use Copy data hyperlink, on the detailed information about task variant page. After this the System displays all task variants which are compatible with the target task variant; any of these variants may be used as a source of data. To choose a source of data (a task variant from which data are copied) a user should use Copy hyperlink that is available by the appropriate element of the list. After the copying procedure is complete the data will be downloaded into the appropriate forms of the target task variant.
10. CALCULATIONS AND REPORTING

When all the source data are inputted the appropriate calculations may be carried out. Solution of the task is performed regarding to the specific task variant, in accordance with the decision making method defined. To start the calculations a user should use Solve hyperlink that is accessible only if all the source data are available. When calculations are complete the result is displayed.

When calculations are complete a report about the task variant may be generated. This report consists of a set of input and output forms. To generate the report a user should use Report about task variant hyperlink that is available on the detailed information about task solution variant page. The report contains detailed information about the task variant, source data and results of calculations. The report is saved in the System automatically.

To print the report a user should use functions of the Internet browser: menu option File / Print.

For multidimensional analysis of information related with the tasks solved the Analytical Reporting sub-system is developed. The examples of the analytical reports are:

- Dynamics of the System users (number of users by time);
- Share of methods used for task solution variants;
- Popularity of experts (how often an expert is invited for evaluation of alternatives);
- Number of task solution variants by methods (how often a method was chosen).

For analytical reporting multidimensional cubes are used, the data are downloaded into the cubes from the System’s relational database. Multidimensional cubes are developed using OLAP server Microsoft SQL Server 2005 Analysis Services.

For presentation and editing of analytical reports ProClarity Analytics Server software is used.

Analytical reporting functionality is available for all the users registered in the System. Access to the reports is available via web-browser using a hyperlink from EDSS.

The general principle of analytical reporting is the following. There are measures that are displayed in terms of points of view, by different analytical dimensions. Members of the analytical dimensions may be organized hierarchically. Such functions as Drill down (more detailed presentation) and Drill up (more aggregated presentation) are available. Analytical dimensions and measures may be situated by columns or rows of the report or to be in background (hidden). Moving an analytical dimension or a measure from column to row (or vice versa) is called ‘pivot’.

To start working with analytical reports a user should apply Analytical reports hyperlink that is available on the personal page. After this the analytical reporting main page appears on the screen in a separate window. Analytical reports are organized as a set of libraries; the list of libraries is available on Contents tab. To open a report a user should choose an appropriate library and then – the report and (if the report consists of several sheets) the appropriate sheet of the report.

For example, the Number of task solution variants by methods report performs information about how many times a particular method was chosen for solutions of tasks created in the System. In the report there are two analytical dimensions – Tasks and Methods; the only measure is Number of applications. The analytical dimensions are situated in the rows of the report, the measure – in a column.

Control buttons on the Operations panel allows to execute such operations as saving a report, preparing a report for printout, exporting a report to Microsoft Excel spreadsheets, as well as access to help about ProClarity software.
For working with analytical reports a user may use such tabs as **Navigation** (navigation in the report), **Data Layout** (description of data layout in the report), **View** (description of a form of report presentation), **Sort** (sorting data in the report) and **Filter** (filtering data in the report).

### 11. CONCLUSIONS

At present decision making methods and appropriate information systems are applied in different areas of knowledge. For example, such systems are very useful in the strategic management processes – for corporate goals setting, determination of global strategic initiatives, as well as for such activities as forecasting, corporate appraisal and positioning, high-level objectives setting, scenarios determination, targets setting, corporate planning and budgeting.

However, the usability of decision making methods is often restricted by functionality of existing decision making information systems: as usual, such systems perform only one or few decision making methods, consequently, other methods could not be practically applied. Design and developing of Expert Decision Support System (EDSS) is an attempt to overcome such limitations and to make decision making methods accessible for a wide range of specialists, including those who have no any special mathematical or computer science background.

EDSS is an analytical application focused on automation of problem situation analysis and decision making by the mean of the choice of efficient alternatives. The system includes a set of decision making methods and a set of decision making rules for the choice of appropriate methods depending on particular conditions (parameters of problem situations). The advantage of the system is that it combines functionality of both expert systems and decision support systems.

### REFERENCES


STRATEGIC APPROACHES TO LOCAL SUSTAINABLE DEVELOPMENT

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Abstract

The achievement of sustainable development within a particular country requires a more concentrated strategic approach than the global efforts in implementing various economic, social and environmental policies. This process integrates a number of development methods, including long-term and short-term visions. Also, it applies a coordinated approach by introducing both horizontal and vertical linkages across sectors and establishes strong partnerships between government, business and community. The process of decentralization has a focal role in the achievement of local sustainable development. It provides an opportunity to establish effective mechanisms for sustainable development in the different regions, in order to overcome regional economic and social inequalities by fostering development strategies, applicable to the local conditions. This paper examines the strong relationship between sustainability and governance, while at the same time it traces various strategy instruments for the achievement of sustainable development on a local level and its consequent national and global impact.

Key words: sustainable development, strategies, effective governance, decentralization

1. INTRODUCTION

Sustainable development is a process that requires the application of numerous integrated techniques, bridging the gap between sectors that are entirely independent and self-regulated. In this sense, the notion of sustainability provides societies – both locally and globally – with the opportunity to develop a more sophisticated system of joint activities in the achievement of improvements in spheres that are of common interest and concern. Precisely due to the very diverse and challenging nature of the sustainability process and also considering the fact that it requires activities from people with various backgrounds and cultural identities, one of the crucial points for development to actually take place is the setting up of sound systems for strategy building and enhancement.

This paper examines some main patterns of the strategies for sustainable development and their applications in a local context. Section 2 explores the need for strategies for sustainable development, Section 3 comments on the instruments for promoting sustainable development strategies on a local level, Section 5 provides a schematic representation of sustainable development, Section 5 summarizes and concludes.

2. THE NEED FOR SUSTAINABLE DEVELOPMENT STRATEGIES

The achievement of sustainability in national development requires a strategic approach, which is both long-term in its perspective and integrated or “joined-up” in linking various development processes so that they are as sophisticated as the challenges are complex (Clayton and Bass, 2002). A strategic approach at the national level implies:

- Linking long-term visions with medium-term targets and short-term actions;
“horizontal” linkages across sectors, so that there is a coordinated approach to development;

Vertical spatial linkages, so that local, national and global policy, development efforts and governance are all mutually supportive; and

Genuine partnership between government, business, and community and voluntary organizations, since the problems are too complex to be resolved by any group acting alone.

Hence, when we discuss sustainable development strategies, we are mainly interested in the challenge to tackle interacting problems, e.g.: national debt, structural adjustments, changed farm practices towards intensification - pollution, flooding, etc.

However, most frequently, sustainable development strategies entail a joint effort of private individuals, corporations and communities on a decentralized, local level.

According to Clayton and Bass (2002) decentralization aspires to foster development policies and strategies suited to local social, economic and environmental conditions. Done in an appropriate manner, it can promote localized governance structures responsive to citizens’ needs and allow the downsizing and streamlining of centralized government institutions. As such, decentralization provides and opportunity to establish effective mechanisms for sustainable development. Successful decentralization depends on a clear definition of the respective roles of local, regional and national level authorities and the development of effective institutions at each level for planning and decision-making, involving different actors at those levels. Unless these requirements are put in place, the risk of inappropriate decentralization includes the reinforcement of local elites, socio-political fragmentation along ethic lines, marginalization of less dynamic regions, the weakening of national cohesion, and associated conflicts.

In more general terms, as pointed by Clayton and Bass (2002), a strategic approach to sustainable development is needed due to the following reasons:

- Deep structural changes and new ways of working in all areas of economic, social and political life. Economic growth patterns that actively favor the poor should be promote. Fiscal policies that negatively affect the poor or promote environmental damage will need to be reformed. In the longer term, countries will want to ensure that their net wealth, including natural, man-made and human capital, remains constant or increases. Innovation and investment in actions that promote sustainable development should be encouraged. Among other things, this will require the development of a market pricing structure in which the prices reflect the full social and environmental costs of production and consumption.

- Issues of inequity and inequality of access to assets and resources need to be confronted in a more open and progressive manner. For example, in many countries it will be necessary to reform land tenure policies so as to increase access to resources for disadvantaged and marginalized groups. Equally, it will be important to build and strengthen social capital, and to devise formal “safety nets” to enable vulnerable economies and groups of citizens to better cope with both external and internal shocks.

- Sustainable development at the national and local level requires cross-sectoral and participatory institutions

- Some challenges are addressed at the global level such as climate change and ozone depletion; some challenges are most effectively addressed at the national level, such as
economic, fiscal and trade policy, and legislative change; and some challenges can only be addressed at the local level such as alterations in the patterns of resource use.
- They cannot be effectively dealt with on an ad hoc or piecemeal basis. They require a strategic approach.

3. PROMOTING SUSTAINABLE DEVELOPMENT STRATEGIES ON A LOCAL LEVEL

Strategy development and application are key factors in local governance and a major governmental instrument for coordination of policies, related to community matters in the main three spheres of sustainability. In most of the cases these are aspects of designing and cultivating environmentally responsible behavior of local citizens and bringing together diverse, even often conflicting opinions on issues which are of common interest.

A strategy is the purposeful application of a set of instruments and measures over time in a given political-administrative context and embedded in an appropriate policy style, in order to reach a defined policy goal. (Kaufmann-Hayoz & Gutscher eds. 2001). In a broader context, a strategy implies the application of rules to achieve a predefined goal or purpose. According to Kaufmann-Hayoz and Gutscher (2001) there are five major groups of instruments for strategy promotion on a local level.

**Command and control instruments** are applied as legal prescriptions that regulate and constrain certain ways of acting or exclude some forms of conduct through sanctions. These forms of local strategy implementation make all participants adhere to the norms and standards and implement the required technology, human capital and financial resources. The command and control instruments are therefore introduced by the central government mechanisms but their actual application is the sole responsibility of local governing authorities in close cooperation with the different community groups.

One of the most commonly used instruments for achieving local sustainable development through command and control is the observation on environmental quality standards through the use of environmental impact assessment. Environmental standards go through an assessment of emission standards, product standards and regulations on the use of pollutant substances.

Another form of environmental standardization is the licensing regime for certain production and construction activities. Such forms of control and command mechanisms put barriers both to entrants in the particular businesses and to the realization of the final products on the markets. A typical example for licensing is local construction control in areas which are under certain environmental protection or have the potential of being endangered through the loss of biodiversity. Such licensing is done in the form of assessments of the vulnerability of species and habitats to climate change. Since the resources for nature conservation and the protection of species and habitats from climate change are limited, it is necessary to identify and prioritize those that are most vulnerable as a focus for adaptation action. Hence, the main mechanism applied in the assessment process is the Natura 2000 network on the territory of the European Union and it highly contributes to the examination of the degrees of habitats’ vulnerability to climate change (Harley, 2011). Particularly beneficial in the process of biodiversity control and preservation is the use of zoning regulations for land use, water protection and nature conservation. On the other hand, the marketing requirements for certain production is also subject to licensing and certification – i.e. the selling of bio-products and organic food, which requires the respect of certain quality standards.
Another instrument proposed by Kaufmann-Hayoz and Gutscher (2001) for the promotion of local strategies for sustainable development is the use of economic instruments. These instruments are based on the assumption that environmental degradation and resource depletion occur because a substantial part of the costs of economic activities is not paid by the responsible agents but by society in the form of environmental damage, security and health risks or long-term climatic risks.

In order to correct the situation, Kaufmann-Hayoz and Gutscher (2001) propose three principle forms of intervention, among which the most prominent is raising the cost of polluting behavior. This approach is based on the principle of true costs. The costs of environmentally harmful behavior, that is, of the respective production, purchase, and investment decisions, are raised by means of incentive taxes and charges. The actors’ range of options is not influenced directly and all options (such as production and consumption patterns, along with the choice of technology) remain open insofar as they are not constrained by regulative control. This ultimately leads to steering common behavior towards environmentally sound actions.

On the other hand, there are incentive taxes (such as taxes on energy and other resources, taxes on emissions and taxes on products/processes) as well as different forms of financial stimuli in support of certain business activities such as all forms of subsidies, grants, soft loans and guarantees. They all contribute to the measurement in economic terms of the degree of local sustainable development and the achievement of the basic strategy goals for the attainment of sustainability on decentralized levels.

The third component in local strategy development and implementation proposed by Kaufmann-Hayoz and Gutscher (2001) is the application of service and infrastructure instruments.

The service instruments are offering ecologically sound products and withdrawing environmentally undesirable products. One could argue that such services are the main motivators of innovation in product control and standardization. Also, these services allow and facilitate ecologically sound actions and respectively reduce services that enhance environmentally undesirable action.

The infrastructure instruments are those that offer and in many cases improve infrastructure, which facilitates ecologically sound action. It is basically their public image that contributes to the overall effect of such instruments on a local level in achieving sustainability in its multidimensional sense. Bearing the full characteristics of community facilities, such instruments are intended to be economically viable, environmentally sound and socially admissible. In all cases, both the service and infrastructure instruments provide a high degree of bound contribution to the achievement of sustainable development on a local level and to the improvement of community welfare both in the short and in the long run.

In reference to the fourth component of local sustainable development strategies, Kaufmann-Hayoz and Gutscher (2001) designate the collaborative agreements, which they set as public-private agreements on product groups, consumption goals and marketing targets of the individual companies. Such collaborative agreements are mainly focused on the certification and labeling of products, thus adding up to their primal value and improving the level of information of the public on the quality and health patterns of the products in question.

The last, fifth group of instruments, examined by the authors, is the communication and diffusion instruments. The communication instruments aim at influencing the actors’ internal conditions of action, especially their goals, their knowledge and their behavior programmes. By influencing “mental skills” as well as motor skills of individuals, they also affect the social relations and communicative processes among the different agents. The rationale of these instruments is that behavior changes require modification of the motivational, cognitive, and social preconditions of action. As the aim is not to affect
single individuals but rather to achieve blanket effects penetrating large groups, the interventions must affect the target groups through the aid of **diffusion instruments**. Typically two phases of diffusion can be distinguished. Initial diffusion is reached through the aid of targeted diffusion instruments. The second phase is one of self-diffusion, where the contents either spread from person-to-person within the social surrounding of the primary target group, or by means of the traditional mass media. An example of person-to-person dissemination is the passing along of particularly illuminating arguments. Another important example is the building and management of networks. Networks represent an important intermediate goal that can be achieved through communication and diffusion instruments.

The most outstanding instruments, however, are the subsidies which help to reduce the costs for environmentally sound behavior in all of its aspects – production and consumption – as well as the raising of costs for pollutant behavior in the form of direct and also indirect taxation. Finally, establishing a market for pollution rights is a demonstration of the effectiveness in coordinating actions that contribute to the attainment of local sustainable development.

### 4. THE SCHEME OF SUSTAINABLE DEVELOPMENT STRATEGIES

Due to the very nature of sustainable development strategies, they are often perceived as a coordinated set of participatory and continually improving processes of analysis, debate, capacity strengthening, planning and investment, which integrates the economic, social and environmental objectives of society (Clayton and Bass, 2002). Therefore, all attempts at drafting a scheme of the complex interrelations that contribute to the overall design of the strategies for sustainable development, represent a rationale for a systematic approach to the analysis of these strategies. Fig. 1 below provides a succinct illustration of the process of setting up a strategy for sustainable development.

![Fig. 1 The process of setting up a strategy for sustainable development](image)

According to Clayton and Bass (2002) strategies need to follow a cyclical, continuous improvement approach with monitoring and evaluation of both the processes and outcomes. They also give a suggestion on the mechanisms contributing to a sustainable development strategy (Fig. 2).
The major question has always been focused on using sustainable development strategies as reliable mechanisms for reshaping policies and improving their performance (Steurer and Martinuzzi, 2007). Thus, the primary concern with strategy schematization has always been the identification of a central policy around which to allow all the other shaping elements to evolve. A great many strategies aim at one type of problem – preventing environmental deterioration, while at the same time ignoring the importance of economic and social goals. Yet, every strategy is based on the idea that it is necessary to find consensus in the development of a socio-environmental system as a whole and between the people, involved in the entire process (de Graaf et al., 1996).

In recent years, the renewable energy strategies have taken a focal point in sustainable development (Lund, 2007). Such strategies are deemed to typically involve three major technological changes: energy savings on the demand side, efficiency improvements in energy production, and replacing fossil fuels by various sources of renewable energy. It is, however, still negotiable as to the applicability of certain innovations and their economic disadvantages, the most outstanding of which are the high costs required to make initial investments. Therefore, such strategies attain greater attention in countries with high levels of income and ample financial resource to allow for the allocation of the required primary financing of renewable energy installations. Still, it is beyond any doubt that sustainable energy strategies can make an important contribution to the economies of those countries where green energy is abundantly produced (Midilli et al., 2006). Suffice that this energy is not further exported as an end-product, it can turn into a valuable and reliable source, granting independent supplies and therefore contributing significantly to the reduction of prices and to general improvements in the quality of life of the local population.
5. CONCLUSION

In this paper we explored in detail the major challenges in preparing sustainable development strategies. Firstly, we commented on the need for devising such strategies both on a national and on a local level. We dwelled on the idea that local activities (decentralization) are more beneficial in terms of the ease for applying these strategies, regardless of the sector in which they are introduced. Further on, we studied the purposeful application of a set of instruments and measures over time in a given political and administrative context. Our assumption was that these instruments contribute to the overall process of strategy development. The final part was devoted to the choice of strategy schematization and implementation in different sectors. In general, we put forward the necessity for renewable energy which forms the core of all additional strategies. All of them are entirely dependent on the status of the renewable energy projects. Therefore, the major question has always been focused on the use of sustainable development strategies as reliable mechanisms for reshaping policies and improving their performance. It has constantly been considered that such strategies are dependent on the governmental control but it is mainly the people (local communities) who actually make the final decisions and choose which strategy to apply on a local level.

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OPINION RESEARCH METHODOLOGY: OBSERVATION OF THE OPINION OF THE HOSPITAL MANAGEMENT PERSONNEL ON THE HOSPITAL FINANCING IN BULGARIA IN TERM OF HEALTH CARE REFORM AND ECONOMIC CRISIS

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Abstract

During the period June 2011-February 2012 was invented and introduced the socio-statistical methodology which aim is to measure the personal opinion of the management personnel working on state and municipal hospitals in Bulgaria about the hospital’s financing in term of health care reform and financial crisis. In the preparatory work took part an international team of scientists and statistics professionals. In the study is used the method of the anonymous personal opinion research in order to achieve maximal objective and comprehensive information. Object of the observation are the medical professionals - management personnel working on state and municipal hospitals in Bulgaria. The survey method can be used from the Bulgarian government, policy-makers and health managers in order to collect the most objective personal and professional attitude to the future financing of the Bulgarian hospitals.

Key words: Methodology, survey, management personnel, hospital financing.

AIM AND GOAL OF THE SURVEY

The main goal of the survey is to determine the personal opinion of the managing personnel from the Bulgarian’s state and municipal hospitals about the hospital’s funding in terms of a financial crisis and health care reform. The results from the survey are needed to Bulgarian administrative and government organizations in aim to design a new legislative framework for Bulgarian health care system, especially for a new funding model for the Bulgarian hospitals.

TASKS OF THE SURVEY

To determine the personal opinion of the participants about:
1. The present financing model in the Bulgarian hospitals;
2. The need of change the existed financing;
3. The most appropriate future financing of the Bulgarian hospitals;
4. The existing number of the medical clinical paths;
5. The financial equality of the medical clinical paths;
6. Their handicaps by working in a state or municipal hospital in Bulgaria due to the present financing;
7. Handicaps in the hospital’s activity due to the present financing;
8. The administrative decentralization;
9. The future hospital’s financing during the financial crisis and healthcare reform.

SCOPE AND IMPACT OF THE SURVEY, UNIT OF OBSERVATION

Defining of the target group - subject, object and scope:

Object of the survey - the managing personnel from 10 state and municipal Bulgarian hospitals: incl. Board of directors; Clinic directors; Nurse and Chief nurses; Other managing personal.

Subject of the survey: the professional opinion of the managing personnel about the financing of the Bulgarian hospitals.

Observed units: 10 Bulgarian state and municipal hospitals: (1 University Clinic, 3 Regional state hospitals, 5 Municipal hospitals and 1 City state hospital).

THE RESEARCHED APPROACH

QUESTIONNAIRE

We use the researched approach – anonymous questionnaire form. The anonymous questionnaire refers to any questionnaire that a respondent completes without the aid of the researcher and without to be identified personally. Questionnaires are a list of written questions and are restricted to two basic types of question:

1. Closed-ended (or “closed question”) is a question for which a researcher provides a suitable list of responses (e.g. Yes / No). This produces mainly quantitative data.
2. Open-ended (or “open question”) is a question where the researcher doesn’t provide the respondent with a set of answers from which to choose. Rather, the respondent is asked to answer “in their own words”. This produces mainly qualitative data.

The main questionnaire in this case is designed to serve to our scientific purpose. Therefore there are groups of questions with control functions; with personal questions such as occupation, gender, education and working experience (at total base and at the present hospital); with expressing opinion and estimation function and multianswer questions (with more than one possible answer). The questions are determined as questions mostly from the nominal scale (dichotomy questions) - based of main answers “yes/no or male/female” and questions from the ordinal scale – estimations, hierarchy (satisfaction).

FULL SCHEME OF THE QUESTIONNAIRE

Part 1: Personal questions- miscellaneous questions

1.1. Name and address of the hospital /
1.2. Gender of the participant – (male, female).
1.3. Total working experience (in years) - /
1.4. Working experience at the hospital (in years) - /
Part 2: Opinion questions (dichotomy questions)

2.1. Do you think it is required to be changed the framework of the current funding model of the Bulgarian’s state and municipal hospitals? – (yes, no).

2.2. Do you have difficulties to carry out your duties due to the present used paying system of the hospital service? – (yes, no)

2.3. Do you think it is required to be changed the legislative framework of the current health care system? – (yes, no)

2.4. Do you think it is required to be decentralized the administrative management of the Bulgarian’s state and municipal hospitals? – (yes, no).

2.5. Do you use accounting reports to plan the hospital’s activity? – (yes, no).

Part 3: Opinion questions (ordinal questions)

3.1. Estimate the present funding model of the Bulgarian’s state and municipal hospitals to carry out your duties:

- completely inadequate
- rather inadequate
- satisfying
- rather adequate
- completely adequate
3.2. Estimate the adequacy of the present existing number of clinic pathways to carry out your duties:

- completely inadequate
- rather inadequate
- satisfying
- rather adequate
- completely adequate

3.3. Estimate the financial efficiency of the present used clinical pathways according to disease’s severity:

- completely inadequate
- rather inadequate
- satisfying
- rather adequate
- completely adequate

Part 4: Alternative questions (nominal questions)

4.1. Which should be the most appropriate funding model of the Bulgarian’s state and municipal hospitals?

- State public budget
- Medical insurance/funds
- State public budget/medical insurance/funds
- Donations
- Directly patient’s payments

4.2. How do you think should be related the payment for the hospital service during the financial crisis and healthcare reform?

- State public budget
- Service payment
- Bed-day
- Clinical pathways
- Diagnostic related groups
- Case payment/State public budget
STRENGTHS OF THE USED METHOD

1. The researcher is able to contact large numbers of people quickly, easily and efficiently using a questionnaire (since we identify the group that will be targeted).

2. Questionnaires are relatively quick and easy to create, code and interpret (especially if closed questions are used). In addition, the respondent -not the researcher - does the time-consuming part of completing the questionnaire.

3. A questionnaire is easy to standardise. Every respondent is asked the same question in the same way. The researcher, therefore, can be sure that everyone in the sample answers exactly the same questions, which makes this a very reliable method of research.

4. Questionnaires can be used to explore potentially embarrassing areas more easily than other methods. The questionnaire can be both anonymous and completed in privacy. This increases the chances of people answering questions honestly because they are not intimidated by the presence of a researcher.

WITKNESSES OF THE USED METHOD

1. The format of questionnaire design makes it difficult for the researcher to examine complex issues and opinions. Even where open-ended questions are used, the depth of answers that the respondent can provide tends to be more-limited than with almost any other method of research. This makes it difficult for a researcher to gather information that is rich in depth and detail.

2. With an anonymous questionnaire, the researcher cannot be certain the person to whom the questionnaire is sent actually fills it in.

3. Where the researcher is not present, it's always difficult to know whether or not a respondent has understood a question properly.

4. The researcher has to hope the questions asked mean the same to all the respondents as they do to the researcher.

5. The response rate (that is, the number of questionnaires that are actually returned to the researcher) tends to be very low for some questionnaires. We expect here to have 80 - 85% return of questionnaires.
6. The problem of the self-selecting sample is particularly apparent in relation to questionnaires. When a response rate is very low the responses received may only be the opinions of a very highly motivated section of the sample (that is, people with strong opinions who take the time and trouble to complete and return a questionnaire).

METHOD RELIABILITY

Anonymous questionnaires are one of the most reliable research methods because it is easy for the researcher to standardise questions – each respondent answers exactly the same question. If the questionnaire asks closed questions, the (quantified) questions means there is little or no scope for the researcher to misinterpret the meaning of answers. For example, if an answer is restricted to “Yes/No/Don’t know” it is easy for the researcher to understand the exact intentions on the respondent. Questionnaires are very easy to repeat (“replicate”) because they are easily standardised.

METHOD VALIDITY

Questionnaires, in the main, are generally low in validity because they do not explore questions in any detail or depth. Complex issues which require a respondent to explain their reasons for believing something are difficult to explore using this method. Where closed questions are used the respondent is restricted to answering questions using the categories provided by the researcher – there is little or no scope for the respondent to qualify the meaning of their answers. The questions are asked, by definition, those considered important by the researcher. It is easy, therefore, to miss important information because you fail to ask appropriate questions. However, the fact that the questionnaire is anonymous means respondent may be encouraged to answer questions truthfully in the knowledge they cannot be identified. This increases the validity of their responses.

CHOOSING THE SAMPLE SIZE FOR THE METHOD

We decide to use representative sample with this method. Questionnaires are used extensively as the main method in social surveys where it’s necessary to get the view of very large number of people. The fact that the respondent does the time consuming work of completing the questionnaire makes it relatively easy to use this method to reach and record the views of such large numbers.

For our research purpose we use a representative random sample. The medical units are chosen from a short list of state and municipal hospitals, according to their active and current status. In the survey are observed ten state and municipal hospitals which do not have any financial insolvency procedures and which current status is active. The short list of the of state and municipal hospitals is taken from the database of the annual statistical report of the National statistical institute of Bulgaria (annual statistical register) in order to achieve actual number of hospitals having current active status, correct postal address for correspondence and the approximately number of the managing personnel. The random sample allows all state and municipal hospitals to have an equal probability to take a part of the planed survey. After the short proportional analysis and using the table of random numbers we chose the number of hospitals to be ten. The number of the participants in the survey is planned as follow: approximately 300 persons from ten state and municipal hospitals. The used research technique is statistical paper questionnaire and the statistical method is anonymous observation. The research papers are stored for five years in a paper documentary storage.
RESULTS GENERALIZATION USING THE METHOD

Since it is relatively easy to reach large numbers of people using a questionnaire, sample sizes can be very large. With the potential for large sample sizes, questionnaires make it easier for the researcher to generalize their findings from the sample to the target population.

RESEARCH OBJECTIVES (WORKING HYPOTHESIS)

After the preparatory work of the questionnaire (and before to gather the data) we decide to assume some important hypothesis which aim is to achieve significant and relevant conclusions from the planned opinion research.

1. We assume that the financing of the Bulgarian hospitals in term of health care reform and economic crisis is not sufficient. Using the data of the survey we can generalize our assumption and to prove if the hospital personnel have the same opinion.

2. We assume that the present used financing of the public Bulgarian hospitals is inadequate. Observing the opinion of the working hospital personnel we cannot reach the adequate one. We can just generalize the opinion of the medical professionals about the present used financial method.

3. We assume that the financing of the public and municipal hospitals in Bulgaria is dependent on political factors. It can be tested only subjective. The main aim of the politicians is to serve to people and to take the decision. Politicians are influenced from their electorate and they cannot take always the best or objective decision.

4. We assume that the financing of the public and municipal hospitals in Bulgaria is dependent on international factors. The global economic crisis influences negatively the Bulgarian economic. That reflects on all type of activities. One additional international comparing of the financial models of other countries and the personal opinion of the medical personnel from abroad can help us better to interpret the results of the survey and to serve to Bulgarian politicians. Of course that could be great, but we don’t have the needed financial and resource support to execute that global survey. That’s why we will concentrate our forces in objective observation of the Bulgarian hospital managing personnel.

5. We assume that the financing of the public and municipal hospitals in Bulgaria is dependent on the financial situation in the country. In spite of this, that Bulgarian budget deficit is one of the smallest in Europe, the reduction of the Bulgarian population, the low range of the salary influence negatively the whole economic and financial situation in the country.

6. We assume that we can find ways to improve the present financing model of the public and municipal hospitals in Bulgaria. Here we can only interpret the opinion of the hospital personnel in Bulgaria and to take their decision. One better model can be invented only corresponding to the financial situation in the country, the level and weight of the health insurance’ shares to the hospital financing and the health care framework. We can give some vectors but not a real decision.

7. We assume that the results obtained from the survey can serve to the Bulgarian government and other working groups to improve the present financing model of the Bulgarian hospitals. Only the gathered opinion of the hospital managing personnel does not give us better perspectives for the change in the financing framework of the Bulgarian hospitals. It could be used only as a starting point to understand better the hospital’s staff position.
STATISTICALLY VERIFICATION OF THE WORKING HYPOTHESES (HYPOTHESIS TESTING)

Hypothesis testing or significance testing is a method for testing a claim or hypothesis about a parameter in a population, using data measured in a sample. In this method, we test our working hypothesis (described above as research objectives) by determining the likelihood that a sample statistic could have been selected, if the hypothesis regarding the population parameter were true.

The method of hypothesis testing can be summarized in four steps. Here we will describe shortly each of these four steps:

1. To begin, we identify a hypothesis or claim that we feel should be tested. At this stage we would like to test our entire working hypothesis mentioned above.

2. We select a criterion upon which we decide that the claim being tested is true or not. Since we have gathered data from nominal and ordinal scales, we define as a suitable model for testing of hypotheses the F-test of Fisher. The statistical significance of the results of the survey should be made by using analysis of correlation. The main purpose of the correlatin analyse is to investigate the importance of a set of factors (independent variables) on a dependent variable, except the factors are nominal values. Here we are looking for a model of multi-criteria analysis of variance in which the variables are taken from the main questionnaire. For each empirical criterion are developed procedures and formulas calculations based on data from the sample.

3. Select a random sample from the population and measure the sample mean. We have already selected our ten hospitals and we expect an approximately sample size of 300 people.

4. Compare what we observe in the sample to what we expect to observe if the claim we are testing is true. If the discrepancy between the sample mean and population mean is small, then we will likely decide that the claim we are testing is indeed true. If the discrepancy is too large, then we will likely decide to reject the claim as being not true.

The likelihood or level of significance (α) is typically set at 5% in opinion research studies. When the probability of obtaining a sample mean is less than 5% if the null hypothesis were true, then we conclude that the sample we selected is too unlikely and so we reject the null hypothesis. Since the data is processed with SPSS, together with empirical value criteria in the printout is displayed its corresponding significance level. The decision is based on the criteria of the hypotheses’ testing. As (It) in SPSS program is noticed the hypothesis that should be tested. If we have It < α we accept the alternative hypothesis. That’s means that our results are statistically significant.

RESOURCE, FINANCE AND ORGANIZATION OF THE SURVEY

1. Human resources – we need for the first stage of the survey a statistician and researcher to help to our field and preparatory work. We need approximately 300 printed copies (+5%) from our questionnaire and a few interviewers for placement and taking back the fulfilled questionnaires. We plan to involve in the survey medical and statistical professionals from Bulgaria and EU.

2. Time management – we need to plan very carefully all stages of the preparatory and research work. We should invest enough time resources for participation in professional discussions, meetings and conferences, related to the public financing of the Bulgarian state and municipal hospitals. We need to invest some time resources in visiting online or scientific libraries.
3. Financing and logistic – we need financial resources for internet access, professional statistical software, paper questionnaire, transport taxes and other technical or material components of the preparatory process.

4. Defining the theoretical methodic of the survey and defining the issue of information about the decentralization. This includes comparative examples from decentralized administrative state hospitals from other EU member states – United Kingdom and Spain.

5. Organization of the survey – this stage includes making a plan of the survey. We plan how to conduct the survey, how to organize the participants and how to collect the already fulfilled data. Additionally we estimate at this stage the advantages and disadvantages of the used observation’s model and the probably possible mistakes in the preparatory work. At the end of this stage we conduct the planned personal opinion research.

SELECTION OF THE TEAM MEMBERS AND RESEARCHER TASKS

After selecting the operational statistical and scientific team we need to define our research manager who supposes to be responsible to the whole research process and data evaluation. The main objectives and responsibilities of the research manager include some short organisational characteristics. The first and main aim of the research manager is to provide the team with a realistic vision of the project objectives. That includes the planned timing and deadlines to be estimated very carefully and the people who take part in the preparatory and field work to be instructed how to proceed. The interviewers should be instructed how to reach our respondents, how to collect the data and how to check the fulfilled answers. The research manager should intervene when it is necessary and to solve problems. It is very responsible to assure that the data processing team has the necessary education and training to participate effectively in the team work and to support the team. At last, the research manager should coordinate the team work in way to be efficient and to update all time schedules and current project stages.

DATA PROCESSING

The data processing is one of the most important parts of the survey. This is the stage that proves all our efforts and effectiveness. After gathering the data of the survey we have some additional working stages in data processing.

1. Preliminary data processing – use of manual coding and electronic data entry. For about 300 planned participants in the survey it could take two weeks or less to save the data in a data file. It depends on the disposable resources and on the precise time management.

2. Data validation and data quality control. After coding the data we need to check our controlling technique and the validity of the data. We should use separate electronic and manual checking methods. Is it not possible, for example or it is less probably a nurse to have a PhD degree or a clinic director to be promoted without a PhD. The controlling team is authorised to optimise the working and programming process and to reduce and reveal the potential checking errors. After all made controls and checks we can make cross tables of the most important answers and to present the preliminary results from our opinion research. It takes approximately one or two weeks to decide which questions are needed.
3. Secondary data processing – tables, graphs, analyses. This stage cannot be timely measured. It depends on the aim of the researcher and the impact of the results of the survey. Referring to our own experience it can take a several months.

4. Used software and data file format – as statistical professionals we would like to rely to data processing with the following software: SPSS (19.0) and Excel 2010. The standard statistical and sociological surveys are processed with similar software. It depends of course on our financial resources and perspectives. The tables and graphs are in Word/Excel format and comprised data in absolute values or per cent.

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GAINING COMPETITIVENESS THROUGH STRATEGIC ALLIANCES
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Abstract
No company can go it alone. For industry giants and ambitious start-ups alike, strategic partnership have become central to competitive success in fast-changing global markets. More than ever, many of the skills and resources essential to a company’s future prosperity lie outside of the firm’s boundaries, and outside management’s direct control. In this new world of networks, coalitions, and alliances, strategic partnerships are not an options but a necessity. To fully exploit the opportunities open to it, a company today must have an ability to conceive, shape and sustain a wide variety of strategic partnerships. Indeed, right now, a plethora of new and imaginative strategic alliances is transforming industries from transportation to communication, health care, life sciences, media and entertainment, information technology, aerospace, and beyond. However while alliances can create enormous wealth, they can also become black holes for management time and resources.

Key words: strategic alliances, competition, partnering, strategic alliance management

1. INTRODUCTION

The term “strategic alliance” cannot be applied to any kind of interfirm links, but should be reserved for a special type of relationship which, in particular, makes these alliances so difficult to manage. The key element in the notion of alliance (Dussauge & Garrette, 1999) is that each firm involved in the partnership remains independent, despite the agreement linking it to its partners. In other words, in alliances, the partner companies join forces in pursuit of common goals without losing their strategic autonomy and without abandoning their own specific interests (Child & Faulkner, 1998).

The definition of Dussauge & Garrette (1999) of strategic alliances is designed to emphasize the specific nature of alliances while distinguishing them from other forms of interfirm relationships. Thus strategic alliances are links formed between two - or more - independent companies which choose to carry out a project or specific activity jointly by coordinating the necessary skills and resources rather than:

- pursuing the project or activity on their own, taking on all the risks and confronting completion alone;
- merging their operations or acquiring and divesting entire business units.

35 This is just one of the possible definitions of „strategic alliances” and the most appropriate for the purposes of this study. There are a lot of authors who provide definitions of the term “strategic alliances”, i.e. (Doz & Hamel, 1998) (Dussauge & Garrette, 1999) (Krieger, 2001) (Zentes, et al., 2009) (Zentes, et al., 2005) (Каракашева, 2007) (Марангозов, 2009)
2. WHAT IS STRATEGIC ALLIANCE?

The main characteristics of interfirm cooperation stand as a direct corollary of the definition given above. By bringing together several companies which, despite the agreement between them, remain independent entities, alliances imply first of all that multiple decision-making centers will be involved in the choices to be made about the joint project or activity. This multiplication of decision-making centers makes alliances considerably more complex to manage than organizations with a single chain of command. To become effective, every decision requires the agreement of all the partner companies involved.

In certain cases, the lack of agreement between the partners can even paralyze the alliance for considerable lengths of time or lead to ill-conceived compromises (Dussauge & Garrette, 1999). Thus, in the case of Concorde, the Franco-British supersonic jet, the aircraft that was finally developed was a compromise between the initial French plans for a medium-haul jet and British plans for a very long-distance airliner carrying fewer passengers. While both these projects enjoyed certain coherence, most experts deemed the final compromise ill-suited to the market’s needs, as did the airlines themselves.

Indeed, the aircraft’s range barely allowed it to cross the North Atlantic without refuelling and prevented it from flying non-stop over longer distances where supersonic speed would really have been an advantage, while its seating capacity of about 100 passengers made it extremely difficult to cover costs over shorter distances (Hochmuth, 1974).

Because it entails the simultaneous authority of several partner firms, interfirm cooperation leads more often than not to a virtually unending round of negotiations. After a merger or acquisition - or more generally within the framework of a single enterprise – all divergence of opinion about choices to be made and strategies to be implemented can be arbitrated by the senior management, which is in a position to impose whatever decision it deems most appropriate (Dussauge & Garrette, 1999). In an alliance, however, one of the parties cannot, in theory at least, force the others to accept any particular solution. And even if this were the case - if, for example, the management of the activity or joint project has been entrusted to one of the partners - it would be extremely ill-considered on the part of the dominant partner to impose too many of its own decisions against the wishes of the other allies. This

36 The example of Airbus is eloquent in this respect. Following the outstanding success of the A320, a 150-seat, short-to-medium-range aircraft, the consortium partners decided to develop a larger 200-seat version-the A321-which first flew in 1992. Some of the partners then wanted to follow up with a smaller 120/130-seat version of the same aircraft to offer customer airlines a broader range of airplanes to choose from. Despite the interest expressed by a great many airlines for this A319 project and promising sales prospects, it took several years to decide to launch production owing to the opposition of certain partners; this procrastination allowed the competition-notably Boeing with its 737-500 model-to enter this particular market niche earlier. A company acting alone would have been able to make the decision to launch the program much more rapidly. The Airbus A319 project provides a good case in point. If British Aerospace and DASA were particularly reluctant about building an aircraft of this kind, it was not because they had no faith in its chances of commercial success but because it came into direct competition with aircraft of their own. The A319 threatened to lure customer airlines away from the BAe 146, a four engine jet seating 80 to 100 passengers manufactured by British Aerospace. Similarly, the presence of the A319 on the market would have made the launch of the Fokker 130-a projected 130-seat airliner derived from the Fokker 100 which the Dutch manufacturer had been selling since 1988-a much more hazardous enterprise. When one recalls that DASA acquired Fokker in 1992, it is easier to understand its reservations about plans for the smaller Airbus. DASA, like British Aerospace, had a direct stake in Airbus’s success and could only hope for the success of the European consortium - provided, however, that this success did not run counter to other interests it considered of even greater importance. (Dussauge & Garrette, 1999).
would probably lead the dominated partners to withdraw from the agreement, resulting in the collapse of the alliance.

By the very nature of interfirm cooperation, negotiation is a key aspect in the management of alliances. In the case of Concorde mentioned above, most of the managers who took part in the project report that the slightest decision about the design of the aircraft or any of its components gave rise to endless haggling. The engineers from Sud - Aviation on the one hand and those from the British Aircraft Corporation on the other were thoroughly convinced - out of corporate loyalty or mere chauvinism – that their respective solutions for solving whatever technical issue was being discussed were the best by far. Choosing between the French and British options then became a major problem. Innumerable committees and commissions were set up to make decisions and protracted negotiations ultimately took up a substantial proportion of the time devoted to developing the aircraft.

The second main characteristic of interfirm cooperation is related to the potentially conflictual nature of the interests and objectives embodied within it. The partner companies, which remain independent entities, continue to pursue their own agendas of interests and objectives. They have managed to agree on a set of more or less explicit targets which the alliance was set up to attain, but these common goals are not the only objectives pursued by the partners and at times they may clash with the more fundamental objectives of one or more of the allies (Khanna, et al., 1998).

In general, clashes of interest such as these between the partnership and the allies will occur whenever the alliance does business with its different partner companies. If, for example, each of the allies sells its services to the consortium, each will be tempted to bill these services at the highest possible price. The performance of the consortium will suffer but, by adopting this behaviour, what an ally loses as a shareholder in the consortium is more than offset by what it gains as a supplier. If all the partner firms start to play the same little game, the alliance turns into a financial disaster - even if the losses incurred are largely recouped by the partners through overbilling - and, even more significantly, it rapidly becomes unmanageable. It was in order to preclude this kind of abuse that General Electric and SNECMA, which joined forces to manufacture the highly successful CFM-56 aircraft engine, devised a special system for allocating work and sales that prevented either of the allies from seeking to promote its own interests at the expense of their common objectives (Dussauge & Garrette, 1999).

Alliances create value. They enable companies to keep pace with change, with growing competitive pressures, and with increasing customer expectations. In today's networked world, alliances represent a strong growth strategy. In fact, it is expected that within the next five years as much as 50% of revenue and up to 25% of an organization's market capitalization will come from alliances. Therefore, getting it right is critical (Gonzalez, 2001). According to Forbes magazine, "Companies with more joint ventures, marketing and manufacturing alliances, and other forms of partnerships have substantially higher market values than companies that do not form such relationships."

But not all alliances succeed. In fact, studies have shown that as many as 70% of alliances fail. Firms that want to develop strategic partnerships that significantly contribute to the bottom line must develop their alliance strategy carefully, choose their partners well, and carefully manage implementation (Gonzalez, 2001).

3. THE STRATEGIC ALLIANCE PROCESS

The Strategic Alliance Process involves planning, implementation and evaluation. An alliance has a five-stage “life cycle,” and a structured methodology is applied to preparation and negotiations at each
stage. What follows is a practical guide on developing and successfully managing of strategic alliance implemented to different companies by Maria Gonzalez in her article “Strategic Alliances - the Right Way to Compete in the 21st Century”.

3.1. Setting alliance strategy

The first step in creating a successful alliance is to develop a well-thought-out alliance strategy. This is a critical step. We have found that too many organizations “find” a potential partner and then either develop their strategy or “fall into it.” It is worth remembering that if you do not follow your strategy in a partnership, you will follow someone else’s. The result will be catastrophic.

An alliance strategy stems from the business strategy. An alliance is not the answer for all businesses, but once a business does decide that a partnership is desirable, it must develop an alliance strategy. This is best accomplished through a structured, disciplined process in an Alliance Strategy Session. An alliance strategy is most effectively developed jointly by the business team and an objective third party, whether the latter is an external consultant or part of the organization. The business team includes an executive sponsor, who is the head of that business, or, in a corporate alliance, the president and CEO. If senior executives do not support the initiative, the alliance will die. The team also includes key content experts and decision makers for that business. An Alliance Strategy Session needs to address the vision and strategy for the partnership, and include a market analysis and a competitive assessment. Also required is an honest self-assessment that articulates the organizational strengths and weaknesses, as well as the organizational culture. The outcome of such a session includes an alliance game plan, partner selection criteria, a cultural self-assessment and a negotiating strategy.

3.2. Selecting a partner

This is based on the criteria identified in the strategy session. Once the partner is selected, the key is to determine if both organizations are strategically aligned and culturally compatible. A Joint Strategy Session where both (or multiple) organizations articulate their vision and strategy will determine if the organizations are strategically aligned. It will also become clear whether all parties have like ambitions and are culturally compatible. This also becomes the ideal opportunity to identify any strategic gaps and previously unanticipated opportunities. Any deal-breakers for either party are articulated at this stage.

Alliance governance is another aspect that is important to discuss at the very early stages. If it is a joint venture, thought needs to be given to the structures for management and the board. Note that at this stage, due diligence has not yet occurred. The strategic alignment must first be ensured before due diligence is begun. At the outset, it is extremely important to determine if the partners are strategically aligned and culturally compatible. No positive results on due diligence or a “great” financial deal will overcome the lack of strategic alignment. Without this assurance, the alliance is guaranteed to fail.

3.3. Structuring the alliance

This is the step that has traditionally received the greatest amount of attention; it is during this stage that the deal is financially and legally structured, and negotiated. While important, the stage is not worth entering into unless the first two stages involving the strategy have been completed. It is important to

37 Maria Gonzalez is founder and President of Argonauta Strategic Alliances Consulting Inc. The company works in the private and public sectors, and has worked with more than 70 alliances around the world. Ms. Gonzalez helps her clients to create strategic alignment and to develop strong organizational governance in order to create alliance success. You can find more information on http://www.argonautaconsulting.com/
keep an open mind regarding the structure of the deal until the alliance strategy has been developed. A joint venture is not always the best route, nor is majority ownership. Preconceived notions about the deal structure can bias the strategy, including conversations with the potential partner. Ideally, the strategy dictates the optimal structure. Negotiation is also an aspect that requires significant attention. Some best-practice companies rehearse their negotiations before meeting the partner. It is critical to be clear about your deal-breakers, and the “floor” and “ceiling” of your negotiating points. A negotiating strategy is critical, and developing one must begin at the alliance-strategy stage. A key point to remember is that negotiations with a potential partner begin long before you first sit down at the table. It begins the first time you meet the partner. Every interaction reveals information that is consciously and subconsciously stored for future reference.

Every alliance agreement should include an exit strategy. This does not imply a pessimistic view of the relationship, but rather recognizes that all alliances have a natural life. The average lifespan of an alliance is seven years. It may be necessary to recognize that an alliance is impermanent in order to maximize its useful life. Finally, at this point, a solid view of, and agreement on, alliance governance is important. This work is begun at the alliance strategy stage and needs to be negotiated before signing the definitive agreement.

3.4. Managing the alliance

Once the ink is dry, the hard work begins. Making the relationship work on an on-going basis is a challenge. In a well-structured alliance, an implementation plan is developed before the deal is signed. A full launch strategy needs to have been jointly developed before the deal is announced. To hit the ground running, an implementation plan with specific action plans, and the resources assigned to the alliance, must be known. Ideally, some members of the alliance team would have been involved from the very first stage. Conflict in any alliance is inevitable. It is not the fact that it occurs that is a problem, but rather how it is dealt with and resolved. A conflict-management process is an important element of alliance management. This is another stage where the alliance can be derailed. As previously noted, the lack of strategic alignment is a key cause of failure. This is not only the case at the outset but throughout the life of the alliance. Periodic checks are critical. If a shift in a partner’s strategic direction is taking place, there is a risk that the alliance may no longer be a strategic priority in the case where an alliance partner has sold its interest to another organization, it will be necessary to ensure that the new partner has the same strategic vision and interest in the alliance.

Periodic strategy sessions become a valuable means of ensuring strategic alignment, as well as a vehicle for revisiting the strategy’s market relevance. As with conflict management, these sessions are best managed with the support of an objective third party.

3.5. Re-evaluating the alliance

Measuring the results of an alliance is critical. You must regularly determine if the alliance is achieving its objectives. The metrics need to be tailored to the alliance and include both qualitative and quantitative criteria. In the earlier stages, qualitative criteria, which are the hardest to measure, are most meaningful. Some examples are the level of trust, and the ability and willingness for cross-organizational cooperation and collaboration. These are all leading indicators of future performance. The qualitative metrics need to be clear and specific, in line with the way each organization sets its performance standards.

The discussion about performance standards must have taken place as early as stage one. The relationship will not succeed if both parties do not have the same expectation for success. If one party is expecting results within the first 12 months, and the other has a three-year horizon, conflict is
inevitable. The key is to agree on standards and metrics jointly, before the final agreement has been signed. In the re-evaluation stage, it is also necessary to take stock of the alliance and determine the next steps. As previously stated, alliances are impermanent; this should be taken into account when planning an alliance. This does not mean that the relationship should end when the alliance itself ends. In fact, towards the end of the life of the alliance it is worth revisiting the alliance strategy. Here one wants to determine to what extent the original goals have been achieved, and whether the partnership can be reconfigured to serve other market needs. The goal is to make a decision as to whether the alliance should be terminated as the exit strategy has prescribed, or whether it still has life and new opportunities to partner. Maintaining a good relationship will usually mean that there will be opportunities to continue to work together. It is much easier to manage multiple or reconfigured relationships with an existing and known partner than it is to manage multiple relationships with different partners. Therefore if possible, deep relationships are always more desirable. For example, by reconfiguring and reinventing their relationship, Fuji and Xerox have remained partners for close to 40 years, well above the seven-year average.

It is absolutely necessary to evaluate and further develop the alliance at each stage of the life cycle. The strategy sessions create a structured, disciplined forum for recapturing “the lost art of conversation.” It is essentially through this conversation that gaps are identified and opportunities discovered. In our hurry to achieve, we at times forget to assess whether we are pursuing something that is worthwhile.

4. FROM TRADITIONAL COMPETITION TO COLLECTIVE COMPETITION

Our models of traditional competition, in which firms compete against other firms, are good starting points for understanding collective competition, in which constellations of allied firms are the competitive units (Gomes - Casseres, 2003). But the traditional models need to be amended and expanded. The organizational form of the competitive unit affects how it competes and how value is distributed among its constituent parts. This is true for companies, and even more so for alliance constellations.

Collective competition exists in many domains and we are supposed to have a fair understanding of what motivates firms to create constellations. To be sure, constellations do not necessarily confer advantage to a firm. Depending on the context, they can be helpful or not, just like with vertical integration. The firms gained advantage from vertical integration (Chandler, 1990); that strategy would be deadly for Dell today. The advantages of a constellation, as compared with a single firm, depend on and specialization in each the need for integration among parts of the value chain and the need for scale of the parts (Chesbrough & Teece, 1996); (Gomes - Casseres, 1996). Space limits preclude me from delving further into the costs and benefits of constellations.

The starting point is that constellations have appeared in a competitive domain; what is needed then is a way to think about competition in this context (Silvermann & Baum, 2002). Table 1 shows how to translate the concepts of the traditional competition model to that of collective competition. Some concepts from traditional competition have clear analogues in collective competition (Gomes - Casseres, 2003). In the traditional model, firms are competitive units in an oligopolistic industry. In collective competition, the competitive units are constellations, and industry structure can be conceived of as an oligopoly of constellations (Nohria & Garcia-Pont, 1992) (Gomes - Casseres, 1996) (Suen, 2002). In the traditional oligopoly, firms rely on firm-based advantages for differentiation. In collective competition, constellations rely on group-based advantages to differentiate themselves from rivals. The resource-based view helps us think about both firm - and group-based advantages. In the traditional
model, firms control resources through ownership and govern them through their corporate structures. A constellation assembles the resources of its members and governs these resources by the way the group is structured and managed\textsuperscript{38}. The last element of this ‘big-picture’ comparison of traditional competition and collective competition is the origin of a firm’s profit (Gomes - Casseres, 2003).

\textit{Table 1: Features of traditional competition and of collective competition}

<table>
<thead>
<tr>
<th></th>
<th>Traditional competition</th>
<th>Collective competition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competitive units</td>
<td>Firms</td>
<td>Constellations</td>
</tr>
<tr>
<td>Industry structure</td>
<td>Oligopoly of firms</td>
<td>Oligopoly of constellations</td>
</tr>
<tr>
<td>Source of differentiation</td>
<td>Firm-based advantage</td>
<td>Group-based advantage</td>
</tr>
<tr>
<td>Valuable resources</td>
<td>Controlled by the firm</td>
<td>Assembled by constellation</td>
</tr>
<tr>
<td>Governance of resources</td>
<td>Corporate structure</td>
<td>Constellation structure</td>
</tr>
<tr>
<td>Source of profit</td>
<td>Rent in the value chain</td>
<td>Rent in the constellation</td>
</tr>
</tbody>
</table>

\textit{Source: Gomes – Casseres, 2003}

Simplifying again, the traditional model reasons that firms appropriate a share of the rent in the value chain in which they are operating (Gadiesh & Gilbert, 1998). That pool of rent in the chain is influenced by industry-wide pressures, such as those in Porter’s five-force model. That gains a piece of this pool by exploiting its valuable resources or, in game-theory language, by bargaining for a share of the value-added that they bring to the pool (Brandenburger & Nelebuff, 1996). In collective competition the constellation becomes both a player and a mediator in the bargaining process. Given a pool of rent available in an industry segment, rivalry among constellations determines the rent that each group appropriates from the pool, and then bargaining among the firms in each constellation determines the share of the constellation’s rent that each firm can appropriate for itself. This argument is analogous, and in some contexts the same, as the analysis of the standards battle in Shapiro and Varian (Shapiro & Varian, 1999).

In sum, the model of collective competition proposed here is one of resources, control mechanisms, and bargaining power nested in at least two layers\textsuperscript{39}. Firms control firm-level resources that are aggregated to make group-level resources. These aggregate resources then determine the share of industry value that a group can appropriate. This group-based rent in turn forms the total from which member firms appropriate profits. This argument begs the question of what determines total group profits and what determines each firm’s claim on the profits of its group. Again, traditional models of competition do not

\textsuperscript{38} This is different from in Dyer and Singh (Dyer & Singh, 1998), where the capability to manage alliances itself is considered a valuable resource. The author does not deny that, but focuses here instead on how alliances extend the conventional resources available to the firm.

\textsuperscript{39} One could generalize this model to add layers. On one end, one can include units and individuals inside the firm, thus adding layers of resource control and bargaining within the firm. At the other end, layers can be added by considering the wider game (or industry) in which the game among the rival constellations is nested (i.e. the industry segment). For an intra-firm model not inconsistent with the approach in this paper, see Rajan and Zingales (Rajan & Zingales, 2001).
address these questions, but any theory of collective competition must (Gomes - Casseres, 2003). Below it’s given a preliminary answer to the question of how competitive advantage is created by constellations.

5. THE NATURE OF GROUP-BASED ADVANTAGE

The group-based advantage of a constellation differentiates it from rival constellations and determines the share of the industry profits that it can earn. Analogous to the traditional model based on firms, group-based advantage stems from the relative value of the resources controlled by the constellation.

Let us focus on the two elements in this statement: first, the nature of the resources in each constellation; and second, how the constellation controls these resources. Because constellations are groups of allied firms, the resources in the constellation are the sum of the resources contributed to the group by member firms. But these resources are not controlled as tightly as they would be inside a firm, because of the incomplete contracts (and possibly partial ownership) in the alliances that tie the member firms together. Just like in a single alliance, therefore, the potential of a constellation to create joint value is realized only by how well the constellation is structured and managed. Research and anecdotal evidence suggests that group-based advantage is affected by the factors shown in Table 2. The table shows an illustrative set of resources (‘Resources assembled’), the value of which clearly depends on the nature of the competitive domain. In global telecommunications, all four factors seemed important. In global airlines, market reach and scale are more important than the others. In today’s multimedia constellations, as in the RISC and PDA constellations of a few years ago (Gomes - Casseres, 1996), the last factor was critical. This listing is not exhaustive; but the point is that a constellation can potentially gain group advantage only to the extent that it assembles those resources that are critical for success in its domain. Even when it does so, however, it is not assured of success, because the resources need to be deployed and integrated effectively.

The second set of four factors in the table (‘Organizational structure’) is an illustrative list that emerged inductively from previous studies in various industries (see cases of Coca-Cola, Visa, and Colliers in (Bamford, et al., 2003); and MIPS Computer Systems and PDA constellations in (Gomes - Casseres, 1996). They are consistent with theory. A unifying vision is important to bring together disparate partners. A corollary of this is that competition among members erodes the cohesion of the constellation (Hwang & Burgers, 1997). Leadership is important in making collective decisions and in disciplining constellation members that stray from the collective goals; constellations that are weak at the center tend to be pulled in multiple directions by their members, as happened with MIPS (Lorenzoni & Baden-Fuller, 1995). Group size is a self-evident factor: the larger the group, the harder it is to manage, all else being equal. Those constellations that have grown large and successful (e.g. Coca-Cola and Visa) managed their size by issuing norms and rules that make management of the group more of a routine (as in franchising; (Bradach, 1998)). Again, this list is not exhaustive, but the point should be clear: a constellation only gains advantage from member resources if it is able to combine and govern them effectively.

This first cut at a theory of group-based advantage raises many research questions. First, what is the relative importance of assembled resources and organizational structure? As a constellation grows, it often faces a trade-off between the added resources from new members and the added management burden. Second, when compared with a single firm, is the organizational structure of the constellation in itself an advantage or disadvantage? In many domains, the tight control that a firm can exercise over its resources is an advantage; but in others, the looser arrangements in a constellation may offer gains from flexibility. Third, how is group-based advantage affected when members participate in more than
one constellation? When membership is not exclusive, constellation boundaries overlap and resources from one can benefit a competing unit. Fourth, what organizational approaches are helpful in managing a constellation’s resources? No doubt the management of these loosely controlled resources is subject to special techniques, perhaps analogous to techniques that have proven useful in managing resources inside a firm.

**Table 2: Some factors shaping group-based advantages**

<table>
<thead>
<tr>
<th>Resources assembled: how valuable in the domain?</th>
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<tbody>
<tr>
<td>Total scale of operations</td>
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<tr>
<td>Technological capabilities</td>
</tr>
<tr>
<td>Market reach</td>
</tr>
<tr>
<td>Presence in key value chain segments</td>
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</table>

<table>
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<tr>
<th>Organizational structure: how effective are the resources combined?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unifying vision</td>
</tr>
<tr>
<td>Limited internal rivalry</td>
</tr>
<tr>
<td>Leadership at the core - one or a few firms</td>
</tr>
<tr>
<td>Limited membership, or norms and rules for similar members</td>
</tr>
</tbody>
</table>

*Source: (Gomes - Casseres, 2003)*

6. FORCES SHAPING A FIRM’S CLAIM ON GROUP ADVANTAGE

Although constellations are created to generate group-based advantages, they must yield value at the level of the firm in order to attract and retain members. The game of competition may have changed, but we still keep score the old way. What determines the value that a firm can actually appropriate from participation in a constellation?

Two strands of work on alliances and networks are relevant to this question. Authors taking a structural approach have argued that the position of the firm in a network shapes its power over partners (Lorenzoni & Baden - Fuller, 1995) (Nohria & Garcia-Pont, 1992) (Burt, 1992). Others have emphasized that the scarce resources added by each firm shapes its ability to extract profit from partners (Pfeffer & Salancik, 1978) (Brandenburger & Nelebuff, 1996) (Ghemawat, et al., 1999). These different approaches are related to the debate in social network analysis between the roles of structural position and identity (Nohria & Essles, 1992).

As with many such debates, it is likely that both perspectives are important; a recent attempt to combine the two sets of ideas is Suen (Suen, 2002). In addition, the two sets of factors are often interdependent. A firm with unique and high value-added can often bargain for a central position in a constellation. A synthesis of these approaches might lead to factors such as in Table 3.

The stylized facts of the evolution of the IBM PC illustrates how some of these factors work. The IBM PC was launched in 1981 by a constellation created by IBM, with Intel supplying the microprocessor...
and Microsoft the operating system. As a group, this triad created the microcomputer format that within a few years drove both the Apple II and the previously dominant CPM operating system to the periphery of the market. Later, this IBM PC constellation slowly fell apart, but Microsoft and Intel went on to develop the powerful Wintel alliance. The main lesson for the purposes of this essay is that although this constellation created tremendous group-based advantages (it established the dominant industry standard), the firms within the constellation benefited to different degrees. IBM, it turned out, ended up with the least claim on the joint value, even though it initiated the constellation, held a central position, and was much larger than its partners.

Table 3: Some factors shaping a firm’s claim on value created by its constellation

<table>
<thead>
<tr>
<th>Value-Added Perspective: What is the bargaining power of the firm within the group?</th>
</tr>
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<tbody>
<tr>
<td>The firm controls scarce, valued, and well-protected assets</td>
</tr>
<tr>
<td>Competition among the firm’s suppliers of complements</td>
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<tr>
<td>Lack of competition between the firm and its partners</td>
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<table>
<thead>
<tr>
<th>Structural Perspective: What is the position of the firm within the network of allies?</th>
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<tbody>
<tr>
<td>Centrality of the firm’s position</td>
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<tr>
<td>The firm occupies structural holes</td>
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<tr>
<td>The firm participates in multiple constellations</td>
</tr>
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</table>

Source: (Gomes - Casseres, 2003)

7. BUILDING COLLABORATING ADVANTAGE

The very factors that prompt some companies to join an alliance are likely to undermine its success (Doz & Hamel, 1998). At the same time, many of the capabilities that lead to successful alliance management are the same that support good internal management. Success in alliances often stems from the same factors that driver good management, in particular successful collaboration and integration between units of the same firm.

7.1. Preconditions of success

Successful alliances are more likely when managers and their firms enter them with “the right stuff” – that is, appropriate personal attitudes and organisational habits. The assumptions held by managers, and how these managers work and interact, precondition their success or failure of managers of alliances. If they see their alliances in the context of a future-driven strategic architecture, not as mere remedies to past failures, they are more likely to succeed. If they sense keenly the limits of their own resources and are possessed by an ambition that stretches beyond these resources, they will be more driven to leverage their alliances effectively and will strive to get the most from them (Doz & Hamel, 1998).

Culture, too, is a precondition for alliance success. Corporate values, and the extent to which employees are encouraged to balance cooperation and competition, strongly influence alliance outcomes. If the culture of a firm supports a mix of collaboration and competitiveness, if employees are encouraged to
be imaginative are creative in how they create value, and if they feel comfortable in making their commitment and delivering on them, the preconditions for success will have been met.

7.2. Collaboration as a transitional stage

Joint ventures and other non-market inter-firm agreements have typically been pictured as an intermediate level of integration between arm’s-length contracts in open markets and full ownership (Nielsen, 1988); (Thorelli, 1986). But where the goal of the alliance is skills acquisition, an alliance may be seen, by one or both partners, not as an optimal compromise between market and hierarchy, to use Williamson’s nomenclature (Williamson, 1975), but as a half-way house on the road from market to hierarchy. In this sense the alliance is viewed not as an alternative to market-based transactions or full ownership, but as an alternative to other modes of skill acquisition. These might include acquiring the partner, licensing from the partner, or developing the needed skills through internal efforts. There are several reasons collaboration may in some cases be the preferred mode of skills acquisition (Hamel, 1991).

For some skills, ‘invisible assets’, (Itami & Roehl, 1987) the cost of internal development may be almost infinite. Complex skills, based on tacit knowledge, and arising out of a unique cultural context may be acquirable only by up-close observation and emulation of ‘best in classes’. Alliances may offer advantages of timeliness as well as efficiency. Where global competitors are rapidly building new sources of competitive advantage, as well as enhancing existing skills, a go-it-alone strategy could confine a firm to permanent also-ran status. Alliances may be seen as a way of short-circuiting the process of skills acquisition (Hamel, 1991) and thus avoiding the opportunity cost of being a perpetual follower40.

7.3. Capturing value vs. Creating value

There are two basic processes in any alliance: value creation and value appropriation. The extent of value creation depends first on whether the market and competitive logic of the venture is sound, and then on the efficacy with which the two partners combine their complementary skills and resources; that is, how well they perform joint tasks. Each partner then appropriates value in the form of monetary or other benefits. In general, researchers have given more attention to the process of value creation than the process of value appropriation. The primary concern of both the transactions cost (Hennart, 1988) and strategic position perspectives (Harrigan, 1985) are the creation of joint value. Transactional efficiency gained through quasi-internalization is one form of value creation; improvement in competitive position is another. Both perspectives provide insights into why firms collaborate; neither captures the dynamics which determine collaborative outcomes, and the individual monetary and long-term competitive gains taken by each partner. Making a collaborative agreement ‘work’ has generally been seen as creating the preconditions for value creation (Doz, 1988) (Killing, 1982) (Killing, 1983). There is much advice on how to be a ‘good’ partner (Goldenberg, 1998) (Perlmutter & Heenan, 1986) - firms are typically urged to build ‘trust’ (Harrigan, 1986) (Peterson & Shimada, 1978) - but little advice on how to reap the benefits of being a good partner.

There appear to be two mechanisms for extracting value from an alliance: bargaining over the stream of economic benefits those issues directly from the successful execution of joint tasks, and internalizing

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40 Motorola’s reliance on Toshiba for re-entry to the DRAM semiconductor business seems to reflect such a concern. Internalization via collaboration may be more attractive than acquiring a firm in total. In buying a company the acquirer must pay for non-distinctive assets, and is confronted with a substantially larger organizational integration problem.
the skills of partners. These ‘value pools’ may be conceptually distinct, but they were shown to be related in an important way. Bargaining power at any point in time within an alliance is, ceteris paribus, a function of who needs whom the most (Hamel, 1991). This, in turn, is a function of the perceived strategic importance of the alliance to each partner and the attractiveness to each partner of alternatives to collaboration (Doz & Hamel, 1998). Depending on its bargaining power a partner will gain a greater or lesser share of the fruits of joint effort. An important issue then is what factors prompt changes in bargaining power. Some factors will be exogenous to the partnership. A change in strategic priorities may suddenly make a partnership much more or much less vital for one of the partners (Franko, 1971). Likewise, a shift in the market or competitive environment could devalue the contribution of one partner and revalue the contribution of the other. Rapid change in technology might produce a similar effect (Harrigan, 1985). However, there is one determinant of relative bargaining power that is very much within the firm's control: its capacity to learn.

While Westney (Westney, 1988) and Kogut (Kogut, 1988) recognize that learning may be an explicit goal in an alliance, they do not specify the critical linkages between learning, dependency, and bargaining power. Conversely, while Pfeffer & Nowak (Pfeffer & Nowak, 1976) and Blois (Blois, 1980) correctly view alliances as mechanisms for managing inter-organizational dependence, they do not take a dynamic view of interdependence, and hence miss the linkage between learning and changes in relative dependency. If bargaining power is a function of relative dependence it should be possible to lessen dependency and improve bargaining power by out-learning one's partner. Most bargains obsolesce with time (Kobrin, 1986); by actively working to internalize a partner's skills it should be possible to accelerate the rate at which the bargain obsolesces. This seems to have been the motivation for Boeing's Japanese partners in recent years (Moxon, et al., 1988). It was clearly the motivation of two of the Japanese partners in the study.

7.4. The process of collaborative exchange

Researchers have tended to look at venture and task structure when attempting to account for partnership performance. An equally useful perspective might be that of a collaborative membrane, through which flow skills and capabilities between the partners. The extent to which the membrane is permeable, and in which direction(s) it is permeable determines relative learning. Though researchers and practitioners often seem to be preoccupied with issues of structure - legal, governance and task (Harrigan, 1988) (Killing, 1983) (Schillaci, 1987) (Tybejee, 1988) the study suggests that these may be only partial determinants of permeability. Conceiving of an alliance as a membrane suggests that access to people, facilities, documents, and other forms of knowledge is traded between partners in an on-going process of collaborative exchange. As operating employees interact day-by-day, and continually process partner requests for access, a series of micro-bargains are reached on the basis of considerations of operational effectiveness, fairness, and bargaining power. Though these bargains may be more implicit than explicit, out-learning a partner means ‘winning’ a series of micro-bargains. The simple hypothesis is that the terms of trade in any particular micro-bargain may be only partially determined by the terms of trade which prevailed at the time the macro-bargain was struck by corporate officers. A firm may be in a weak bargaining position at the macro level, as NEC undoubtedly was when it entered its alliance with Honeywell in the computer business in the early 1960s, but may be able to strike a series of advantageous micro-bargains if, at the operational level, it uniquely possesses the capacity to learn. Restating the bargaining power argument advanced earlier, the cumulative impact of micro-bargains will, to a large extent, determine in whose favour future macro-bargains are resolved.
8. Success metrics

Where internalization is the goal, the longevity and 'stability' of partnerships may not be useful proxies for collaborative success. Nevertheless, they have often been used as such (Franko, 1971) (Gomes-Casseres, 1987) (Killing, 1983) (Reynold, 1979). A long-lived alliance may evince the failure of one or both partners to learn. It was interesting to note in the study that, despite collaborative agreements in Japan with Japanese firms spanning several decades, several Western partners were still unable to 'go it alone' in the Japanese market. By way of contrast, there were few cases in which Japanese firms had remained dependent on Western partners for continued access to Western markets (though in one case the Japanese partner ultimately acquired its European partner). Likewise, an absence of contention in the relationship is not, by itself, an adequate success metric. A firm with no ambition beyond investment avoidance and substitution of its partner's competitiveness for its own lack of competitiveness may be perfectly content not to learn from its partner. But where a failure to learn is likely to ultimately undermine the competitiveness and independence of the firm, such contentedness should not be taken as a sign of collaborative success. The theoretical perspective on collaboration developed in this paper is summarized in Table 4.

![Table 4: Distinctive attributes of a theory of competitive collaboration](image)

<table>
<thead>
<tr>
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<th>Traditional perspective</th>
<th>Alternative perspective</th>
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<td>Collaborative logic</td>
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<td>De-facto internalization</td>
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<td>Unit of analysis</td>
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<td>Value creation</td>
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<td>Success determinants</td>
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<td>Success metrics</td>
<td>Satisfaction and longevity</td>
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Source: (Hamel, 1991)

9. CONCLUSION

As firms shift from single alliances, with two or a few partners, to broader networks, or to portfolios of related alliances, or even to webs of relationships, the goals and value creation motives for partnering remain the same. Co-option, cospecialization, and learning still drive the partners. However, as the number of partners and of alliance relationships increases, the strategic and managerial issues become even more challenging: value creation and value capture must be available to each and every participant; strategic compatibility is harder to achieve and sustain. Further, the need of cooperation, or its feasibility, may not be so obvious to all partners and priori, which calls for more deliberate network-building activities (Doz & Hamel, 1998). Although interpartner gaps may occur less frequently than in other alliances, since firms in a network tend to be more similar, the fact that they usually are competitors is a constant threat to continued cooperation.

Despite these many difficulties, multilateral relationships bring obvious advantages to their members: new capabilities and stronger competitive advantage, influence that extends beyond what each member could accomplish alone, opportunities for accelerated learning. Nodal firms extend their reach and leverage their capabilities, other members gain from the collective strength and benefit from the nodal firm's leadership.
REFERENCES


Published by Info Invest, Bulgaria, www.sciencebg.net
METHODOLOGICAL ASPECTS OF THE STUDY OF CUSTOMER SATISFACTION
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Abstract

Under conditions of dynamic market changes more and more companies seek to win the loyalty of their customers. One of the main factors, which determines the desire of customers to be involved in a long-term relationship with a particular supplier is the level of their satisfaction. In that sense customer satisfaction is a principal metric for assessing the intensity and strength of the relationship "supplier – customer". Despite the fact that satisfaction has been the object of research and discussions for many years, in business there is still observed a certain lack of understanding of the effects it is causing, as well as of the methods for its evaluation. The aim of this study is, as a follow-up to an analysis of the nature, elements, characteristics and approaches to the formation of customer satisfaction, to design and test a set of tools for its assessment among the home owners in housing estates of the “closed type” in the town of Varna (Bulgaria).

Key words: customer satisfaction, elements, characteristics and approaches to the formation of satisfaction.

INTRODUCTION
Marketing is the management of profitable relationships with customers (Kotler and Armstrong (2012). The basis for the development of steady, long-term, mutually beneficial relationships is the concept of "customer satisfaction". Zaithaml and Bitner (2003) prove that customer satisfaction leads to repeat purchases, customer loyalty and retention of the latter for long periods of time, which in turn generates an increase in the revenues and the financial result of suppliers. Anderson, Fornell and Lehmann (1994) empirically find that improved customer satisfaction, after a certain time lag, results in improved economic conditions in companies (measured by their net present value). In their studies Bernhardt, Donthu and Kennett (2000) confirm the existence of a relation between the levels of customer satisfaction on the one hand, and the sales and financial result, on the other, stating that the effects manifest themselves throughout a longer period of time. That is why customer satisfaction and the methods of its analysis have been the object of interest on the part of a number of researchers during the past decades. Despite the fact that work on the issues of customer satisfaction has been done since 1960s, the theme did not turn into a particularly topical one until the end of 1980s.

The interest in customer satisfaction and the search for ways to standardize its measurement underlies the models developed in the last few decades at the level of national economies and industries, among which: Swedish Customer Satisfaction Barometer (SCSB), American Customer Satisfaction Index (ACSI), Swiss Index Of Customer Satisfaction (SWICS), European Customer Satisfaction Index (ECSI), etc. It is important to note that the standardization of the process of measuring customer satisfaction is fairly provisional. The analysis of specialized literature on the theme shows that the definition of customer satisfaction and its components largely depends on the particular context. This means that the tools for gathering primary information change depending on the type of product (physical product, service, or a hybrid between the two), on the scope of the offer, on the industry and
other factors. For example, the moment in which the study is carried out affects the relative importance of the components, which form customer satisfaction, in so far as the expectations and the perceptions of customers are dynamic. In regions with lower levels of disposable income customers orient themselves towards more basic elements of the offer, which also changes the relative significance of the components within satisfaction.

The aim of this study is, as a follow-up to an analysis of the nature, elements, characteristics and approaches to the formation of customer satisfaction, to design and test a set of tools for its assessment among the home owners in housing estates of the "closed type" in Bulgaria.

The study is structured in several parts. Firstly, there is made a brief classification of the causes for the interest in customer satisfaction, followed by an analysis of its nature, elements and characteristics. There are presented the approaches to its formation. In the subsequent sections there are presented the methods, the findings of the study and a discussion of the obtained results, as well as the conclusion.

REASONS FOR THE INTEREST ON THE PART OF THE COMPANIES IN CUSTOMER SATISFACTION

The reasons for the interest on the part of companies in the evaluation of customer satisfaction have a clear economic logic and can be classified as follows:

(1) More than any other business function marketing deals with customers (Kotler and Armstrong, 2012). A basic assumption of marketing as a business philosophy is that companies constantly seek to identify and satisfy the needs of their customers at an ever-increasing rate. A major indicator of the success of companies in this area is the attained level of customer satisfaction.

(2) It has been empirically ascertained that only about 4% - 5% of dissatisfied customers complain to the supplier. The rest of the customers usually change the supplier without ever giving a signal of their lack of satisfaction. Because of this every business loses on average between 10% and 30% of its customers annually, without managers being aware of the answers to the following questions: which particular customers have been lost? what is the probability for a dissatisfied customer to be lost? in which moment in time have customers turned to other suppliers and why? how does the loss of customers affect company sales and profit? The striving of marketing specialists to obtain timely (and in a number of instances anticipatory) information on the questions formulated above, stimulates them to analyse the satisfaction of their customers.

(3) Customer satisfaction is a powerful indicator of customer loyalty. During the past two decades there has been clearly outlined the trend for the companies to increasingly orient themselves from attracting customers to winning their loyalty and support in the long-term. The securing of the desired level of satisfaction and loyalty create conditions for a decrease in the attractiveness of competitive offers. In this connection some authors consider the loyalty programs promoted by sellers as "defense mechanisms for ripe markets" (Sharp and Sharp, 1997), because the maintenance of the desired levels of consumer satisfaction and loyalty helps preserve the companies' customer base. Customer satisfaction isolates the company from rival attacks and negative influences of the external environment through the stabilization of future cash flows (Gruca and Rego, 2005). A similar view is shared also by Anderson, Fornell and Mazvancheryl (2004), who claim that the high levels of satisfaction and loyalty of customers are projected in greater cash flows. At the same time in customers with high level of satisfaction there is a much smaller chance to observe a number of negative results, connected with the customers, such as:
complaints, changes of the supplier, the spreading of negative information, etc. (Luo and Homburg, 2008).

(4) During the last decade companies have been introducing quality management systems ever more intensively. That trend is the result of increased requirements of customers towards company offers. ISO certification sets the obligation to systematically carry out studies and track the levels of customer satisfaction.

(5) The great interest in the essential characteristics of satisfaction, as well as in the factors, which influence its formation, is prompted by the fact that customer satisfaction is perceived as the "quality standard of the interrelation between suppliers and customers" (Scharitzer and Kollarits, 2000). The relations "seller - customer" are perceived as one of the areas, in which there can be created and distributed a large amount of added value in the business. On that basis, the development of the relations between suppliers and customers is a prerequisite for the establishment of a lasting competitive advantage.

(6) In marketing theory the psychological theory of the "asymmetrical effects of positive and negative events" (Taylor, 1991) has gained wide popularity. According to the above theory, a customer who is unsatisfied shares his negative experience with approximately 9-10 of his acquaintances, whereas a satisfied customer usually shares his positive experience with about 4-5 other potential customers. At the stage of rapid development of technology and unimpeded communication of customers through the Internet there are created conditions for a dissatisfied customer to inform thousands of other potential customers about his negative experience. The abovementioned asymmetry in the behaviour of the satisfied and dissatisfied customers stimulates companies to track the level of customer satisfaction.

The indicated direct and indirect effects on the business of suppliers poses the question of the funds that are invested in maintaining certain levels of customer satisfaction. In this connection Devasagayam et al. (2013) argues that an ever increasing number of future studies will be targeted at returns generated through customer satisfaction (ROS – Return on Satisfaction).

THE NATURE OF CUSTOMER SATISFACTION

In the specialized literature there are various author's opinions concerning the nature of customer satisfaction. The lack of a uniform view on the nature and origin of the concept, as well as the existence of different aspects of satisfaction (overall satisfaction with the offer of the supplier, satisfaction with the individual aspects of the offer, etc.) may, up to a point, hamper the interpretation of the obtained empirical results and their subsequent use for marketing purposes. This necessitates the preliminary conceptualization and operationalization (i.e. the working out of valid measurements and an empirical interpretation of the data) of satisfaction in the specific context of the study.

The many academic discussions on the ways to form satisfaction (as the object of management) determine the need for further clarification and/or redefinition of a number of aspects of satisfaction, of the process of its measurement and subsequent management.

In the specialized economic literature, along with the term "satisfaction" there are also used the notions of "value" and "utility". In that sense it is necessary to outline the differences between the above concepts from the point of view of the fundamental economic science.

(1) Representatives of political economy adopt the view that the determinant of value is the amount of abstract labour vested in production, which society recognizes as necessary in specific conditions. Thus
there is drawn the category of "exchange value", i.e. in order to obtain public recognition of the labour invested, the product must be offered on the market for exchange. The bearer of the exchange value is the utility value of the product. The supporters of this concept regard utility value and utility as identical, but in order to distinguish themselves from the view of neoclassics, they use only the first category. Irrespective of nuances in the standpoints of different authors, there can be drawn the general conclusion that utility is expressed in the level of satisfaction of the customer as a result of the consumption of a particular product.

(2) "Value", "utility" and "satisfaction" as concepts are also the object of study of the representatives of the neoclassical concept (mostly of the authors, who have developed the theory of utility). In the course of its development there are assigned different meanings to the notion of "utility" (e.g. happiness, satisfaction, pleasure, etc.). According to neoclassical theory, the utility of goods is their objective capacity to satisfy certain needs, formed by the subjective tastes and preferences of the particular consumer. The rational economic subject seeks to gain the greatest benefit, which for him is expressed in achieving maximum utility. The representatives of the psychological Austrian school (part of the neoclassical concept) measure the value of products through the amount of their marginal utility. In its turn, marginal utility depends on human needs and the scarcity of the respective goods (products).

(3) The opinion of the representatives of political economy in respect of utility coincides with that of neoclassicists. The main differences have to do with the formation of subjective tastes and preferences. The Marxist approach does not deny the subjective character of utility. According to the supporters of this concept, the representatives of the theory of utility (the authors of the Austrian school in particular) perceive subjective evaluations as a purely psychological phenomenon (which plays the role of a primary factor on the market), without taking into consideration a number of objective factors. It should be noted that this criticism is valid predominantly with respect to the initial stage of the rise of the theory of utility. In the course of its development there began to be taken into consideration the effect of prices and the scarcity of goods. The strive to maximize utility with neoclassicists is accomplished through exchange, in which there are considered not only the subjective peculiarities of participants, but also the objective realities of the market.

(4) Despite the fact that with some authors "utility" and "satisfaction" are treated as identical concepts, on the whole both in political economy and in microeconomics there is observed a clear differentiation between those two. Utility - from the point of view of the way in which it is defined in general economic theory - is close to the notion of "perceived quality" used in marketing literature. The perceived quality is the ability of the product to provide satisfaction as compared to the various alternatives on the market (Teas, 1993). From the presented definition there can be made the following more significant conclusions: (1) utility and perceived quality are connected with subjective evaluations, derived from the specific needs and desires of customers and from the information, which they possess (such as that of alternative offers); (2) perceived quality and satisfaction are different constructs; (3) perceived quality determines satisfaction.

In the specialized marketing literature there are generally two groups of authors in the conceptual definition of satisfaction:

- **Satisfaction as the process of evaluation**: satisfaction is the expressed evaluation that the experience of the use is at least as good as it was expected to be (Hunt, 1977); the individual's subjective evaluation of the various results and tests, connected with the use of the product (Westbrook, 1980); general psychological state, manifested in cases when the emotions accompanying higher expectations unite with the attitudes of the customer in respect of the acquisition and/or the use of the product (Oliver, 1981); satisfaction is a kind of attitude – evaluation after the purchase (Mano and Oliver, 1993).
- **Satisfaction as a result of an evaluation process**: satisfaction is the result of the purchase and use of the product, caused by a comparison between the acquired benefits and the cost of the purchase, relative to the anticipated consequences (Churchill and Surprenant, 1982); response of the customer in connection with the evaluation of the perceived discrepancy between expectations (or some standards of performance) and the actual performance of the product perceived after the use (Tse and Wilton, 1988); emotional response as a result of a particular transaction, provoked by the conducted on the part of the customer comparison between the performance of the product and a certain standard prior to the purchase (Halstead, Hartman and Schmidt, 1994).

Based on the derived conceptual definitions of satisfaction, there can be outlined the following more important points:

(1) With the two groups of authors there is shaped out as prevalent the view that satisfaction is “a response in various forms” - a result, disposition, global estimative judgement, general evaluation, attitude, emotional estimative response. Satisfaction may be manifested as an emotional or cognitive reaction. It should be noted that the emotional form of the manifestation of satisfaction does not exclude the cognitive reaction, rather it is manifested through (i.e. is a consequence of) the cognitive evaluation process.

(2) The opinions of the authors of satisfaction as a result of an evaluation process are characterized with a high degree of agreement. In them there is the element of "comparison", on the basis of which there is reached a definite answer (result) on the part of the consumer. The comparison provokes a reaction (manifestation of satisfaction or lack of satisfaction) with a certain degree of intensity.

(3) Whether it is considered as an original answer or as a process, satisfaction arises in connection with a specific object, action or condition, i.e. it is focused (with respect to a product, compensation, anticipated realization of something).

It must be kept in mind that there are arguments in support of both theses concerning the nature of satisfaction – (1) as a process of evaluation or (2) as the result of an evaluation process. The use of each of the indicated approaches is determined by the research aims and purposes.

The advantages of the tracing of the entire process of formation of satisfaction come down to the fact that there exists the possibility to diagnose the influencing factors, as well as measure their influence in terms of direction and intensity during the different phases of the decision-making for a purchase. The indicated positive effects of the analysis of satisfaction as a process ought to be compared to its potential weaknesses, namely: (1) high degree of subjectivism, both in deducing the factors, and in assessing their significance; (2) multiple procedures on the measurement of satisfaction at its formation, which predetermines a high level of survey costs. Very often research procedures raise the need for the so-called induced surveys, which are derivative of the main studied issue and as a rule there are no planned cost for their realization.

The definition of satisfaction as a result of an evaluation process is connected with accounting for the effect of a certain standard for comparison. This approach also presupposes a high degree of subjectivism, since it involves psychological categories such as perceptions. At the same time there should be noted the fact, that the customer can be influenced by means of the marketing programmes of the seller in order to prevent the potential discord after the purchase. The on-going observation of the changes in the standards perceived by the customer in time and the formation of specific evaluations of the rate of their change can be used as feedback from the customer to the marketing specialists of the supplier. The feedback serves as the basis of follow-up corrective actions on the part of the seller, in order to optimize the overall offer.
ELEMENTS AND CHARACTERISTICS OF CUSTOMER SATISFACTION

Among the presented conceptual definitions of customer satisfaction there stand out different author's opinions, both in connection with its nature and the way of its formation, and with respect to its scope. Irrespective of existing differences, each of the given definitions is well-grounded from the point of view of the specific conditions (object and time of conducting the survey, type of business, specific character of the product, experience with the product, etc.) under which the various authors conduct their studies. The conceptual definitions are in themselves a necessary stage for understanding the nature of satisfaction, but without deducing its characteristics it is not possible to conduct adequate and thorough analyses in this area. The reason for this is that the conceptual definition of satisfaction without the subsequent specification of its scope, can lead to the manifestation of the well-known in the literature “chameleon effect”, under which, because of the rather general nature of the conceptual definition, the construct under study is interpreted in different ways by the individual respondents.

In the specialized literature satisfaction is viewed as a complex construct of a latent character. Its complex nature ensues from the different symptoms which characterize it. Its latent character is connected with difficulties in the direct measurement of customer satisfaction, which is why it is operationalized through independent variables, which in turn are subject to measurement and evaluation (Levesque and Mc Dougall, 1996; Lee, Lee and Yoo, 2000).

Customer satisfaction as a complex construct comprises several key elements: conative, cognitive and affective. Through adaptation of the stages in decision-making for a purchase proposed by Davis and Heineke (1994), there can be illustrated the connection between affective, cognitive and conative component and to see the place of satisfaction in the process of decision-making for the purchase.

Affective and cognitive elements manifest themselves as early as the first stage in the process of purchase behaviour, i.e. before the realization of the purchase, because the expected results are a psychic phenomenon, in which there is an estimative moment. Expectations are the consequence of a "process of study at which, on the basis of probability structure of past events, there is drawn out an attitude with respect to future events" (Dilova, 1989).

The presence of emotions at the stage of expectations is accompanied with the manifestation of the conative component, but only in the part of internal behaviour. Hart, Smith, Sparks and Tzokas (1999) consider conative components separately from the behavioural ones, the first being associated with the intention to undertake action (internal behaviour), while the second - with real action (external behaviour). In this study we regard the behavioural and conative components as interchangeable, having in their composition the intention of undertaking action and the real behaviour.

The conative component in its integrity (internal and external behaviour) manifests itself after the formation of a certain evaluation with respect to the product and/or the company, i.e. after the product has been purchased and there has begun or ended its consumption. Therefore as early as upon the formation of customer satisfaction there is observed the internal behaviour of the buyer in the form of feelings, thoughts and ideas, which finds expression in a certain external behaviour as readiness, willingness, intention or actual undertaking of some action. Hence there can be made the conclusion that between the indicated elements there exist certain relations and dependencies. The unity of affective, cognitive and partially behavioural elements serves as the basis of the formation of the construct of "satisfaction".
On the basis of the affective, cognitive and conative elements, as well as from the presented model of consumer behaviour, there can be deduced in a more general sense the psychological and economic elements of customer satisfaction. The psychological and economic elements are interrelated and interdependent, since the various psychological phenomena (liking, perceptions, expectations, attachment, etc.) exert influence on the formation of certain economic results: volume and intensity of purchases from a supplier, cash flow, return on investment, market share of the company, product life cycle, etc. The economic elements in their turn influence the psychological elements as a result of the dynamic nature of the criteria, on the basis of which there are realized the processes of comparison and evaluation between the expectations and perceptions of the customer. The influence is realized through the feedback within the presented model.

The affective, cognitive, conative, psychological and economic elements of customer satisfaction have a general character. However, it is necessary to point out that depending on the particular situation, the elements of satisfaction can be different. Take, for instance, a situation where a construction company has built homes within a housing estate of the closed type and at the same time it is involved in the maintenance of the property. The home owners in this estate form their satisfaction in several areas: general satisfaction with the company, satisfaction with the construction product and satisfaction with the service of maintaining the property. Each of the indicated areas contains a number of components, with the help of which it is operationalized and this permits its correct evaluation. In deducing the components of customer satisfaction in the presented example in the area of services there can be used...
both the classical model of the marketing mix (product, price, place, promotion), and the extended model - product, price, place, promotion, people, process and physical evidence (Neilson and Chadha, 2008). To the enumerated elements of the extended marketing mix there can also be added the dimensions of the quality of services - reliability, responsiveness, assurance, empathy and tangibility (Cristobal et al., 2007).

The elements of satisfaction and loyalty serve as the basis of the manifestation of the characteristics of the indicated constructs. After an analysis of specialized literature in the area of customer satisfaction there can be drawn the following characteristics of this construct: response, focus and time (Giese and Cote, 2000), dynamics, match/mismatch. The indicated characteristics are interconnected and interdependent:

(1) Customer satisfaction is essentially a cognitive, affective and partially conative response.

(2) In the specialized literature there is adopted the idea of the existence of a focus of satisfaction and each individual author defines the focus in accordance with a particular case. The focus of satisfaction in the works of the various authors varies from - product (Halstead, Hartman and Schmidt, 1994), attributes of the product (Oliver, 1992), choice made with regard to a particular purchase (Westbrook and Oliver, 1991), specific outlet (Oliver, 1981), to - consumption (Westbrook, 1987).

(3) The response manifests itself at a definite moment - during consumption or after consumption, following the purchase, etc.

(4) The specific response as a type and intensity is formed as a result of the comparison between the standard perceived by the customer before the purchase and their evaluation of the actual performance of the supplier.

(5) The type, intensity and orientation (focus) of the response are dynamic in time as a result of: 1) change in the customer's criteria, against which there is conducted the comparison between the perceived standard and the evaluation of the performance, 2) the accumulated experience of the customer with the product and/or the supplier, i.e. of the amount of gathered information, 3) change in the value system of the customer, 4) availability of other options for the choice of supplier.

As a result of the many transactions and the establishment of long-term relations with the supplier, there occur changes in: 1) the amount of knowledge the customer has about the product, trademark and supplier; 2) the emotional connection between the partners; 3) the behaviour of the customer towards the offer of the supplier. Consequently the three components of the customer's attitude are not static, but rather dynamic in time. They are affected by the amount of accumulated information during market transactions (including that on competitive offers) and are a consequence of the process of communication between the partners.

In the specialized literature there are a number of differing opinions on the precise moment (time) of the formation of satisfaction: before the purchase (the so-called "anticipated satisfaction" - Oliver, 1981), after the acquisition of the product, but before its use (Day, 1984); during the use of the product (Hunt, 1977); during or after the use (Halstead, Hartman and Schmidt, 1994); only after the use (Mano and Oliver, 1993); only after the purchase (Westbrook and Oliver, 1991); after the purchase and/or use (Churchill and Surprenant, 1982).

Hence there can be drawn the conclusion that the actually manifested satisfaction (as different from anticipated satisfaction) is formed after the closing of the purchase. This period covers the time after the purchase itself, during and after the use of the product. If the moment of the formation of satisfaction
precedes the purchase or the use, satisfaction is classified as "preliminary" or "predicted", but it is not actually manifested and has a largely hypothetical, rather than estimative character.

After the conducted analysis of the nature, elements and characteristics of customer satisfaction there can be made the conclusion that the lack of a single uniform view on the nature of satisfaction is not a serious problem for its correct evaluation. The differences in opinion of the authors are determined by the multitude of factors, which affect the origin of satisfaction in different situations (products, markets, experience of the customer, etc.). The unification of satisfaction is meaningful only if it is realized at preliminarily set parameters and definition frames, i.e. - from the point of view of a particular industry, kind of product, time frame, focus, etc. Even the adoption of a uniform standardized definition of satisfaction may in a sense render difficult its operationalization and adaptation during the realization of surveys, which have specific goals and objectives, are conducted in different areas, cover respondents with different experience and preliminary attitudes.

APPROACHES TO THE FORMATION OF CUSTOMER SATISFACTION

In the literature there are described various approaches to the formation of satisfaction. The opinions of specialists can provisionally be put into two groups.

The first group of researchers believes that satisfaction is a function of the match/mismatch between the standard preset by the customer with respect to the offer of the supplier and the perceived level of its actual performance. In the specialized literature there are discussed different standards for comparison - expectations of customers, values, attitudes and opinions.

The first group of approaches comprises the following:

1) **Cognitive discord** (Festinger, 1957) – it is expressed in the juxtaposition (comparison) of attitudes and perceptions. Should the customer find out disturbing facts concerning the purchased product or receive positive information about a competitive offer - that may lead to certain hesitation in connection with the choice that has been made, which constitutes an instance of cognitive discord.

2) **Contrastive** (Hovland, Harvey and Sherif, 1957) - the surprise effect of the transaction stimulates customers to exaggerate the existing differences between the anticipated and the actual outcome.

3) **Assimilative-contrastive** (Sherif and Hovland, 1961) - lack of information about the product creates negative mismatch, its presence provokes excessive expectations with the user.

4) **Comparative level** (La tour and Peat, 1979) - customers compare each attribute of the product with preset criteria at the attribute level.

5) **Mismatch with the preliminarily formed values** (Westbrook and Reilly, 1983) – values describe satisfaction more adequately, because, compared to expectations, those last longer. Therefore comparison is carried out between the values and perceptions of the customer.

6) **Assimilative** (Pieters and Zwick, 1993) - customers do not wish that the perceived performance is different from their pre-formed opinions and attitudes. For that reason they assimilate their interpretations of the events in a way which matches their pre-formed attitudes.

7) **Confirmation / disconfirmation model** (Oliver, 1980) – the satisfaction of the customer is formed upon comparison between expectations and perceptions.
The second group of authors concentrate their studies on the proposition that satisfaction is a function of the perceptions of customers, i.e. they eliminate standards of comparison. The following approaches fall into this group:

(1) **Attributive** (Richins, 1987) - the satisfaction of the customer is the result of the success or failure of the accomplished transaction, which, in its turn, is determined by various internal or external factors.

(2) **Of the fair value** (Oliver and Swan, 1989) - the customer feels satisfied only as long as there is a balance between what the two parties to the exchange put in and receive respectively.

The analysis of the literature on the theme shows that a considerable part of the researchers of customer satisfaction adhere to Oliver's model of correspondence (confirmation / disconfirmation model). According to the cited model, satisfaction is affected on the one hand by the expectations of the customer and, on the other, by the degree to which the perception of the level of performance of the supplier's offer deviates from this level. According to Oliver, expectations act as level of adaptation and determine the standard against which customers form their evaluation. The perception of the difference between the expectations and perceptions is the result of an evaluation, which causes an emotional reaction and change in the behaviour of the customer.

Some of the more substantial arguments in support of the considerable popularity of Oliver's model are:

(1) This model has the widest scope in clarifying the process of forming satisfaction. Part of the approaches described above (the contrastive, assimilative and assimilative-contrastive approach) are its varieties.

(2) The "fair value" approach presumes the formation of satisfaction only in the existence of a balance between what has been input and received by customers and suppliers in the process of exchange. The main assumption of this approach is controversial, because in very rare cases what is given and received at the purchase by the two parties is of equal value (especially with single deals or in the short-term). On the other hand, the degree of equilibrium is evaluated on the basis of the customer's and supplier's notions of justice, hence there can be observed the following: selective perception, selective misinterpretation and/or selective memorizing.

(3) The authors of the perception approach do not deny the influence of expectations on the process of forming satisfaction categorically, but according to them the perception of customers is of a higher priority. This makes sense, especially in the case where customers have no prior experience with the product.

In connection with Oliver's model there has been advanced the idea of the so-called "indifference zone" (Berry, 1997). The indifference zone manifests itself at an insignificant or lacking difference between the expectations and perceptions of the customer, as a result of which there is provoked no emotional reaction (i.e. the customer is in a state, which is described as "neither satisfied, nor dissatisfied"). The conducted analysis of the elements of customer satisfaction shows that the reaction of customers is not only emotional, but also cognitive in nature.

Oliver's base model is liable to development in time. For instance Spreng, Mackenzie and Olshavsky (1996) propose modifications to this model, because they believe that the sole comparison between expectations and perceptions is not a sufficiently reliable basis for the formation of satisfaction. In this connection they put forward an additional standard for comparison – the wishes of the customers. The authors of the model consider wishes as: final states, interim benefits and specific means for achieving those benefits. In our view the suggested modification of Oliver's base model additionally raises the degree of complexity of the procedure of evaluating satisfaction through the introduction of a new latent
construct (the wishes of the customers). On the one hand this entails greater survey costs (because of
the greater number of operating variables), while on the other hand it leads to an increase in the
subjectivism of the research procedure.

The supporters of the proposition that satisfaction is a function of customers’ perceptions (Richins, 1987;
Oliver and Swan, 1989) provoke a discussion on Oliver's model. They believe that the notion of
"expectations" is too complicated, which instigates a number of theoretical discussions and empirical
studies in areas such as: conceptual definition of expectations; expectations as a norm for conducting
comparisons; hierarchy of expectations; aspects which indirectly affect expectations and time for
measuring expectations. All this creates additional difficulties in clarifying the nature and
operationalization of satisfaction. Keeping in mind the above criticism, Cronin and Taylor (1994) arrive
at the conclusion that satisfaction depends above all on the the customer's perception of the level of
actual performance. The above authors claim that there are no clear-cut standards for comparison
between expectations and the actual performance, which means that expectations play a much smaller
role in the process of forming satisfaction in comparison with perceptions. In this connection Cronin
and Taylor (1994) predict that expectations will be eliminated as a tool for measuring and evaluating
satisfaction.

In the specialized marketing literature, the two groups of approaches for the formation of customer
satisfaction discussed above are perceived as alternative, but we believe that they are not fundamentally
different. The reasons for this statement are as follows:

(1) The perceptions of the customers serve as the basis of both groups of approaches for the formation
of satisfaction.

(2) In Oliver’s model there are used the expectations of the customers as the standard for comparison.
Despite the fact that with the second group of approaches satisfaction is a function solely of perceptions,
customers - consciously or unconsciously - also use a certain standard for comparison. Perceptions in
themselves cannot be evaluated correctly against a measurement scale previously set by the researcher,
if there is not used some kind of reference point for comparison. Consumers can point out relatively
accurately whether or not, and to what degree they are satisfied with a given supplier in comparing the
various market offers or in comparing the level of performance of a particular supplier for different
periods of time. Otherwise there would be deviations (positive or negative) in the evaluation of
satisfaction, because customers will either be put in the situation where there is a lack of alternative
suppliers, or will not be familiar with the various offers. The lack of information on the dynamic sales
terms of the individual vendors in time does not preclude the probability of the existence of an offer,
which would better satisfy the specific needs and wants of the customer. In that sense it is risky to claim
that the evaluation of perceptions is absolute (rather than relative) by nature. Hence the standard for
comparison (in the form of expectations, comparison with a competitor, etc.) is a prerequisite for the
formation of customer satisfaction.

METHODOLOGY FOR THE ANALYSIS OF CUSTOMER SATISFACTION

The study was carried out within the course of two consecutive years (2011 and 2012), the idea of the
second survey being to track the dynamics in the monitored indicators. The object of study are the actual
(current) customers of an investment and consulting company (PLH Invest), who own homes in 5
different complexes of the "closed type" in the town of Varna (Bulgaria). PLH Invest specializes in the
design, construction and maintenance of buildings, security and access control in housing estates,
management of the property, etc. The housing estates in which respondents live have been provisionally marked in the following way: A, B, C, D, E.

There is used a non-random sample model (of the "quota" type) with the following quota attributes: complex in which the dwelling is located; sex of the respondent; type of dwelling (number of bedrooms) and floor area of the dwelling. The sample is of the type "number of respondents-based", the aim being to ensure representation of the individual groups in accordance with the previously set quota attributes. The size of the sample for 2012 is distributed between the complexes as follows: A - 26%; B - 25%; C - 16%; D - 23% - E - 10%. Over 60% of the respondents also took part in the survey conducted in 2011, which ensures an acceptable degree of comparability of the results between the two surveys.

The project has been carried out in the following order:

1) **Specifying the focus of the survey** – there is taken the decision to study 3 aspects of customer satisfaction: general satisfaction with the company; satisfaction with the construction product; satisfaction with the service "property maintenance".

2) **Determining the indicators customer satisfaction is dependent on.** In order to determine the indicators, which form the 3 aspects of satisfaction under study, there have been held in-depth interviews with the sales manager, the advertising and PR expert and customers of the company. Additionally, there has been conducted content analysis of suggestions, complaints and opinions of the customers by housing estate. For the evaluation of the general satisfaction with the company there are used 3 indicators, for satisfaction with the construction product – 7 indicators and for the evaluation of the satisfaction of the customers with the service "property maintenance" – 17 indicators. The indicators for the evaluation of satisfaction have been worked out and tested during the original survey in 2011. In order to trace the dynamics in customer satisfaction in 2012 there are observed the same indicators, but in order to guarantee that the indicators are reliable they are tested by means of the Cronbach’s Alpha criterion.

3) **Designing the tools (survey form) for conducting the study.** The questionnaire is designed in such a way that it allows the gathering of information for the profile of the respondents (family income, sex, type and floor area of the dwelling). The sex, the type of dwelling and the floor area are the quota attributes, with respect to which there has been shaped out the sample for the survey. The evaluation of the satisfaction of the customers with the construction product and with the service "property maintenance" is carried out on a scale of 1 to 5 (from 1 - "not satisfied at all" to 5 - "fully satisfied"). The satisfaction of the customers with the quality of the construction product is formed according to the following criteria: general evaluation of the quality of the construction product, "quality/price" ratio of the construction product, quality of the materials used, quality of construction works, functionality of the dwelling, infrastructure in the housing estate (water supply and sewerage, wiring and air conditioning systems, gasification, parking area, landscaping, etc.), infrastructure around the estate. The satisfaction of the customers with the service "property maintenance" is evaluated with the help of 17 indicators in areas such as: level of overall service in maintaining the property; service provided by the manager and the maintenance workers; range of the service; enterprise and speed of personnel in solving any emerging issues; guarantees for the security and the convenience of the residents in the estate; competence, commitment, courtesy and communication skills of staff; amount of the monthly maintenance fee; maintenance of the common areas; the organization of parking the vehicles; organization of payment of the monthly fees; control over the observance of the internal regulations within the estate. The general satisfaction of the customers is evaluated in 3 sections: (1) overall satisfaction of customers with PLH Invest (there is used the scale of 1 to 5: from 1 – "not satisfied at all", to 5 – "fully satisfied"; (2) closeness of PLH Invest to the customers’ ideal of a construction
company. The evaluation is carried out on the scale of 1 to 5: from 1 – PLH Invest is very far from the ideal construction company, to 5 – PLH Invest is very near the ideal construction company; (3) satisfaction with the ratio between what the customer has "invested" (money, worries, time) and what they have received in return (convenience, homeliness, service, etc.) from PLH Invest. There is used the scale of 1 to 5: from 1 – "not satisfied at all" to 5 – "fully satisfied".

(4) Testing a version of the survey form – the testing is conducted with 17 customers in the office of the company.

(5) Correcting the tools and preparing the final version of the questionnaire.

(6) Detailed briefings of interviewers – there are given explanations on each of the questions in the survey form. There are also elaborated written instructions on the methods of communication with respondents and are distributed show cards to aid the process of gathering information.

(7) Field work on collecting data from respondents.

(8) Processing, analysis and interpretation of project data. During the actual statistical analysis of the data there are formed average ratings of each indicator. By means of multiple regression analysis there is identified the relative significance of every operating variable within each of the 3 constructs of satisfaction under study. In addition there is also determined the total impact of the statistically significant indicators on the three constructs of satisfaction.

SURVEY FINDINGS AND DISCUSSION

The majority of the customers of the company (home owners) have a monthly family income within the range €1000 - €2500.

The sex, type of dwelling and floor area are the quota attributes, with respect to which there has been formed the overall sample for the study. Along the criterion of "sex" the distribution is as follows: male – 52 %, female – 49 %.

According to the type of dwelling: 12% of the respondents own a studio, 27% - a dwelling with one bedroom, 44% - an apartment with 2 bedrooms, while 17% own a dwelling with three bedrooms.

According to the criterion of "floor area" the distribution of the respondents is as follows: 10% live in a dwelling with a floor area of up to 50 sq m, 23% own an apartment with a floor area of 51-70 sq m, 39% - 71-100 sq m and 28% have bought dwellings with floor area of over 100 sq m.

The distribution of the respondents along the classification criteria of "type of dwelling" and "floor area" in the studies of 2011 and 2012 is comparable, which provides the opportunity for a comparative analysis with respect to customer satisfaction.

OVERALL SATISFACTION OF CUSTOMERS WITH PLH INVEST

The results of the analysis of the generalized indicators of customer satisfaction with PLH Invest (totals as well as by housing estate) are presented in Table 1.
Table 1. Average ratings on the satisfaction with the company

<table>
<thead>
<tr>
<th>Assertions</th>
<th>Year</th>
<th>PLH Invest</th>
<th>Housing estate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Overall satisfaction with the company</td>
<td>2011</td>
<td>4.25</td>
<td>4.60</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>4.27</td>
<td>4.24</td>
</tr>
<tr>
<td>Degree of closeness of PLH to the ideal construction company</td>
<td>2011</td>
<td>3.93</td>
<td>4.52</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>4.16</td>
<td>4.12</td>
</tr>
<tr>
<td>Satisfaction with the ratio &quot;invested/received&quot;</td>
<td>2011</td>
<td>4.16</td>
<td>4.52</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>4.20</td>
<td>3.92</td>
</tr>
</tbody>
</table>

With the first indicator, which represents customers’ general evaluation of their satisfaction with all realized contacts with the company it is seen that for 2011 most satisfied are the customers of estates A and E. The lowest rating is registered for the customers of estate C (only with those customers there is observed an evaluation, which is close to the neutral part of the scale, i.e. on the whole they feel satisfied, but there are some problems, which bother them). Among the issues facing home owners in estate C for 2011 are the following: the quality of materials used in the construction, the quality of construction works, the quality of finishing works in the dwelling, competence of personnel, lack of initiative on the part of personnel upon discovering problems in the estate, problems with the security of the estate.

In 2012 these issues have for the most part been solved and the average evaluation for the general satisfaction of home owners in estate C grows from 3.50 to 4.06 (which constitutes an actual improvement of the rating by a little more than 10%).

The indicated problem areas determine the lowest average evaluation (3.43) of the residents in estate C for 2011 with respect to the second indicator, which provides orientation as to how close or how far from the ideal construction company PLH Invest is. As with the first indicator, the customers of estates A and E give the highest evaluations in 2011. In 2012 the average evaluation of the residents in estate A on the closeness to the ideal company decreases from 4.52 to 4.12. The reasons for this can be sought in two directions: (1) related to the maintenance of the property – problems arising with the organization of the parking of cars; the manifestation of certain passiveness on the part of maintenance workers in observing the internal regulations – mostly with respect to noise; criticism in connection with the admission regime in the estate (and the guarantees for the security of the dwellers); (2) related to the construction product of the company - quality of the construction product, quality of the materials used and the infrastructure in the estate.

For the residents of estates B and C in 2012 the company gets closer and closer to their ideal of a construction company. The reasons for that are different for the two estates:

(1) The home owners in estate B are highly satisfied with the construction product (including the quality of the materials used, the quality of construction works, the functionality of the dwelling, the infrastructure in and around the estate). At the same time, in comparison with 2011, in 2012 they think that there is a considerable improvement in the overall service level (including the following:
maintenance of excellent hygiene, high service level on the part of employees that are friendly and committed to the problems of their customers; guarantees for the security of the inhabitants).

(2) Although infrastructure (within the estate and outside of it) is perceived as problematic for those living in estate C, these not very positive perceptions are made up for by the facilities created for the owners (by way of the very good organization of parking and payment of monthly fees; by way of the responsive maintenance personnel; the perfect hygiene of the common areas in the estate).

In 2011 the satisfaction with the “invested/received” ratio (the third generalizing evaluation criterion) is lowest with the customers of estate B. It is with them that for 2012 there is observed the most significant transformation in the evaluation over the previous year (from 3.59 to 4.23). The reasons which determine the positive changes in the evaluation of the inhabitants of this estate and the decrease in the average ratings with the home owners in the other estates have to do with the comparison between all drawn so far positive points and recommendations to the company by individual estates.

From a managerial viewpoint it is useful to compare the following ratios: "price/quality" ratio and "invested/received" ratio. The idea is that price is not all that the customer gives or inputs upon the purchase of the dwelling (because this also entails spending time, emotions, etc.). On the other hand home owners receive not only quality with the purchase. They receive a much greater set of properties such as: quality, functionality, homeliness, beautiful building, pleasant lawns, well-kept common areas, sense of belonging, etc. Therefore it can be said that the ratio "price/quality" is contained in the ratio "invested/received". The question is exactly what part of it is? If it is a substantial part, the managers of the company must target their actions mainly in two areas – price and quality. Conversely, if the ratio "price/quality" is insignificant as a share of the ratio "invested/received", there must be sought a much broader range of areas, in which to undertake certain interventions, in order to affect the perceptions (and subsequently also the behaviour) of customers. Through regression analysis there have been determined the determination coefficients of the ratio "price/quality" over the ratio "invested/received": for PLH Invest – 32%, estate A – 30%, estate B – 22%, estate C – 48%, estate D – 46%. For estate E there cannot be given a statistically significant estimate because of the smaller absolute number of respondents. From this data there can be drawn the conclusion that the customers' perception of the ratio "price/quality" amounts to between 30% and 48% of their perception of the ratio "invested/received". For estates C and D this percentage tends to 50%. Therefore the managers of PLH Invest must target their efforts in that direction in order to obtain maximum results (as a positive evaluation on the part of the customers).

SATISFACTION WITH THE CONSTRUCTION PRODUCT OF PLH INVEST

The scale for the evaluation of customer satisfaction with the construction product is tested for reliability by means of the Cronbach's Alpha criterion. The results show that the scale possesses a high degree of reliability (ratings vary within the range 0.648 – 0.830). The results on the satisfaction of customers with the company - overall and by estate - are presented in Table 2.

The data in Table 2 gives us reason to draw the conclusion that the quality of the construction product of PLH Invest is at a high level (average rating 4.00). There are observed insignificant fluctuations by estate, and the customers of complex B give it the highest average rating – 4.15. The customers of estates A and E for 2012 are most critical with regard to the following indicators: ratio "quality/price" of the construction product, quality of the materials used and quality of construction works.

Published by Info Invest, Bulgaria, www.sciencebg.net
The average evaluations of the company as a whole for 2012 are lower than those for 2011 (except for the rating on the infrastructure around the estate). The reasons for the registered lower average ratings on the company are as follows: (1) the home owners in estate A give considerably lower ratings for 2012 on the following criteria: quality of the materials used, quality of construction works, functionality of the dwelling and infrastructure in the estate; (2) only the home owners in estate B think that the infrastructure in the estate has improved. In the remaining estates the average ratings are lower in comparison with those for 2011.

Table 2. Average evaluations on the satisfaction of the customers with the construction product

<table>
<thead>
<tr>
<th>Criteria for evaluating the satisfaction with the construction product of company</th>
<th>PLH Invest</th>
<th>Estates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of the construction product of “Planex”</td>
<td>-</td>
<td>4.00</td>
</tr>
<tr>
<td>&quot;Quality/price” ratio of the construction product</td>
<td>-</td>
<td>3.96</td>
</tr>
<tr>
<td>Quality of materials used</td>
<td>4.08</td>
<td>3.98</td>
</tr>
<tr>
<td>Quality of construction works</td>
<td>4.06</td>
<td>3.95</td>
</tr>
<tr>
<td>Functionality of the dwelling</td>
<td>4.28</td>
<td>4.29</td>
</tr>
<tr>
<td>Infrastructure in the estate</td>
<td>4.25</td>
<td>4.10</td>
</tr>
<tr>
<td>Infrastructure around the estate</td>
<td>3.27</td>
<td>3.36</td>
</tr>
</tbody>
</table>

Most sceptical with respect to the quality of the construction product for 2012 are the respondents from estates A and E. On the criteria “infrastructure in the estate” and “infrastructure around the complex” the home owners in estate E form average ratings which differ considerably from those of 2011 (about 20% lower average ratings). The reason for that are the usually too high expectations, which later on lead to an unfavourable ratio between "the expected” and "the perception of what has actually been received”, which causes lower levels of satisfaction.

On the whole, in all indicators the customers from estate B are most positive in the evaluation. Only on the criterion of "quality/price” the rating is lower than 4, but this is due to the higher price sensitivity of those customers.

Considerable change in the evaluations on the infrastructure around the estate is found with the respondents from estates A and B. For those living in estate A the change is in the positive direction by more than 20%.
With the help of multiple regression analysis there are established the most significant indicators, which form the sense of satisfaction with the quality of the construction product (Table 3).

If the managers of the company wish that the customers feel satisfied with the quality of the construction product, they must undertake corrective measures in the areas pointed out in Table 3, particularly in cases where the average ratings are lower than 4. At the same time in estate B, where the rating on the infrastructure in the estate is almost maximal and this indicator has a major determining power over the perception of the quality of the construction product, there must be conducted systematic actions in order to keep that positive evaluation.

Table 3. Relative significance of the criteria on forming the satisfaction of the customers with the construction product of the company

<table>
<thead>
<tr>
<th>Company / Estate</th>
<th>Criteria, forming the satisfaction with the construction product</th>
<th>Relative significance of the respective criterion over the perception of the quality of the construction product</th>
<th>Average rating (2012)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLH Invest</td>
<td>✓ Quality of the materials used</td>
<td>34%</td>
<td>3.98</td>
</tr>
<tr>
<td></td>
<td>✓ The ratio &quot;quality/price&quot; of the construction product</td>
<td>24%</td>
<td>3.96</td>
</tr>
<tr>
<td>A</td>
<td>✓ The ratio &quot;quality/price&quot; of the construction product</td>
<td>63%</td>
<td>3.72</td>
</tr>
<tr>
<td>B</td>
<td>✓ Infrastructure in the estate</td>
<td>over 50%</td>
<td>4.50</td>
</tr>
<tr>
<td>C</td>
<td>There cannot be determined a statistically significant leading factor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>✓ Quality of the materials used</td>
<td>47%</td>
<td>3.65</td>
</tr>
<tr>
<td></td>
<td>✓ The ratio &quot;quality/price&quot; of the construction product</td>
<td>33%</td>
<td>4.17</td>
</tr>
<tr>
<td>E</td>
<td>There cannot be determined a statistically significant leading factor</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SATISFACTION WITH THE SERVICE "MAINTENANCE OF THE PROPERTY"

The evaluation of the customer satisfaction with the service "maintenance of the property" is carried out in 17 areas. The scale is tested by means of the criterion Cronbach’s Alpha, upon which there is found a high degree of reliability (the ratings vary in the range 0.807 – 0.920).

The results of the analysis of the service "maintenance of the property" are presented in Table 4. The average evaluations for the overall service of the company for 2012 are higher in comparison with 2011. This is due to the positive perceptions of the respondents from the estates B, C, D and E of the level of service. In estate A the average evaluation on the overall service on the part of PLH Invest decreases.
The home owners in estates A and B have got claims in the following areas: the amount of the monthly maintenance fee, organization of the parking of cars in the estate and unsystematic control over the observance of the internal regulations in the estate.

The respondents from estate A point out areas, in which there must be done some work in order to improve the service: initiative of the personnel in solving the problems of the customers; guarantees on the security and convenience of the inhabitants of the estate; competence of maintenance personnel.

At the same time the home owners in estates A and B are highly satisfied with: the service both on the part of the manager of the estate, and on the part of ordinary employees; with the kindness and the skills of the personnel to communicate with the customers.

The comparison of the overall performance of PLH Invest for the past two years shows that the direction of development of the company in the area of property maintenance is positive – in all indicators of satisfaction with the service there is improvement over the previous year (with the exception of the criterion of "competence of personnel" in which the difference in the average ratings is negligible and is within the standard error). Hence there can be made the conclusion that the measures undertaken by the company in the sphere of services provided have begun to yield positive results and impact the level of customer satisfaction.

Table 4. Average evaluations of the satisfaction of the customers with the service "maintenance of the property"

<table>
<thead>
<tr>
<th>Criteria for evaluation of the satisfaction with the service &quot;maintenance of the property&quot;</th>
<th>PLH Invest</th>
<th>Estates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of overall service on the part of PLH Invest in maintaining the property</td>
<td>3.75</td>
<td>4.23</td>
</tr>
<tr>
<td>Service on the part of the manager of the estate</td>
<td>-</td>
<td>4.32</td>
</tr>
<tr>
<td>Service on the part of ordinary maintenance employees (doorkeepers, cleaners)</td>
<td>-</td>
<td>4.43</td>
</tr>
<tr>
<td>Scope of the service of maintaining the property</td>
<td>-</td>
<td>4.16</td>
</tr>
<tr>
<td>Initiative of maintenance personnel in solving the problems of the customers</td>
<td>3.81</td>
<td>4.02</td>
</tr>
<tr>
<td>Speed of the reaction of maintenance personnel in dealing with problems</td>
<td>3.60</td>
<td>3.97</td>
</tr>
<tr>
<td>Guarantees for the security of the inhabitants of the estate</td>
<td>3.93</td>
<td>3.99</td>
</tr>
</tbody>
</table>
A positive trend is observed in the level of satisfaction of the owners in estate C – on all indicators, for which there can be made a comparison with respect to the preceding year, there is noted an improvement of the performance. The respondents express the highest satisfaction with the kindness of the personnel and their skill of communicating with the customers.

In estate D the situation is almost identical with that in estate C, except for the disappointment of a part of the customers with the competence of maintenance personnel (only in this criterion is there a slight decline in the average evaluation of satisfaction). The home owners in estate D are most satisfied with: the kindness of personnel and their communication skills, the maintenance of the common areas and the service on the part of the ordinary maintenance employees.

With the inhabitants of estate E there is observed a change for the worse of average valuations in the following criteria: speed of reaction of maintenance personnel in solving problems; competence of personnel. Irrespective of the negative trend it should be noted that the average evaluations on the indicators under discussion remain high (in the range 3.82 – 3.91), which means that those are probably due to rare cases, in which customers have been disappointed. The conclusion that has been made is of a high degree of reliability, because there must also be taken into consideration the small number of respondents from that estate, who have agreed to participate in the survey (with a small number of participants the individual deviations from the average values lead to higher impacts on the final result).
Table 5. Relative significance of the criteria on the formation of customer satisfaction with the maintenance of the property

<table>
<thead>
<tr>
<th>Estate</th>
<th>Indicators, ranked by degree of impact on the overall satisfaction with maintenance</th>
<th>Total impact of presented indicators on the overall satisfaction with maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Service on the part of ordinary employees – 14%; Control over the observance of internal regulations – 13%; Kindness of personnel – 12%; Organization of the parking of cars – 12%; Maintenance of the common areas – 11%; Range of the service of maintaining the property – 9%.</td>
<td>71%</td>
</tr>
<tr>
<td>B</td>
<td>The test is not statistically significant</td>
<td>-</td>
</tr>
<tr>
<td>C</td>
<td>Skills of maintenance personnel to communicate with customers – 15%; Control over the observance of internal regulations – 15%; Service on the part of ordinary employees – 14%; Competence of personnel – 12%.</td>
<td>55%</td>
</tr>
<tr>
<td>D</td>
<td>The test is not statistically significant</td>
<td>-</td>
</tr>
<tr>
<td>E</td>
<td>Control over the observance of internal regulations – 20%; Organization of the parking of cars – 18%; Involvement of personnel in the problems of the customers – 15%; Kindness of maintenance personnel – 15%; Amount of the monthly maintenance fee – 14%.</td>
<td>87%</td>
</tr>
</tbody>
</table>

In the realization of the comparisons in the levels of satisfaction for 2011 and 2012 there is also collected information on the customers’ degree of awareness of the actions undertaken by the company after the first year. There are observed particular activities, which were pointed out as recommendations by the customers in the study of 2011. For each of the recommendations the customers give their evaluation choosing from the following options: "There is actual change over the previous year"; "There is no actual change over the previous year"; "I am not acquainted with the actions undertaken by the company".

The distribution of the answers of respondents in the indicated 6 sections is presented in Table 6.
Table 6. Distribution of customers according to their awareness of the measures undertaken for improving satisfaction

<table>
<thead>
<tr>
<th>Measures undertaken by PLH Invest</th>
<th>There is actual change</th>
<th>There is no actual change</th>
<th>I am not acquainted with the actions undertaken by the company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased security for the inhabitants of the estate</td>
<td>44%</td>
<td>34%</td>
<td>22%</td>
</tr>
<tr>
<td>Improved control over the observance of the internal regulations in the estate</td>
<td>45%</td>
<td>38%</td>
<td>17%</td>
</tr>
<tr>
<td>Improved organization of the payment of the monthly fees</td>
<td>37%</td>
<td>42%</td>
<td>21%</td>
</tr>
<tr>
<td>Improved communication with customers as a result of training conducted with the employees in &quot;Sales&quot;, &quot;Projects&quot; and &quot;Maintenance&quot;</td>
<td>45%</td>
<td>24%</td>
<td>31%</td>
</tr>
<tr>
<td>Shortened time for dealing with claims</td>
<td>35%</td>
<td>32%</td>
<td>33%</td>
</tr>
<tr>
<td>Shortened time for reaction following notifications of failure</td>
<td>40%</td>
<td>28%</td>
<td>32%</td>
</tr>
</tbody>
</table>

Between 35% and 45% of all respondents indicate that there is actual change in the service provided to the customers as a result of actions undertaken on the part of the company, following the study of 2011. The most obvious change for the better customers see in the improved communication with the customers, the improved control over the observance of the internal regulations and the guarantees for the security of the inhabitants of the estate.

The percentage of the customers, who point out that there is no change over the previous year varies between 24% and 42%. With the help of the analysis of variance it has been found that the predominant part of the respondents give positive evaluations of satisfaction in the investigated 6 areas and point out that there is no change because during the previous year they were also satisfied with the service (Table 7).

It has been found that only in the area of "control over the observance of the internal regulations" there are customers (4% of all respondents), who express dissatisfaction. Communication with the customers is at a high level - the data shows that the respondents are contented with the way of communication, but are unaware that the company provides training to its employees. Another factor which stands out in a positive plan is the improved organization of the payment of the monthly fees.

In Table 6 there is also data on the relative share of respondents, who are not acquainted with the measures undertaken by PLH Invest in the six areas under study. The lack of information may be due to imperfect communication with the customers, or to the fact that part of the customers have used their dwelling for less than a year (which is why they are unaware of the actions undertaken by the company).
Table 7. Satisfaction of the customers with the actions undertaken by the company

<table>
<thead>
<tr>
<th>Measures undertaken by PLH Invest</th>
<th>Percentage of respondents (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No actual change</td>
</tr>
<tr>
<td>Increased security for the inhabitants of the estate</td>
<td>34%</td>
</tr>
<tr>
<td>Improved control over the observance of the internal regulations in the estate</td>
<td>38%</td>
</tr>
<tr>
<td>Improved organization of the payment of the monthly fees</td>
<td>42%</td>
</tr>
<tr>
<td>Improved communication with the customers as a result of the conducted training with the employees in &quot;Sales&quot;, &quot;Projects&quot; and &quot;Maintenance&quot;</td>
<td>24%</td>
</tr>
<tr>
<td>Shortened time for dealing with claims</td>
<td>32%</td>
</tr>
<tr>
<td>Shortened time for reaction following notifications of failure</td>
<td>28%</td>
</tr>
</tbody>
</table>

In order to provide an answer to the question what is the main reason that respondents are aware of the actions undertaken by the company, there has been carried out an analysis of variance, during which there has been made a comparison between each of the 6 actions of the company under study and the period of time the respondents have been living in their dwelling. The results are presented in Table 8.

Table 8. Opinions of the customers on the actions undertaken by the company for improving satisfaction (according to their experience with the company)

<table>
<thead>
<tr>
<th>Measures undertaken by PLH Invest</th>
<th>Percentage of respondents (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I am not acquainted with the actions undertaken by the company (1) = (2) + (3)</td>
</tr>
<tr>
<td>Increased security for the inhabitants in the estate</td>
<td>22%</td>
</tr>
<tr>
<td>Improved control over the observance of the internal regulations in the estate</td>
<td>17%</td>
</tr>
<tr>
<td>Improved organization of the payment of the monthly fees</td>
<td>21%</td>
</tr>
</tbody>
</table>
Improved communication with the customers as a result of the conducted training with the employees in "Sales", "Projects" and "Maintenance" 31% 10% 21%

Shortened time for dealing with claims 33% 11% 22%

Shortened time for reaction upon notification of failure 32% 10% 22%

Best communicated to the customers is the first area of the undertaken 6 measures - security for the inhabitants. In the remaining five areas it is found that between 11% and 22% of the home owners (who have used their homes for more than a year) are unaware of the fact that the management of PLH Invest has undertaken definite actions for improving the comfort of its customers. This means that there must be focused additional effort on the part of the company for the better positioning of its efforts in the minds of its customers in the following areas: time for dealing with claims; time for reaction upon notifications of failure and methodical training of personnel.

Useful information on the efficiency of communication is the share of the respondents from the individual estates, who are not acquainted with the actions undertaken by the company (Table 9).

Table 9. Percentage of the respondents, who are not acquainted with the actions undertaken by the company (by estate)

<table>
<thead>
<tr>
<th>Measures undertaken by PLH Invest</th>
<th>Relative share of the respondents by estate, who have pointed out that they are not acquainted with the actions undertaken by the company</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Increased security for the inhabitants in the estate</td>
<td>28%</td>
</tr>
<tr>
<td>Improved control over the observance of the internal regulations in the estate</td>
<td>8%</td>
</tr>
<tr>
<td>Improved organization of the payment of the monthly fees</td>
<td>20%</td>
</tr>
<tr>
<td>Improved communication with the customers as a result of the conducted training with the employees in &quot;Sales&quot;, &quot;Projects&quot; and &quot;Maintenance&quot;</td>
<td>36%</td>
</tr>
<tr>
<td>Shortened time for dealing with claims</td>
<td>20%</td>
</tr>
<tr>
<td>Shortened time for reaction upon notification of failure</td>
<td>20%</td>
</tr>
</tbody>
</table>

In the individual estates there are found the following deficiencies in communicating the measures undertaken by the company:
(1) In estate A – communication with the customers (of crucial importance), security for the inhabitants; organization of the payment of the monthly fee; time for dealing with claims and time for reaction upon notifications of failure.

(2) In estate B there are not found any problems at the time of writing. The percentage of those unacquainted is due to owners, who have been using the property for less than a year.

(3) In estate C there are problems with the communication of the undertaken actions in each of the 6 areas under study, but the most serious problems are connected with the following: the time for dealing with claims, the control over the observance of the internal regulations and the organization of the payment of the monthly fee.

(4) Estate D – with the exception of the first area (security for the inhabitants), all the remaining areas are problematic from the point of view of notifying the inhabitants of the undertaken actions. Particular attention should be paid to the following areas: organization of the payment of the monthly fees; improved communication with the customers; time for dealing with claims and time for reaction upon notification of failure.

(5) Estate E - it is desirable that more attention is paid to communication in the following areas: time for reaction upon notification of failure (of crucial importance) and time for dealing with claims.

If the managers of PLH Invest wish that the invested funds, effort and time in creating better living conditions for their customers are evaluated positively, they must find the appropriate forms of communication with the home owners in the respective estates. These efforts must be profiled in accordance with the conclusions that have been made.

CONCLUSION

Satisfaction possesses proven effect on the aptitude of the customers for the realization of repeat buys, the circulation of positive or negative information about the supplier, about its products and brands. In this line of thoughts customer satisfaction determines the cash flows of sellers. A considerable part of the managers are aware of the effects of customer satisfaction on the market results of their companies. Nevertheless there is still observed lack of understanding of the mechanism for the formation of satisfaction, which calls into question the correctness of the procedures on its evaluation and management decision making. That is why in this study there are initially presented the reasons for the interest in customer satisfaction, followed by an analysis of its nature, elements and characteristics. After a systematization of the approaches for the formation of satisfaction there is designed and tested a set of methods for its analysis. The main idea is to illustrate our proposition that satisfaction has specific measures depending on the particular context.

The conducted study draws the attention towards the thesis that the adequate analysis of customer satisfaction is accompanied by a number of difficulties and it is necessary to keep in mind a number of considerations. Analysts must pay particular attention to the way, in which there are drawn the operating variables of satisfaction. It is possible that isolated groups of customers have different priorities, which would determine the different weight of the individual factors forming satisfaction. For instance, customers with lower income are, as a rule, more price-sensitive and it is logical that the latter would take precedence in the formation of their level of satisfaction (dissatisfaction). Another group of customers insists on high quality and is not inclined to compromise in that respect, as price for those people is of secondary importance. Therefore analysts must be familiar with the way the individual groups of customers define satisfaction and which particular factors make them feel satisfied or
unsatisfied. On that basis various ratings of satisfaction can be interpreted correctly and there can be an adequate reaction involving specific marketing activities.

The selection of respondents can also distort the level of satisfaction. Home owners cannot easily switch to alternative suppliers in view of the specific character of the product they own. It is however their decision whether they will take part in the survey or not. It is possible that greatly disappointed customers would not agree to participate, which means that in the study there may be included customers, who are more positively disposed. Also, some customers are more sincere, while others do not wish to express their disappointment directly. These differences in customer standards can affect the evaluation of satisfaction.

The selection of customers according to the moment in time in which they did their last purchase also affects results. With the purchase of homes there is observed complex behaviour in which customers are strongly involved and usually use mortgage credit in order to close the transaction. In that sense the purchase of a home is accompanied by a highly emotional impulse, which is reflected in the level of satisfaction, i.e. the response of the customer will generally be most intensive immediately after the purchase. The recession of the moment of the survey from the actual conclusion of the transaction leads to abatement in the intensity of satisfaction or dissatisfaction under the influence of various factors, such as: gathering of additional information on competitive products; impressions of the use of the product, etc.

In the analysis of the data on satisfaction, an organization can interpret rating differences between the various groups of customers as a signal that some customers receive a better service than others, hence their satisfaction is higher. In reality the reason may lie in the different standards of the customers. In order to avoid this problem it is recommended that there is conducted a permanent tracking survey of satisfaction by individual groups (segments).

We must be aware that, in itself, the established level of consumer satisfaction makes no sense if the management of the respective company does not use this indicator in order to undertake certain actions, connected with the market (e.g., adaptation of prices, modification of the product, launch of promotional activities by segment, etc.). The results on the level of customer satisfaction can be useful for the respective company only on condition that their managers use these indicators for measuring "the pulse of the market" and conforming their marketing activities with the registered changes. The fact that customer satisfaction is high does not mean that everything in the company is in order. Some managers, wishing to attain and permanently keep the satisfaction of customers at a high level, begin an unjustified spending of additional funds in order to captivate customers, without taking into consideration the return by individual customers. Hence the concept of maximizing customer satisfaction is subject to criticism from the point of view of the maximization of the efficiency of the company. Marketing specialists must design and adapt their offers in such a way that they manage to achieve a reasonable equilibrium between the level of customer satisfaction on the one hand, and the achievement of efficiency (from the point of view of invested resources and obtained results) of the company, on the other.

REFERENCES


ROLE AND SIGNIFICANCE OF INTANGIBLE ASSETS IN ENSURING THE EFFICIENCY OF ECONOMIC ACTIVITY OF RETAIL ENTERPRISES

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Abstract

The article is devoted to peculiarities of identifiable and unidentifiable intangible assets functioning in trade, their roles in the achievement of the positive economic effect by retail enterprises, market cost of intangible assets and the companies that own them, the nature and trends of intangible assets influence on the economic efficiency of trade companies.

Keywords: intangible assets, trade, retail, retail enterprise, efficiency, effectiveness, management, peculiarities, approach, identifiable intangible assets, unidentifiable intangible assets, value, valuation, income approach, cost approach, comparative approach, factors.

1. INTRODUCTION

The rapid development of chain retailing has led to the emergence of enormous commercial entities having a high goodwill and a strong brand and selling goods under private labels (including their own trade names). The positive intangible characteristics have a beneficial influence on customers and serve as a source of additional competitive advantages for retail enterprises, producing more and more influence on the results of their activity. While having a low book value, unique intangible assets (IA) constitute a considerable part and frequently the bulk of the market value of trade companies and become a key factor in the efficient utilization of their physical capital.


The characteristics of the economic mechanism of the retail organizations functioning, methods of evaluation and ways of increasing their efficiency were analyzed by Bragin (2010), Ivanov (2012), Kravchenko (2009), Solomatin (2009).

However, despite the fact that the authors mentioned above achieved some results in their studies, at the moment the problems of IA functioning as part of property of the retail organizations and their roles in the efficient retail activity are still practically unstudied.
2. THE NOTION OF INTANGIBLE ASSETS IN RETAIL ENTERPRISES

The study of IA implies their clear definition which is complicated by a manifold of official approaches and views of specialists in various fields (accounting, valuation, law, marketing, etc.) as well as by objective language difficulties associated with the nonequivalence of some terms in different languages.

International Financial Reporting Standards define IA as an identifiable non-monetary asset without physical substance. An asset is a resource that is controlled by the entity as a result of past events and from which future economic benefits are expected (IAS 38). According to International Valuation Standards IA is a non-monetary asset that manifests itself by its economic properties. It does not have physical substance but grants rights and economic benefits to its owner (IVS 210). Lev (2001, p.5) considers IA as “a claim to future benefits that does not have a physical or financial (a stock or a bond) embodiment. A patent, a brand, and unique organizational structure that generate cost savings are intangible assets”.

IA in the most general sense, without considering the particular sphere of application or the rules of a certain state, are a group of assets characterized by the following: absence of material form; long-term use; ability to provide economic benefits (income) to the owner.

From the standpoint of trade performance, it is expedient to treat IA as specific assets that have no physical content but exert their influence on the results and efficiency of the financial and business operations of trade organizations. In such interpretation, IA are the entire intangible component of a company including both “classic” identifiable assets (patents, trademarks, geographical indications, trade names, etc.) and unidentifiable assets (characteristics, attributes) that also affect enterprise performance but, due to their particular qualities, cannot be reliably estimated, alienated and so forth. The aggregate of those unidentifiable IA forms goodwill of a trade company. This approach conforms to the general trend of IA development that consists in a gradual detailing of the intangible component of business.

The most significant identifiable IA in retail are trademarks, geographical indications and trade names. Whereas identifiable IA have been closely analyzed in scientific papers, unidentifiable assets require a more in-depth study.

In our opinion, the following should be attributed to unidentifiable IA of a retail enterprise:

- Intellectual capital embodied in knowledge, skills, qualification, experience, personal business relationships of the employees

Organization’s goodwill depends on the personal qualities of both the managerial staff and frontline workers. Personal achievements, business relationships, leadership traits, constant qualification improvement of each particular employee simultaneously raise the reputation of the whole enterprise.

- In-house relations

Relations inside the company depend on organizational structure, corporate culture, the top managers’ ability to make an optimal use of the available labor resources, motivate the personnel to achieve the goals set and psychological compatibility of the working team members, etc.

- Relations with contractors

Stable business connections with counterparties (companies that provide goods advertising, marketing, promotion and distribution services, consulting companies, etc.) are created thanks to the company’s long-term and successful work on the sales and supplies market.
Relations with customers
The main criterion of efficient relations with customers is their loyalty to the seller or specific item. Stable relations with the customer are first of all formed by efficient marketing aimed at detection and satisfaction of market needs.

Quantity and quality of extra services
In the present-day conditions of harsh competition, a positive image can be formed in the customers’ minds only with the maximum satisfaction of their requests achieved by providing the widest range of services. Such services may be related to productive functions and different service offers.

Purchase convenience
Present-day customers often call convenience as the main criterion for choosing a shop, that is, good location, convenient layout, high speed of serving, etc. At the same time, the customer’s desire to visit the shop and consequently, make purchases, depends on the atmosphere in the retail space created by the interior decoration, behavior of shop assistants, lighting, musical background, aromarketing.

Level of innovational development of an enterprise
Mobile applications, QR codes, RFID technology, touch screens, etc. are widely applied by chain retailers and have been already recognized by their customers. Modern technologies are changing the method of conducting retailing business – mobile commerce is developing, shops and their Internet subdivisions are integrated. Innovational characteristics of the retail enterprise determine its unique character, increase the shop’s attractiveness for customers, create high quality and prestige-related associations.

Relations with nonprofit public organizations, mass media, etc.
The company does not exist in isolation, it is involved into a system of complicated interaction with the outer world, and goodwill is created in the process of public relations and depends on the norms and standards accepted in this society. Availability of special funds, charity campaigns, etc. are aimed not only at performance of certain social functions but also at goodwill strengthening.

Information resources and information technology
Information resources (customer bases, working documentation, feedback data and any other data in the digital form) play an important role in retail (especially in large chain entities). A well-arranged system of collection, processing, storage and protection of such information is the most important condition for successful functioning of the enterprise.

Financial standing of an enterprise
The indicators of the financial and economic activity, calculated on the basis of accounting data, serve as one of the most reliable sources of information about the situation on a particular enterprise. The capital structure, activity ratios, liquidity ratios and other financial indicators give a clear idea about the company’s difficulties and possibilities.

As the intangible attributes specified above are not the company’s property, they are not classified as independent, “classical” intangible assets, but are assessed and accounted only as a part of goodwill. However, the fact that they can bring benefit to the owner is more substantial and determines the necessity for their purposeful management.

That said, unidentifiable IA have an economic value only as a body and in relation to a specific enterprise, that is, they are unalienable, interrelated with each other as well as with tangible assets and identifiable intangible assets.
A prerequisite for an effective management of IA in commerce is an integral system of their operation features. A review and analysis of the literature dedicated to the operation of trade organizations and IA show that at the moment such system has not been formulated yet.

From our point of view, the operation features of trade enterprises’ IA are characterized by the following. Firstly, in the operation of trade organizations the most important are marketing IA, that is, brand identities which are not connected with R&D and are not direct results of intellectual activity. Secondly, IA of manufacturing enterprises exercise significant influence over the operational efficiency of trade companies. Thirdly, trade organizations face an issue of choosing manufacturers and trademarks. Fourthly, although it is customary that the exclusive rights to the trademarks of goods that are marketed by trade enterprises are held by manufacturers, the development by retail chains of their private labels has become a worldwide trend. Finally, a scheme for the transfer of IA by organizations to other organizations (franchising) is popular in commerce.

Special attention should be paid to brands that represent intangible properties being of paramount importance for commerce and that, in the strict sense, come neither under identifiable nor under unidentifiable IA.

3. VALUATION OF INTANGIBLE ASSETS

One of the basic criteria for IA management is their market value.

IA, just like any other kind of assets, may be evaluated using three approaches: income-based, expenses-based and comparative. Each approach implies a set of particular methods and is aimed at the achievement of the same principal goal – arriving at the justified cost indicator of the evaluated object as of a particular date.

As a rule, the expenses-based approach is the least frequently used to evaluate IA. Despite relative accessibility of the source data and calculation procedures, this method of evaluation quite often brings an erroneously low result. It is practically inapplicable while evaluating the means of identification (trademarks, geographical indications, trade names), IA which are the most important for trade. So the expenses-based approach is most often applied to calculate the minimal IA price below which the transaction becomes unprofitable for the owner; to evaluate new IA that have no analogs; when it is necessary to correct the results received with the use of other methods.

A comparative (market) approach to IA evaluation often yields more trustworthy and convincing results, and this is the most precise method if there is sufficient information. However, its application is complicated due to absence of a developed IA market and confidentiality of information on the transactions concluded there; uniqueness and specific nature of each asset; and also labor-intensity and duration of the required studies.

The income-based approach is the most widely used to evaluate the cost of IA: a potentially possible sum of income received is determined and equaled to the current cost of the expected income flow from the use of evaluated asset in the economically justified term of beneficial use. The methods of income-based approach make it possible to evaluate the cost of IA from the standpoint of its contribution to the company’s general profitability, which seems to be the most trustworthy and complies with the key principle of evaluating activity – (Modigliani-Miller theorem) in accordance with which the company’s cost depends only on the amount of cash flow it brings and does not depend on the structure of assets.

The main difficulties of the income-based approach application are related to the necessity of using a large amount of forecast data and the results of expert evaluations.
However, IA evaluation has its peculiarities which considerably complicate determination of their value, including in comparison with evaluation of other assets.

From our point of view, considerable complexity of IA evaluation is conditioned by the following factors.

Firstly, evaluation of separate IA types has its peculiarities, and different methods, used only for this kind of assets, are used within the framework of traditional approaches. Thus, evaluation of trademarks is based on specific methods; along with theoretically based, empiric and reproducible methods, there are “closed” methods used by their developers only, for instance, the method of trademarks evaluation of the Interregional Society of Industrial Property Assessors. A large number of evaluation methods also has its positive side as it allows to evaluate particular assets at a higher precision.

Secondly, when IA is evaluated, the uniqueness of each separate asset is shown to a large extent. The said peculiarity is also true of non-traditional (non-conventional) trademarks (shapes, colors, sounds, etc.) which are impossible to evaluate using only the market approach.

The third factor complicating IA evaluation consists in the fact that the cost of all the organization’s IA does not equal the sum of costs of separate assets, that is, correct evaluation is only possible considering their mutual connection and influence. Evaluation of goodwill is especially complicated.

Another, fourth, difficulty in IA evaluation is the necessity to take into account possible risks. It should be considered that IA-related risks are usually somewhat higher than the risks related to investments in material objects. This increases the complexity of forecasting the cost of the asset and even the possibility of its using in the company’s activity.

The fifth factor that complicates IA evaluation is determined by the possibility of simultaneous IA use to receive different profits. Different variants of IA application do not compete for possible alternatives of income generation and do not result in lost profit which inevitably arises in respect of the assets which can be used only in one place at a particular moment.

Sixth, despite the fact that separate IA are independent economic entities having their own value, their combination with tangible assets ensures additional income for the owner at the expense of mutual connection. So, when IA is evaluated, we should take into account that their cost depends on IA’s contribution to the company’s total income.

Finally, the seventh factor that complicates IA evaluation is conditioned by the necessity of solving a number of problems connected with their identification and legal protection. This task is complicated due to faults in legislation in the sphere of intellectual property rights protection. When intellectual property is evaluated, we should take into account the following two legal aspects that influence its cost: firstly, term of the exclusive right; secondly, expenses due to the necessity of increasing legal protection of the exclusive right and a potential possibility of its violation.

We should separately note that it is practically impossible to evaluate separate non-identified IA each of which produces more or less influence on the company’s working results but is considered as only one of the elements that form the business reputation.
4. INTANGIBLE ASSETS INFLUENCE ON THE RESULTS OF ECONOMIC ACTIVITY OF RETAIL ENTERPRISES

Economic efficiency is traditionally determined by the ratio of results received in monetary terms to different resources (material, labor, financial, information) spent on their achievement (Bragin, 2010). With all other conditions being equal, the company’s activity may be considered more efficient if its expenses ensure higher results or if these results are received with lower expenses.

The indicators that characterize the effect of economic activity of a retail enterprise include:

- The volume of goods turnover, its change over time (the financial expression of the goods turnover is the income received by the enterprise):

- Volume and dynamics of expenses (in the period):

- Volume and dynamics of income and profit.

Besides, the effect may be determined as the difference between the values of different parameters of retail enterprises as of the beginning and end of the considered period.

In the present-day conditions of harsh competition, retail enterprises seek new sources of increasing efficiency, including at the expense of IA.

The specific nature of IA influence (in comparison with tangible assets) on the economic efficiency of retail enterprises is conditioned by the absence of material aspect in them and is characterized by the following.

1) While traditional tangible assets may only be used at one place in the given period of time, which inevitably results in the appearance of the lost profit (opportunity costs), IA do not compete for possible alternatives of income generation and may be used in different spheres at the same time.

2) Efficient tangible assets management allows the organization to achieve a competitive advantage in the short-term period as competitors can quickly reproduce them. IA create a competitive advantage in the long run. Investments in IA for the purposes of long-term profit growth interfere with reduction in expenses to achieve quick financial results. So it is important to balance the short-term financial goals of decrease in expenses and increase in efficiency with the long-term goals of sustainable profit growth in the context of a single strategy.

3) As IA themselves do not possess a real value, their role in the results of the company’s work is only visible in presence of other intangible and, the main things, tangible assets. Moreover, all the assets should conform to each other and the strategy realized by the organization. The transformation of potentially useful IA into a real instrument of increasing the efficiency of the retail enterprise is only possible if they are related to other assets and strategically appropriate.

4) IA operational activity may change regardless of the term of their use, and more often it shows increase, not decrease, over time. At the same time, newly introduced IA (means of identification) cannot bring profit at once, time is needed for their recognition by consumers, and the oldest trademarks are the most valuable ones.

5) While identifiable IA produce direct influence on the results of the company’s work (customers are ready to pay more for the goods with well-known trademarks), the influence of non-identifiable IA often has a mediated nature.

On the whole, the presence of “strong” IA:
- increases the company’s market cost (which helps receive an additional economic effect during its sale, issue of shares and bonds, receiving a credit, etc.);

- gives a possibility for the development of trademarks and turning them into brands (which raises the company’s competitive advantage, ensures stable demand and volumes of realization);

- ensures the monopoly rights of the organizations to this or that intellectual property object (in terms of identifiable IA);

- allows to create network structures and expand business on the basis of such forms of business activity as franchising and license trade.

IA influence on the effect and efficiency of trade organizations is produced in two main directions:

- by using IA in proper financial activity during goods realization or in the process of management (in this case, IA gives additional income to the enterprise from goods realization or increases profit as a result of saving on expenses);

- by full or partial transfer of rights to IA to third persons (in this case, the enterprise receives profit from the realization of property rights to intellectual (industrial) property objects).

The choice of this or that method of IA application is based on the results of marketing studies which make it possible to predict the expected results.

To choose the most efficient method of IA use, we should bear in mind that the enterprise receives the biggest economic effect (profit) from the monopoly use of this or that asset in its own commercial activity, that is, during provision of services related to goods realization. At the same time, due to the possibility of simultaneous use of one and the same IA by several persons, the rights to IA may be transferred to other enterprises, but it is evident that the parallel use of IA in different directions to achieve the maximum effect cannot help reflecting on the conditions of such use.

REFERENCES


THE TRANSMISSION OF SHOCKS INTO A SMALL OPEN ECONOMY

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Abstract

The article discusses theoretical background of economics shocks and ways of shocks transmission into a small open economy. As an example is taken Czech Republic. The impacts of shocks are identified based on the macroeconomic indicators, GDP, consumer prices, house prices, loans. After examining the possibility of shocks transmission there are detected the channels with which the effects of shocks enter the economy.

Key words: macroeconomic shocks, macroeconomic indicators, small open economy, theoretical background

1 ECONOMIC SHOCK - THEORETICAL BACKGROUND

Teoretical aspects of economic shocks can be specified as a topic solved in works to a lesser extent. Most of works deal with problems of economic shocks primarily on empirical level. However, it's possible to find some summarization of theoretical aspect of economic shocks. Criteria used in this work was by Černíková's thesis (Černíková, 2012).

Under the general economic knowledges there is an economical shock considered as incident that affects the economy with some degree of unexpected. The causes of this happening, the character and conduct, and of course the impact on the economy can vary considerably. In this case, there arises a temporary situation of macroeconomic indicators deviation from their normal values.

It's possible to classified the shocks according to:

- the nature
- time of duration
- way of formation
- the impact on economic activity
- the impact on the individual monetary union country
- the impact within a single country
- by sector of the economy, which affects

According to nature, it's possible to distinguish between supply and demand economic shocks. The influence of supply and demand shocks on the economy is different in terms of the length of the period.

In terms of short-term period, both the shocks affect the price level and the product. The influence of both shocks on the product is the analogous. According to podle the impact on economic activity, negative shocks lead to reduction of the product, positive shocks induct growth of the product.
But the effect on the price level is different. A negative demand shock leading to its decline as a negative supply shock will be reflected in its growth.

In the longer term consequences of shocks are considerably different. Demand shock in the long term does not affect the product level, it only affects the price level. They are thus referred to as a nominal shocks. On the contrary, in terms of long-term period supply shock affects not only the level of the price level, as well as product. The supply shocks are therefore called real shocks (Černíková, 2012). The division between monetary and real shocks reflects a sector of economy, which is affected by the shock.

Sources of demand shocks can be classified as changes in monetary policy, changes in the amount of the expected price levels, unexpected changes in exchange rate as a monetary factors. Other factors, called as real factors are optimistic, hence pessimistic expectations about the future development of the economy, pessimism or optimism of consumers and investors, as well as fiscal policy expenditures or changes in net export.

Supply shocks can stem from cost shocks. They are typically caused by the growth in energy prices and rising wage demands. They can also be arise from causes technological changes or changes in the capital stock of the economy. An event caused by natural disasters (floods, etc.) can be also considered as a supply shock.

On the issue of the alignment level of economic shocks usually works with the correlation coefficients. Černíková their work defines intervals jednotlié category alignment. Economic shocks strongly positively correlated (high correlation coefficient) show a high degree of similarity. Another group of economic shocks are weakly positively correlated - this is a slightly symmetric shocks with a correlation coefficient approaching zero. Economic shocks weakly negatively correlated are considered slightly asymmetrical, their correlation coefficient is a weak negative value. Economic shocks strongly negatively correlated with a high level differences, they can be regarded as misaligned, or asymmetric, their correlation coefficient is very low.

On the issue of the harmonization level of economic shocks, autors usually work with the correlation coefficients of shocks. Černíková defines in their work intervals of harmonization category (Černíková, 2012). Economic shocks strongly positively correlated (high correlation coefficient) show a high degree of similarity. Another group of economic shocks are weakly positively correlated - this is a slightly symmetric shocks with a correlation coefficient approaching zero. Economic shocks weakly negatively correlated are considered slightly asymmetrical, their correlation coefficient is a weak negative value. Economic shocks strongly negatively correlated with a high level differences, they can be regarded as misaligned, or asymmetric, their correlation coefficient is significantly negative.

According to a way of formation, there can be differentiate the internal shocks (endogenous) - the cause of their formation occurs within the economy – and external shocks (exogenous) - factors causing shocks occurs outside the existing economy, abroad.

According to the impact on the individual country monetary union can go on:

- symmetric shock - similar impact on all the countries of the monetary union (EMU)
- asymmetric shock - with a different impact on the individual EMU countries or regions within a country
- symmetric shock with asymmetric effect - same event leading to different effects in different member countries of the monetary union (eg different response of countries to the single monetary policy)

About symmetric shocks also speak Wyplozs and Baldwin (2006). They add that even symmetric
economic shocks may have asymmetric effects. Different reactions may be rooted in different socio-economic structures, including different rules and traditions of the labor market, the role of the financial and banking sector, the ability to agreements between companies, unions and the government, etc. (Baldwin, Wyplosz, 2006).

The most common way to calculate the supply, demand and also exchange rate shocks is to use VAR with long-term multipliers, which was presented by Blanchard and Quah (1989) (Benčík, 2011).

Černíková (2012) in his thesis concludes, that the Czech Republic has very similar results as the other Visegrad countries. Occurrence of supply shocks in the Czech Republic does not have symmetry and with other V4 countries, even with the whole EU-15. Supply shocks affecting the Czech Republic and are neither symmetrical nor asymmetrical towards other countries (Černíková, 2012).

2 ECONOMICS SHOCKS IN A GLOBAL VIEW

Fidrmuc and Korhonen (2001) states that Bayoumi and Eichengreen (1993) presented that the degree of correlation of economic shocks can be negatively affected only by specific supply shocks. There is the assumption that demand shocks and aggregate supply shocks should operate uniformly.

This gives the possibility for the theory of the Monetary Union to be inspiring for the area of cross-border transmission of shocks.

As stated by Frankel and Rose (1998), most literature interested in OCA theory examines interrelations potential members of the monetary union in 4 areas: trade, similarity of shocks and cycles, the degree of labor mobility and a system of fiscal transfers. The closer the relationship between the countries surveyed according to any of the above criteria, it is beneficial for these countries to join the monetary union.

Analysis of supply and demand shocks as well as dealing with Babetskii (2005), to determine whether closer trade ties are also higher Synchronicity economic cycles. The opposite would occur mpřipadě specialization of countries. The analysis is carried out on time series exchange rate and the size of the business transition economies and the EU-15. The investigation used a multivariate VAR model by Blanchard and Quah (1989). This model should be able to separate the effect of shock from the government's response to it - apart from examining the correlation coefficients for the time series of real output between countries. Moreover, the model is also able to detect whether there is a demand or supply shock. Conversely, it seems like a disadvantage of this model, that it does not distinguish whether the observed shock is caused by fluctuations in domestic or foreign enviroment. Shocks are treated as unexplained component in the growth rates of output or inflation. Supply shock may have accepted definition of short-term and long-term effect on both output and the price level. On the contrary, demand shock may have short-term effects on output and the price level, but it can no longer cause a lasting effect on output (Babetskii, 2005).

3 SMAL OPEN ECONOMY

The term closed economy means an economy that does not enter into foreign economic relations and the entire product is consumed only inhabitants of the country. In contrast, open economy is engaged in foreign economic relations. Consequently, part of domestic production is exported and consumed abroad and vice versa of domestic income is devoted to the purchase of imported goods from abroad (Lacina, 2011).
However, no economy is not a closed system, but is connected to the external economic environment. In practice it can meet with a mixture of these two extremes. An example of an open economy is the Czech Republic.

Total external trade, the economy is characterized by indicators of exports and imports of goods and services. Exports and imports of goods and services are recorded in the current account balance of payments of the country.

Deficit or surplus of the current account surplus is covered or financial account deficit and ultimately leads to pumping or increase reserves. The external balance is to maintain and strengthen the overall macroeconomic stability by challenging the more open the economy to world markets, thus becoming more exposed to transmission of the external environment influences. With increasing degree of openness increases exposure to foreign influences, sensitivity and receptivity behavior all local economic operators on the behavior of the outside world.

The degree of openness of the economy is a quantitative expression. In the local and international macroeconomic analysis there is usually expressed in terms of the following ways:

- turnover of foreign trade / GDP,
- EX / GDP, IM / GDP
- EX, IM / home AD, total AD (Sojka, 2009).

Chard 1 - Degree of openness of the Czech Economy

![Graph showing degree of openness of the Czech Economy]

Source: Czech Republic – small open economy (Mastelová, 2011)

However, the negative balance of foreign trade we can not assess negatively, since no barrier to growth, but the valve overheating economy.

The negative impact of the financial crisis and recession in the euro zone was observed at the end of
2008 against the Czech economy. The decline in exports increased constantly after each month. However, this situation was slightly offset by lowering the prices of oil and other raw materials, which are important for the import of the Czech Republic. This was related to a weakening of the Czech koruna, which brought effect on the trade balance in terms of increased competitiveness of Czech products (Mastelová, 2011).

4 REAL ECONOMY – MACROECONOMICS ENVIRONMENT OF CZECH REPUBLIC

The global economy in 2010, returned to the unexpectedly rapid economic growth. In the Czech republic, as in other developed countries, except Germany and Sweden, the extent of recovery can be described as mild (CNB, 2011).

The source of uncertainty and financial stress across the EU have been persistent concerns over the deepening debt crisis in the euro zone, and doubts about the ability of many European banks to secure a sufficient amount of funding liquidity. The conditions in lending in developed countries were almost normalized and the risk indicators returned to the long-term level, but the high degree of uncertainty in some areas needs supporting the continuation of policy by central banks. During the year 2010, Due to the nature of the Czech economy featured strongly adverse supply shock increases in commodity prices (CNB, 2011).

In 2011 growth in economic activity in the euro area and the EU as a whole, partly slowed. For reasons can be labeled a high degree of uncertainty, the impact of the debt burden of the private sector in an environment of very slow income growth, and the consequences of continued fiscal consolidation. But the results were across regions and countries very erratic. The annual decline in GDP growth rate was higher than expected. In global view, partly contributed to the decline in output in Japan, which was related to the impact of natural disasters. The overall development in the euro zone had a positive surprise when the real growth of the German economy significantly exceeded forecasts. Between the euro area member states, however, appeared increasing differences (CNB, 2012a).

The world economy entered the year 2011 under the influence of optimistic expectations. Economic growth in developed countries, however, during the year mainly due to the euro zone debt crisis weakened in a continuing trend. In response to the evolution of monetary policy remain significantly relaxed, which reduces the potential increase in credit risk due to the increased real cost of servicing the accumulated debt. This applies especially to the household sector, which is facing an adverse situation on the labor market dynamics and decreased labor income. Adverse consequences for household incomes have negative supply shocks in the form of rising energy prices and taxes. In terms of the domestic economy remains the main risk scenario pronounced slowdown in economic growth in Germany and other countries that are important trading partners of Czech companies. In the longer term, it may become a risk factor weakening external position of the Czech economy to foreign countries. This weakening significantly related to the growth of domestic public debt (CNB, 2012a).
Chard 2 – Growth in World Real GDP

![Chart showing growth in World Real GDP](chart.png)


This graph shows the situation of world GDP over the years 1990-2012. More than half of emerging market and developing economies became negative growth in 2009. But the trend went quickly back, and during 2010–11 many of this economies grew at or above rates level before crisis. As a result, they now represent for virtually all of the global growth (IMF, 2012).

**5 OIL SHOCKS**

Significant work in the development of oil prices and reaction of monetary policy was given during the 80’s, when the global economy suffered losses due to the oil shocks. Recently, interest in the reaction of monetary policy and commodity prices recovered. in the report analysts British investment bank HSBC, King likened oil prices to "new Greece" (King, 2011), ie to the next great threat to the EU economy. This finding illustrates the concerns persisting on the financial markets. Barely slightly faded tension that developed in connection with the debt of EU countries, economists have come with a warning in
Along with the increasing energy consumption is increasingly mentioned topic exhaustibility fossil resources. Energy is one of the sectors which more or less subject to bureaucratic administration in all democratic societies. The reason for this extraordinary care is inclusion of energy between the so-called "key sectors", which are expected to affect the large impacts of demand shocks in the economy (Rojíček, 2007). In addition as a key reason for the justification largely interventionist especially in the field of renewable energy often relies on the argument of public interest.

During the study of the impact of energy price shocks Kilian (2008) states as the basis of the hypothesis, that businesses and consumers are responding in proportion to the percentage changes in energy prices, regardless of the size changes. There are other models of behavior, one alternative is the possibility that consumers and businesses are only sensitive to large shocks. A third possibility is that consumers and businesses are only sensitive to changes in energy prices, which are unprecedented in modern history (Kilian, 2008).

Baskaya, Hulagu, and Kucuk (2012) state, that in the setup without debt accumulation, there are two channels through which oil price uncertainty affects economic activity. First of them is the way of higher uncertainty about oil prices makes capital more risky and discourages investment. As a second way, higher uncertainty increases precautionary savings, which in turn leads to higher investment as there are no other assets to accumulate. Because of substitutability degree between oil and other factors of production is realistically low, the precautionary saving motive dominates and this model generates an increase in physical investment and real GDP. This is "at odds with the empirical endings in the literature such as Fuderer (1996), Guo and Kliesen (2005) and Elder and Serletis (2010). When the model is extended to allow for debt accumulation via international bonds, we show that the strength of the second channel diminishes as agents can increase their precautionary savings by buying international bonds rather than investing in physical capital which becomes more risky due to higher oil price uncertainty. As a result, the model with international bond as an extra asset can generate a fall in investment in response to higher oil price uncertainty in line with the data. In contrast, the degree of integration to international financial markets is not crucial for the business cycle implications of the shocks to the level of oil prices whereby higher oil prices necessarily dampen the investment and economic activity (Baskaya, Hulagu, Kucuk, 2012)."

As concluded by Frait (Frait,2006), talk about the causes of oil prices is complex. Estimating the impact of macroeconomic developments and to derive recommendations prooptimální monetary policy is even more complex. There are occasions:

- do not move within a closed economy,
- exchange rate movements significantly complicate the analysis
- oil prices may not be exogenous to monetary policy,
- conversely react to monetary policy and monetary conditions (interest rates, exchange rates)

Linking interest rates and oil prices have already explained Hotelling model of 30 years (Frait, 2006).

Similar is message of is the Baskaya, Hulagu, and Kucuk (2012) conclusion. Results of their model imply that the effects of adverse oil price level shocks can be significantly amplified when uncertainty increases at the same time. That is, if periods of serious hikes in oil prices are also associated with a significant rise in the uncertainty regarding future oil prices, the recessionary impact of oil shocks would likely to be stronger going forward. Indeed, as it was observed in some episodes, increases in the

oil prices, and rising oil prices have a very large radius of influence.
volatility of oil prices can be much higher than increases in their level. If we simulate such a case using our model, we observe that adverse effects of oil price hikes are almost doubled, while the impact of oil price declines are muted if they are accompanied by significant increases in uncertainty. These results are consistent with the findings of the empirical literature emphasizing the asymmetric effects of oil price changes (Baskaya, Hulagu, Kucuk, 2012) 

**Chard 3 – Rotterdam product prices – oil prices**


**Chard 3 – US Gulf Coast product prices – oil prices**

It is quite difficult to determine how large part of the price of oil comes from supply and demand and how large part is built of concerns in the financial markets and of speculation.

Both graphs show the development of oil prices over the years. There is a noticeable spike in prices that began after 2004 and continued until the financial crisis. Between 2007 and 2009, a period of crisis, oil prices experienced very rapid and deep fluctuations.

Along with the increasing energy consumption is increasingly mentioned topic exhaustibility fossil resources. Energy is one of the sectors which more or less subject to bureaucratic administration in all democratic societies. The reason for this extraordinary care is inclusion of energy between the so-called "key sectors", which are expected to affect the large impacts of demand shocks in the economy (Rojíček, 2007). In addition as a key reason for the justification largely interventionist especially in the field of renewable energy often relies on the argument of public interest (Ryvolová, 2010).

6 IMPACT OF SHOCK IN PROCESS OF MACROECONOMIC INDICATORS

Consequences of shocks are identified based on the macroeconomic indicators.

Chard 5 - Czech GDP quarterly data seasonally adjusted

Source: ARAD, CNB.

Graph of GDP shows in more detail a deep slump in the values of economic output in response to the global crisis. The most massive decline occurred in 2008.
The same period is reflected in the sharp rise in the consumer price index. Soon, however, began re-fall, and index returned to the previous trend.

Source of data: CNB Statistic
House prices and Construction Index in Czech Republic have a turning point in 2009, so it is possible to assume that the negative economic developments in these areas reflected with a slight delay.

Savings rate of households has a slightly increasing trend with exception sharp fall again in response to the period of crisis.
Chard 10 – Loans

Indicators loans do not fall so obvious, as indicators in previous cases. Adverse developments in the economy is most notably reflected in the development of annual growth rate of loans to non-financial sector.

7 MONETARY POLICY

The amount of work is focused on the impact of commodity prices (especially oil) to macro-economic variables (eg Kilian, 2008). Less attention is paid to other types of causality, as the impact of monetary policy on oil, commodity price relationships to each other and to other possible determinants. For its links with the economy is the movement of commodity prices a major issue. Examining the relationships is necessary not only for the knowledge of principles, but also for reactions in case of market shocks and crises. Through the models is then possible to predict the extent to which monetary policy can control the prices of commodities and which way (Anzuini, Lombardi, Pagano, 2010).

De Gregorio (2012) summarizes the work of an adequate response to the monetary policy shock to commodity prices primarily in commodity-importing economies. Monetary policy response should be as follows:

• direct impact on inflation (eg increase in gasoline prices) is an argument for increasing rates
• indirect impact on inflation is an argument for increasing rates
• impact in the form of a reduction in the level of total unemployment, followed by reduction of the output gap - the argument for increasing rates
• impact in the form of a reduction in household consumption is an argument for a reduced rate.

Overall, according to De Gregorio, it depends mainly on secondary effects (De Gregorio, 2012)
Hošek, Komárek, and Motl (2011) shows that the optimal monetary policy response to shock may seem simple - oil prices should lead to an increase in rates by the central bank. In an economy that oil imports, a negative supply shock associated with rising costs and a drop in productivity, reducing product. If demand is maintained or decreases little, at least temporarily increase inflation and inflation expectations. The Central Bank will then raise their nominal rates at least to the extent that real interest rates have not fallen. Scenario contends with to the existence of many uncertainties and collectively, we can say that the optimal monetary policy response to the oil shock is difficult to define by the theory (Hošek, Komárek, Motl, 2011).

CONCLUSION

According to economic theory, it is possible shocks divided according to their nature, duration, according to their impacts and effects. Their impact is reflected in the development of macroeconomic indicators eg GDP, loans, savings etc. Shocks are studied especially with the empirically using VAR models. Like their transmission channels seem to be macroeconomic links between countries. Transmission of shocks between economies is heavily researched topic in relation to the issue of monetary union.

According to the authors Baskaya, Hulagu, and Kucuk (2012) steep spike in oil prices can affect economic activity. Higher degree of uncertainty regarding oil prices make capital riskier and discourages investment. The second option is more uncertainty increases precautionary savings, which leads to higher investment, as there are no other options accumulate assets.

Monetary policy addresses how to mitigate the effects of shocks. At present, it seems that the optimal monetary policy response to the oil shock is difficult to define the prevailing theory.

This article serves as a theoretical basis for the project "The international transmission of shocks in the context of macro-financial linkages." To create a theoretical basis for the project defines the economic shock and a small open economy. The project will deal with revealing the complicated international connection between the financial sector and the real economics. Understanding the mechanism of shock transmission will help to define the optimal policy responses to international developments.

The research behind this paper is supported by the Grant Agency of the Czech Republic within Project No. 13-06229S

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DECISION-MAKING FOR FACILITY LOCATION USING VIKOR METHOD

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Abstract

The selection of facility location has become attentively studied problem over the past several years. The choice of facility location is becoming major challenges that face strategic managers of the company. Facility location problem includes more than one dimension. For this reason, many criteria should be considered in the selecting process. In this study, a decision making method Vise Kriterijumska Optimizacija I Kompromisno Resenje (VIKOR) is employed for this problem. An application example of a label manufacturer is presented to show the applicability and suitability of the proposed method. In this study the criteria of facility location selection for the label production company are “raw material supply”, “proximity to customer”, “proximity to airport”, “proximity to harbor”, “transportation cost”, “availability of skilled labor”, “labor cost”, “proximity to industrial zone”, “government facilities” and “construction cost (investment cost)”. Evaluating facility locations and selecting one of them are complicated tasks due to the fact that various criteria or objectives must be considered in the decision making process. Also in many real world cases the criteria are not equally important for the strategic managers. In this study, we proposed a facility location selection analysis model considering both Analytic Hierarchy Process (AHP) and VIKOR method. Subjective and objective opinions of managers/experts turn into quantitative form with AHP. VIKOR technique is used for calculating the facility locations’ ratings.

The aim of this paper is to determine the appropriate facility location providing the most company’s satisfaction for the criteria identified. In this paper, data taken from a well-known label company in Turkey is used to illustrate the facility location selection procedure. The company detects 10 different criteria for facility location. These are “raw material supply”, “proximity to customer”, “proximity to airport”, “proximity to harbor”, “transportation cost”, “availability of skilled labor”, “labor cost”, “proximity to industrial zone”, “government facilities” and “construction cost (investment cost)”. Apparently, facility location selection is a multi-criteria problem that includes both quantitative and qualitative factors. It is necessary to make trade-off between these tangible and intangible factors while considering a suitable location. There are alternative locations. These are Avcilar, Çerkezköy, Hadımköy, İkitelli and Tuzla. In analyzing the data, AHP and VIKOR methodologies are used for the outranking of location alternatives.

The “C6: Availability of skilled labor” (0.266), “C10: Construction cost (investment cost)” (0.193) and “C7: Labor cost” (0.155) are determined as the three most important criteria in the facility location selection process by using AHP. Proposed model results show that A2 (Çerkezköy) is the best alternative with Qj value.
Journal of International Scientific Publication:  
Economy & Business, Volume 7, Part 1  
ISSN 1313-2555, Published at: http://www.scientific-publications.net

Key words: Facility Location Selection, Multi Criteria Decision Making, Analytical Hierarchy Process (AHP), VIKOR Method, Label Company

1. INTRODUCTION

Globalization and today’s competitive environment forces companies to reduce costs. The basic condition for increasing the competition and continuity in domestic and global markets is to control costs. Locations of production and service operations have a great effect on operating cost and price. Struggle of cost reducing begins with the decision of facility location. For these reason, selection of facility location is an important decision for entrepreneurs. Location selection is a strategic decision which is very difficult and expensive to change in a short time.

Facility location is the most suitable place for a firm to perform basic production activities such as raw material procurement, production, storage, distribution. Therefore, a firm should select a facility location which provides lowest costs and maximum profit in the long term. Facility location selection is closely related to firm’s production planning activity, production control, material handling and facility layout.

The selection of a facility location among alternative locations is a multi-criteria decision-making problem including both quantitative and qualitative criteria. All the factors should be taken into consideration because of the fact that the decisions for location selection compel a firm to work under same conditions for time. If a company selects the wrong location, it may not have adequate access to customers, workers, transportation, materials, and so on. Thus, some of the basic principles mentioned below should be taken into account in the decision process (Kobu, 2008).

- The firm’s requirements should be detected objectively.
- All the stages in selection process should be carried out respectively.
- Every stage in selection process should be evaluated by experts.

There are many objectives that are usually considered by firms in location problems. Some of them can be as follows (Farahani et al., 2010):

- Minimizing the total setup cost.
- Minimizing the longest distance from the existing facilities.
- Minimizing fixed cost.
- Minimizing total annual operating cost.
- Maximizing service.
- Minimizing average time/distance traveled.
- Minimizing maximum time/distance traveled.
- Minimizing the number of located facilities.
- Maximizing responsiveness.

Facility location selection is treated as a three-stage process in literature, where stage 1 deals with selection of a geographical region or state; stage 2 deals with the selection of a particular locality; and stage 3 deals with the selection of the final site.

Factors influencing facility location selection are both complex and closely related to each other. Competitiveness and profitability are to be considered while determining factors influencing the selection. There are several classifications for factors affecting location decisions in the literature. Barutçugil divided the factors into two groups; environmental factors and economic factors. Environmental factors are labor supply, climatic conditions, living conditions, zoning restrictions,
infrastructure (energy, water). Economic factors are in to the firm’s control area and affected by management decisions. Proximity to the market and market size, sources of raw materials, transportation facilities, construction cost, labor cost, government regulations and taxes.

The general process for making facility location decisions usually is composed of the following steps (Ertuğrul and Karakaşoğlu, 2008):
1. Decide on the criteria that will be used to evaluate location alternatives.
2. Determine the criteria that are important.
3. Develop suitable location alternatives.
4. Evaluate the alternatives and make a decision.

Another classification is done by Stevenson (2012). The classification table is shown as follows.

<table>
<thead>
<tr>
<th>Level</th>
<th>Factors</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Regional</strong></td>
<td>Location of raw materials</td>
<td>Proximity, mode and costs of transportation, quantity available</td>
</tr>
<tr>
<td></td>
<td>Location of markets</td>
<td>Proximity, distribution costs, target market, trade practices</td>
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<tr>
<td></td>
<td>Labor</td>
<td>Availability, age distribution of workforce, wage scales,</td>
</tr>
<tr>
<td><strong>Community</strong></td>
<td>Quality of life</td>
<td>Schools, shopping, housing, transportation, cost of living</td>
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<td></td>
<td>Services</td>
<td>Medical, fire, police</td>
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<tr>
<td></td>
<td>Attitudes</td>
<td>Pro/con</td>
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<tr>
<td></td>
<td>Taxes</td>
<td>State/local, direct and indirect</td>
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<td></td>
<td>Environmental regulations</td>
<td>State/local</td>
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<tr>
<td></td>
<td>Utilities</td>
<td>Cost and availability</td>
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<td></td>
<td>Development support</td>
<td>Bond issues, tax abatement, low-cost loans, grants</td>
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<tr>
<td><strong>Site</strong></td>
<td>Land</td>
<td>Cost, degree of development required, room for expansion,</td>
</tr>
<tr>
<td></td>
<td>Transportation</td>
<td>Type (access roads, rail spurs, air freight)</td>
</tr>
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<td></td>
<td>Environmental/legal</td>
<td>Zoning restrictions</td>
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</table>

Table 1 Factors Affecting Location Decisions

The aim of this paper is to identify the appropriate location providing profitability and productivity for the firm. In this paper, data taken from a well-known label manufacturing company in Turkey is used to illustrate the facility location selection procedure. We proposed a facility location selection analysis using AHP and VIKOR methodologies. Subjective and objective opinions of experts turn into quantitative form with Analytic Hierarchy Process. AHP is applied to determine the relative weights of the evaluation criteria. AHP approach achieves pairwise comparisons among factors or criteria in order to prioritize them using the eigenvalue calculation. AHP model was represented in a questionnaire to survey experts’ opinions. The relative weight of each factor in the model was calculated. VIKOR technique is used for calculating the locations’ ratings.

This paper is arranged into five sections. The second section provides an overview of existing methods and studies. The third section shows the structure of the problem in the label manufacturing company.
The next section describes the proposed approach and gives information about AHP and VIKOR methodologies. In section five, an empirical study is illustrated in the label production industry. Results of the study are presented in section six. Finally, concluding remarks and discussions follow.

2. LITERATURE REVIEW

In the literature, there are a large number of facility location evaluation and selection methods. In recent years, multi-criteria decision making methods have been used for facility location decision problem. The study of location theory started in 1909 when Alfred Weber considered how to locate a single warehouse in order to minimize total distance between the warehouse and several customers (Farahani and Hekmatfar, 2009). Some researchers used the analytic hierarchical process (AHP) approach to make facility location decisions. Zahir (1991) showed how uncertainty in the relative weights of a pairwise comparison matrix could be used to compute the uncertainties in the relative priorities of the decision alternatives. Min (1994) proposed AHP approach for the location planning of airport facilities. Yang and Lee (1997) presented an AHP decision model for facility location selection from the view of organizations which contemplate locations of a new facility or a relocation of existing facilities. Tzeng et al. (2002) applied AHP approach on location selection for a restaurant in Taipei. The other study on a facility location selection was offered by Buldurulu and Ejder (2003). They showed a case study in the furniture industry using AHP method. Kodali and Routroy (2006) studied on potential facility location problems in supply chain using AHP. Fernandez and Ruiz (2009) considered the selection of a location for an industrial park. In their paper, they have proposed a hierarchical decision process. They then used AHP to find the location. Kuo et al. (1999) proposed a fuzzy-AHP model for the facility location problems. Kaboli et al. (2007) presented a multi-criteria decision making methodology for the location problem. A new mathematical model is proposed with the aid of the fuzzy-AHP to make the plant location decision. Chan et al. (2007) developed a decision making approach for the distribution center location problem in a supply chain network using fuzzy-AHP concept. Tabari et al. (2008) utilized fuzzy AHP with objective, subjective and critical factors to select a location for a new facility.

Aras et al. (2004), in which a considerable number of criteria were taken into account for a wind observation station location selection problem. Cheng et al. (2005) presented the employment of the ANP to select the best site for a shopping mall. Tuzkaya et al. (2008) used the analytic network process (ANP) technique to evaluate and select suitable undesirable facility locations based on four main factors, namely, benefits, cost, opportunities and risks. Güneri et al. (2009) developed a method based on fuzzy-ANP method for shipyard location selection.

Chu (2002) used fuzzy-TOPSIS for facility location selection under group decisions. Yong (2006) in which a new fuzzy TOPSIS was presented for selecting a plant location under linguistic terms, as triangular fuzzy numbers. Another study for the utilization of fuzzy TOPSIS is Wadhwa et al. (2009) in which the target was a reverse manufacturing chain. Çimar (2010) developed a fuzzy-TOPSIS model in order to help a bank selecting the most appropriate city for opening a branch among six alternatives in the South Eastern of Turkey. The other study is proposed by Verma et al. (2010). The aim of this study is to select the best location for multi-criteria decision making facility location with interval valued intuitionistic fuzzy information in which the information about attribute weights is completely known and the attribute values take the form of interval valued intuitionistic fuzzy numbers. Boran (2011) proposed the integration of intuitionistic fuzzy preference relation aiming to obtain weights of criteria and intuitionistic fuzzy TOPSIS method aiming to rank alternatives for dealing with imprecise information on selecting the most desirable facility location. Li et al. (2011) presented a comprehensive
methodology for the selection of logistic center location. The proposed methodology consists of two parts Fuzzy Set clustering method, and TOPSIS.

A comparison of fuzzy AHP and fuzzy TOPSIS methods was developed by Ertugrul and Karakaşoğlu (2008) and implemented in a facility location of a textile company. Önüt and Soner (2008) used fuzzy TOPSIS approach for transshipment site selection. Criteria weights are derived by using AHP based on pairwise comparison. Kabir and Sumi (2012) showed an improved and appropriate concrete production facility location evaluation and selection model has been developed by integrating Modified Delphi and fuzzy-AHP with TOPSIS method.

Barda et al. (1990) considered thermal power plant location problem as multi-criteria decision problem and applied ELECTRE III method to select best location. Gündoğdu (2011) used ELECTRE I method for selection of facility location under environmental damage priority. Another example is Norese (2006) who presented an ELECTRE III method to select the best sites for a waste-disposal plant and for the incinerator.

Athawale and Chacraborty (2010) solved a real time facility location selection problem using PROMETHEE II (preference ranking organization method for enrichment evaluation) method which is an effective multi-criteria decision-making tool often applied to deal with complex problems in the manufacturing environment. Mousavi et al. (2012) proposed an integrated decision-making methodology composed of three well-known decision-making techniques, Delphi, AHP, and PROMETHEE in order to make the best selection for plant location.

A real-life problem of a new manner existing in multinational company was introduced by El-Santawy et al. (2012). A VIKOR method was presented to solve the facility location multi-criteria decision making problem.

Kaya and Kahraman (2010) used an integrated VIKOR-AHP methodology under fuzzy environment for determining the best renewable energy alternative and its location for Istanbul. Tavakkoli et al. (2011) aimed at designing a multi-criteria decision making model for evaluation alternatives potential sites for a plant location problem. In this paper, a new integrated methodology (VIKOR-AHP) was structured to solve this selection problem.

Kavitha and Vijayalakshmi (2010) dealt with the selection of call center by using fuzzy-VIKOR and fuzzy-TOPSIS. Momeni et al. (2011) proposed a fuzzy-VIKOR for plant location selection. Applicability of the methods of fuzzy-VIKOR and fuzzy-TOPSIS for the problem of selecting the place of incorporation of airport was investigated by Uludağ and Deveci (2013).

The aim of this study is to propose a multi-criteria decision-making approach to evaluate the experts’ preference orders, to examine experts’ perceptions of location selection. The purposes of this study were to use Saaty’s analytic hierarchy process (AHP) to investigate the factors that experts consider when choosing facility, and to derive the relative weight of each factor.

3. STRUCTURE OF THE FACILITY LOCATION SELECTION PROBLEM

An application is performed in a manufacturing company which is well-known label factory in Turkey. The company was established in 2007 for the purpose of producing self-adhesive and non-adhesive labels in European standards. The company which operates in a covered of 4000 meter square, has the capacity of producing 4.000.000 meter square labels annually by using serigraphic, flexography,
embossed finishing fire gliding print techniques on all kind of compact and laminated material with high quality technology machinery and well trained cadre, consist of skilled specialist.

The company aims to be a solution partner of its customers in label and packaging sector, carries out aforesaid activities by pursuing unconditional customer services. Target of the company, with the new investments, is to double fold their production without sacrificing from the quality.

Capacity of current facility cannot meet the customer demand, for this reason the company management is planning building a new factory in order to meet growing demand. At the end of the interview with general manager of the company, following information was obtained related to the new facility. The company determined five candidate location for the new facility: Avcılar, Çerkezköy, Hadımköy, İkitelli, and Tuzla. Criteria taken in to account for facility location selection are as follows:

1. Raw material supply
2. Proximity to customers
3. Proximity to airport
4. Proximity to harbor
5. Transportation cost
6. Labor cost
7. Availability of skill labor
8. Proximity to industrial zone
9. Government facilities
10. Construction cost

The candidate locations have advantages and disadvantages. These are shown in Table 2.

<table>
<thead>
<tr>
<th>Location</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avcılar</td>
<td>Proximity to harbour</td>
<td>Shortage of skill labour</td>
</tr>
<tr>
<td></td>
<td>Lower transportation cost</td>
<td>Shortage of government facilities</td>
</tr>
<tr>
<td>Çerkezköy</td>
<td>Availability of skill labour</td>
<td>Away from airport</td>
</tr>
<tr>
<td></td>
<td>Government facilities</td>
<td>High transportation cost</td>
</tr>
<tr>
<td></td>
<td>Lower construction cost</td>
<td></td>
</tr>
<tr>
<td>Hadımköy</td>
<td>Proximity to customer</td>
<td>Higher labour cost</td>
</tr>
<tr>
<td></td>
<td>Proximity to industrial zone</td>
<td>Shortage of government facilities</td>
</tr>
<tr>
<td>İkitelli</td>
<td>Proximity to customer</td>
<td>Higher labour cost</td>
</tr>
<tr>
<td></td>
<td>Proximity to airport</td>
<td>Shortage of government facilities</td>
</tr>
<tr>
<td></td>
<td>Availability of skill labour</td>
<td></td>
</tr>
</tbody>
</table>
The company has two kind of raw materials; main raw materials (paint and paper) and conducive raw materials (stereo, cleaning solutions, washing materials). Main raw materials are provided from abroad and conducive materials are provided from Turkey. Airport and harbor are factors in terms of transportation and raw material supply. The company has domestic and international customers. Proximity to airport is a criterion to transfer customers to the facility. Distribution of the products is done by highway and seaway. Skilled labor is the most important criteria for the company. The label production requires skilled staff for continuity. The company wants to work with the person who has studied printing and publishing technologies. Proximity to industrial zone is the other criteria due to the supply of raw materials and customers. Government facilities in industrial zones are less than other regions. Construction costs increase in the city center while decreasing in the periphery of the city.

4. PROPOSED METHODOLOGY

The questionnaire and interview conducted between the dates 12-14 May 2013 is answered by 3 experts (general manager, marketing manager and production manager). Data were collected from the experts in their offices. They are asked to compare the criteria at a given level on a pair-wise basis to identify their relative precedence.

AHP is an effective decision making method especially when subjectivity exists and it is very suitable to solve problems where the decision criteria can be organized in a hierarchical way into sub-criteria. The findings of previous studies about factors influencing experts’ choice of facility location were first identified by literature review. Experts expressed or defined a ranking for the attributes in terms of importance/weights. Each experts is asked to fill ‘’checked mark’’ in the 9-point scale evaluation table. The AHP allows group decision making. One of the main advantages of the AHP method is the simple structure.

4.1. Using AHP to Analyze Priorities

AHP was developed in the 1970s by Thomas Saaty is a multi-criteria decision making (MCDM) methodology. It has been used extensively for analyzing complex decisions. The approach can be used to help decision-makers for prioritizing alternatives and determining the optimal alternative using pair-wise comparison judgments (Liberatore and, Nydick, 1997; Yoo and Choi, 2006). Weighting the criteria by multiple experts avoids the bias decision making and provides impartiality (Dagdeviren, 2009).

The AHP is a selection process that consists of following steps (Saaty, 1990, 2008; Saaty and Vargas, 2001):

1. Define the problem and determine the criteria. Factors and related sub factors must be correlated (Lee et al., 2012).
2. Structure the decision hierarchy taking into account the goal of the decision.

3. Construct a set of all judgments in a square comparison matrix in which the set of elements is compared with itself (size nxn) by using the fundamental scale of pair-wise comparison shown in Table 3. Assign the reciprocal value in the corresponding position in the matrix. Total number of comparison is n(n-1)/2 (Lee et al., 2012).

<table>
<thead>
<tr>
<th>Intensity of Importance</th>
<th>Definition</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Equal importance</td>
<td>Two activities have equal contribute to the objective</td>
</tr>
<tr>
<td>3</td>
<td>Moderate importance</td>
<td>Experience and judgment slightly favor one activity over another.</td>
</tr>
<tr>
<td>5</td>
<td>Strong importance</td>
<td>Experience and judgment strongly favor one activity over another</td>
</tr>
<tr>
<td>7</td>
<td>Very strong on demonstrated</td>
<td>An activity is favored very strongly over another</td>
</tr>
<tr>
<td></td>
<td>importance</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Extreme importance</td>
<td>The evidence favoring one activity over another is of the highest possible</td>
</tr>
<tr>
<td></td>
<td>for compromise between the above</td>
<td>order of affirmation</td>
</tr>
<tr>
<td></td>
<td>values</td>
<td></td>
</tr>
<tr>
<td>2, 4, 6, 8</td>
<td>For compromise between the above</td>
<td>Sometimes one needs to interpolate a compromise judgment numerically</td>
</tr>
</tbody>
</table>

Table 3. The fundamental scale of pair-wise comparison for AHP

4. Use overall or global priorities obtained from weighted values for weighting process. For synthesis of priorities obtain the principal right eigenvector and largest eigenvalue.

Matrix $A=(a_{ij})$ is said to be consistent if $a_{ij}a_{jk}=a_{ik}$ and its principal eigenvalue ($\lambda_{\text{max}}$) is equal to $n$. The general eigenvalue formulation is:

$$A_w = \begin{bmatrix}
1 & w_i/w_2 & \ldots & w_i/w_n \\
 w_2/w_i & 1 & \ldots & w_2/w_n \\
 \vdots & \vdots & \ddots & \vdots \\
 w_n/w_i & w_n/w_2 & \ldots & 1
\end{bmatrix} = n w_i$$

$$a_{ij} = w_i/w_j, \quad i, j = 1, 2, \ldots n$$

$$A_w = \lambda_{\text{max}} w$$

For measure consistency index (CI) adopt the value:
Accept the estimate of $w$ if the consistency ratio (CR) of CI that random matrix is significant small. If CR value is too high, then it means that experts’ answers are not consistent (Saaty, 1980). When CR value is less than 0.10, consistency of the comparisons is appropriate (Lee, 2012). The CR is obtained by comparing the CI with an average random consistency index (RI).

$$CR = \frac{CI}{RI}$$

The following gives the average RI:

<table>
<thead>
<tr>
<th>n</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Random Consistency Index (RI)</td>
<td>0</td>
<td>0</td>
<td>0.52</td>
<td>0.89</td>
<td>1.11</td>
<td>1.25</td>
<td>1.35</td>
<td>1.40</td>
<td>1.45</td>
<td>1.49</td>
</tr>
</tbody>
</table>

Table 4. Average RI values

Briefly, maximized eigenvalue, CI and CR are found to obtain the weights of each criterion (Lee et al., 2012). Experts are asked to compare the criteria on a pair-wise basis to determine their relative importance. AHP was used in order to determine which facility location selection attributes are important and precedence order of ten criteria, i.e., raw material supply, proximity to customers, proximity to airport, proximity to harbor, transportation cost, labor cost, availability of skill labor, proximity to industrial zone, government facilities and construction cost.

4.2. Using Vise Kriterijumska Optimizacija I Kompromisno Resenje (VIKOR) To Rank The Alternatives

VIKOR (Vise Kriterijumska Optimizacija I Kompromisno Resenje—a Serbian name) was first presented by Opricovic (1998) and Opricovic and Tzeng (2002), for solving multiple criteria decision making (MCDM) problems based upon the adoption of $L_p$-metric concept. VIKOR method focuses on ranking and selection from a set of alternatives in cases of conflicting criteria (Chiu et al., 2013). It is a technique for multi-criteria optimization of complex systems (Opricovic and Tzeng, 2004). Assuming that each alternative is evaluated according to each criterion function, the compromise ranking could be performed by comparing the measure of closeness to the ideal alternative (Zhang and Wei, 2013). The various J alternatives are denoted as $a_1, a_2, \ldots, a_J$. For alternative $a_j$, the rating of the ith aspect is denoted by $f_{ij}$, i.e. $f_{ij}$ is the value of ith criteria function for the alternative $a_j$; $n$ is the number of criteria (Sanayei et al., 2010).

Developing of the VIKOR method started with the following form of $L_p$-metric (Opricovic and Tzeng, 2004, Opricovic and Tzeng, 2007, Tzeng et al., 2005):

$$L_{p,j} = \left\{ \sum_{i=1}^{n} \left[ \frac{w_i \left( f_{i}^* - f_{ij} \right)}{f_{i}^* - f_{ij}} \right] \right\}^\frac{1}{p} 1 \leq p \leq \infty, \quad j = 1, 2, \ldots, J. \quad (6)$$

Within the VIKOR method $L_{1,j}$ are used to formulate ranking measure. The solution obtained by $\min_S S_j$ is a maximum group utility, and the solution obtained by $\min_R R_j$ is with minimum individual regret of the “opponent”.
The compromise solution $F^c$ is a feasible solution that is the “closest” to the ideal $F^*$, and compromise means an agreement established by mutual concessions, as is illustrated in Fig. 1 by $\Delta f_1^* = f_1^* - f_1^c$ and $\Delta f_2^* = f_2^* - f_2^c$.

The compromise ranking algorithm VIKOR is conducted as follows:

**Step 1.** Determine the ideal $f_i^*$ and the nadir $f_i^-$ values of all criteria functions ($i=1,2,\ldots,n$) according to benefit or cost functions. If the $i$th function represents a benefit then:

$$f_i^* = \max_j f_{ij}, \quad f_i^- = \min_j f_{ij}$$

If the $i$th function represents a cost then:

$$f_i^* = \min_j f_{ij}, \quad f_i^- = \max_j f_{ij}$$

**Step 2.** Compute the values $S_j$ and $R_j$, $j=1,2,\ldots,J$, by the relations

$$S_j = \sum_{i=1}^n w_i \left( \frac{f_i^* - f_{ij}}{f_i^* - f_i^-} \right)$$

$$R_j = \max_i \left[ w_i \left( \frac{f_i^* - f_{ij}}{f_i^* - f_i^-} \right) \right]$$

**Step 3.** Compute the values $Q_j$, $j=1,2,\ldots,J$, by the relation

$$Q_j = v \left( \frac{S_j - S^*}{S^* - S^-} \right) + (1-v) \left( \frac{R_j - R^*}{R^* - R^-} \right)$$

Figure 1. Ideal and compromise solution

Where $w_i$ are the weights of criteria, expressing their relative importance.
Where

\[ S^- = \min_j S_j, \quad S^+ = \max_j S_j \]
\[ R^- = \min_j R_j, \quad R^+ = \max_j R_j \]  

(12)

(13)

and \( v \) is introduced as weight for the strategy of the maximum group utility, whereas \( 1-v \) is the weight of the individual regret. Usually the value of \( v \) is taken as 0.5 (Liu et al., 2013b)

**Step 4.** Rank the alternatives, sorting by the values \( S, R \) and \( Q \), in decreasing order. The results are three ranking lists.

**Step 5.** Propose as a compromise solution the alternative \( (a') \) which is ranked the best by the measure \( Q \) (minimum) if the following two conditions are satisfies:

**C1. Acceptable Advantage:**

\[ Q(a^*) - Q(a') \geq DQ \]  

(14)

Where \( a^* \) is the alternative with second position in the ranking list by \( Q \); \( DQ = 1/(J-1) \); \( J \) is the number of alternatives.

**C2. Acceptable stability in decision making:**

Alternative \( a' \) must also be the best ranked by \( S \) or/and \( R \). This compromise solution is stable within a decision making process, which could be “voting by majority rule” (when \( v>0.5 \) is needed), or “by consensus” \( v<0.5 \), or “with veto” (\( v<0.5 \)). Here, \( v \) is the weight of the decision making strategy “the majority of criteria” (or “the maximum group utility”).

If one of the conditions is not satisfied, then a set of compromise solutions is proposed, which consists of:

- Alternatives \( a' \) and \( a^* \) if only condition C2 is not satisfied, or
- Alternatives \( a', a^*, \ldots, a^{(M)} \) if condition C1 is not satisfied; and \( a^{(M)} \) is determined by the relation \( Q(a^{(M)}) - Q(a') < DQ \) for maximum \( M \) (the positions of these alternatives are “in closeness”).

The best alternative, ranked by \( Q \), is the one with the minimum value of \( Q \). The main ranking result is the compromise ranking list of alternatives, and the compromise solution with the “advantage rate”. Ranking by VIKOR may be performed with different values of criteria weights on proposed compromise solution. VIKOR is effective tool in multi criteria decision making, particularly in a situation where the decision maker is not able, or does not know to express his/her preference at the beginning of system design. The obtained compromise solution could be accepted by the decision makers because it provides a maximum “group utility”. The compromise solutions could be the basis for the negotiations, involving the decision makers' preference by criteria weights.

VIKOR technique is widely used in many fields including marketing (Tsai et al. 2011, Wang and Tzeng 2012), material selection (Cauillini et al. 2013, Jahan et al. 2011, Girubha and Vinodh 2012, Liu et al. 2013), vendor/supplier selection (Hsu et al. 2012, Shemshadi et al. 2011, Sanayei et al. 2010), project selection (Cristobal 2011, Chen and Wang 2009), company selection (Yücenur and Demirel 2012),
service quality evaluation (Kuo and Liang 2011), financial performance evaluation (Yalcin et al. 2012), tourism policy improvement (Liu et al. 2012, Liu et al. 2013), location selection (Tzeng et al. 2002) etc. One of the advantages of VIKOR is that VIKOR method proposes a compromise solution with an advantage rate (Opricovic and Tzeng 2004). Also pair-wise comparisons are avoided.

4.3. Combining AHP and VIKOR to Determine The Rank of Alternatives

In analyzing the data, Analytical Hierarchy Process (AHP) and VIKOR methodologies are used for the outranking of facility location alternatives. Fig. 2 shows the steps of the proposed method.

![Figure 2. Steps of proposed method](image-url)
5. SOLVING CASE PROBLEM

To apply proposed method a real world facility location selection problem was solved. In this facility location selection problem there are 10 criteria and 5 candidate location including Avcilar, Çerkezköy, Hadımköy, İkitelli and Tuzla. The hierarchical structure to select the best location is shown in Fig 3.
Interview were performed with the general manager, production manager and marketing manager in order to identify weights of the criteria.

Criteria to be considered in the selection of facility location are determined by literature review and experts in the label firm. Past experience and the background of the experts are utilized in the determination of the criteria and 10 important criteria to be used for facility location selection are established. These 10 criteria are as follows: “raw material supply” (C1), “proximity to customer” (C2), “proximity to airport” (C3), “proximity to harbor” (C4), “transportation cost” (C5), “availability of skilled labor” (C6), “labor cost” (C7), “proximity to industrial zone” (C8), “government facilities” (C9) and “construction cost (investment cost)” (C10).

As a result, only these 10 criteria were used in evaluation and decision hierarchy is established accordingly. Decision hierarchy structured with the determined alternative locations and criteria is provided in Fig. 3. There are three levels in the decision hierarchy structured for facility location selection problem. The overall goal of the decision process is “the selection of the optimal facility location” in the first level of the hierarchy. The criteria are on the second level and alternative locations are on the third level of the hierarchy.

After forming the decision hierarchy for the problem, the weights of the criteria to be used in evaluation process are calculated by using AHP method. In this phase, the experts in the expert team are given the task of forming individual pairwise comparison matrix by using the Saaty’s 1-9 scale.
Table 5. The pairwise comparison matrix for criteria

Geometric means of experts’ choice values are calculated to form the pairwise comparison matrix on which there is a agreement (Table 6). The results obtained from the calculations based on the pairwise comparison matrix provided in Table 5, are presented in Table 6.
The “C6: Availability of skilled labor” (0.266), “C10: Construction cost (investment cost)” (0.193) and “C7: Labor cost” (0.155) are determined as the three most important criteria in the facility location selection process by using AHP. Consistency ratios of the experts’ pairwise comparison matrixes are calculated as 0.059 (expert 1), 0.046 (expert 2) and 0.034 (expert 3). They all are less than 0.1. So the weights are shown to be consistent and they are used in the selection process. The most important criterion is “C6: Availability of skilled labor” (0.266) and the least important criterion is “C3: Proximity to airport” (0.019).
Finally, VIKOR method is applied to rank the alternative locations. The priority weights of alternative locations with respect to criteria, calculated by AHP and shown in Table 6, can be used as input of VIKOR (Table 7).

Table 6. Results obtained by AHP

<table>
<thead>
<tr>
<th>Criteria</th>
<th>C1</th>
<th>C2</th>
<th>C3</th>
<th>C4</th>
<th>C5</th>
<th>C6</th>
<th>C7</th>
<th>C8</th>
<th>C9</th>
<th>C10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>0,112</td>
<td>0,028</td>
<td>0,019</td>
<td>0,024</td>
<td>0,090</td>
<td>0,266</td>
<td>0,155</td>
<td>0,063</td>
<td>0,051</td>
<td>0,193</td>
</tr>
<tr>
<td>( \lambda_{\text{max}} )</td>
<td>10,788</td>
<td>10,613</td>
<td>10,458</td>
<td>10,358</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CI</td>
<td>0,088</td>
<td>0,068</td>
<td>0,051</td>
<td>0,040</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RI</td>
<td>1,490</td>
<td>1,490</td>
<td>1,490</td>
<td>1,490</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CR</td>
<td>0,059</td>
<td>0,046</td>
<td>0,034</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 7. Input values of the VIKOR analysis

*Less score is better for these variables

The best \( f_i^+ \) and the worst \( f_i^- \) values of all criterion functions are shown in Table 8.
Table 8. The best $f_i$ and the worst $f_i-$ values of all criterion functions

<table>
<thead>
<tr>
<th></th>
<th>C1</th>
<th>C2</th>
<th>C3</th>
<th>C4</th>
<th>C5</th>
<th>C6</th>
<th>C7</th>
<th>C8</th>
<th>C9</th>
<th>C10</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>0.112</td>
<td>0.009</td>
<td>0.003</td>
<td>0.000</td>
<td>0.000</td>
<td>0.266</td>
<td>0.155</td>
<td>0.000</td>
<td>0.051</td>
<td>0.145</td>
</tr>
<tr>
<td>S2</td>
<td>0.045</td>
<td>0.019</td>
<td>0.019</td>
<td>0.024</td>
<td>0.090</td>
<td>0.038</td>
<td>0.000</td>
<td>0.063</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>S3</td>
<td>0.067</td>
<td>0.005</td>
<td>0.008</td>
<td>0.004</td>
<td>0.023</td>
<td>0.114</td>
<td>0.088</td>
<td>0.013</td>
<td>0.034</td>
<td>0.121</td>
</tr>
<tr>
<td>S4</td>
<td>0.089</td>
<td>0.000</td>
<td>0.001</td>
<td>0.004</td>
<td>0.068</td>
<td>0.000</td>
<td>0.088</td>
<td>0.025</td>
<td>0.045</td>
<td>0.097</td>
</tr>
<tr>
<td>S5</td>
<td>0.000</td>
<td>0.028</td>
<td>0.000</td>
<td>0.001</td>
<td>0.023</td>
<td>0.038</td>
<td>0.000</td>
<td>0.000</td>
<td>0.017</td>
<td>0.193</td>
</tr>
</tbody>
</table>

Table 9. Calculation of $S_i$ and $R_i$ for criteria

By using VIKOR method, the ranking of alternative locations are calculated. With using Eq. 12 and Eq. 13, we can obtain $S^* = 0.297$, $S^- = 0.739$, $R^* = 0.090$, $R^- = 0.266$. Table 10 shows the evaluation results and final ranking of alternative facility locations.

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Sj</th>
<th>Rank</th>
<th>Rj</th>
<th>Rank</th>
<th>Qi (v=0.5)</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1 (Avcilar)</td>
<td>0.739</td>
<td>5</td>
<td>0.266</td>
<td>5</td>
<td>1.000</td>
<td>5</td>
</tr>
<tr>
<td>A2 (Çerkezköy)</td>
<td>0.297</td>
<td>1</td>
<td>0.090</td>
<td>1</td>
<td>0.000</td>
<td>1</td>
</tr>
<tr>
<td>A3 (Hadimköy)</td>
<td>0.475</td>
<td>4</td>
<td>0.121</td>
<td>3</td>
<td>0.288</td>
<td>3</td>
</tr>
<tr>
<td>A4 (İkitelli)</td>
<td>0.418</td>
<td>3</td>
<td>0.097</td>
<td>2</td>
<td>0.154</td>
<td>2</td>
</tr>
<tr>
<td>A5 (Tuzla)</td>
<td>0.300</td>
<td>2</td>
<td>0.193</td>
<td>4</td>
<td>0.296</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 10. Calculation of $S_i$ and $R_i$ for criteria

**C1. Acceptable Advantage:** $DQ = 1/(5-1)=0.25$.

$$Q(a^*) - Q(a') \geq DQ \rightarrow 0.154-0<0.25$$

but $Q(a^*) - Q(a') \geq DQ \rightarrow 0.288-0 \geq 0.25$ therefore the positions of A2 and A4 are “in closeness”.

**C2. Acceptable stability in decision making:**

Alternative A2 is in the best ranked by Q, S and R. This compromise solution is stable within a decision making process, by consensus.
Depends on the RCj values, the ranking of the alternatives from top to bottom order are A2 (Çerkezköy), A4 (İkitelli), A3 (Hadmıköy), A5 (Tuzla) and A1 (Avcılar) (Table 11). Proposed model results show that A2 (Çerkezköy) is the best alternative with Qj value. Decision team can also be investigate the top two alternatives (A2 (Çerkezköy), A4 (İkitelli)) one more time. The positions of these two alternatives are close in VIKOR method.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Qj</th>
<th>Alternatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.000</td>
<td>A2 (Çerkezköy)</td>
</tr>
<tr>
<td>2</td>
<td>0.154</td>
<td>A4 (İkitelli)</td>
</tr>
<tr>
<td>3</td>
<td>0.288</td>
<td>A3 (Hadmıköy)</td>
</tr>
<tr>
<td>4</td>
<td>0.296</td>
<td>A5 (Tuzla)</td>
</tr>
<tr>
<td>5</td>
<td>1.000</td>
<td>A1 (Avcılar)</td>
</tr>
</tbody>
</table>

Table 11. VIKOR rankings

6. CONCLUSIONS

Facility location decisions are very important part in any firm’s overall strategic plan. This paper presents a multi-criteria decision model for evaluating alternatives in the facility location problem. For this purpose, a two-step methodology is introduced, in which the AHP determines importance level of criteria via expertise of decision making team members. Then, VIKOR method applies AHP’ weights as input weights. Finally, a facility location problem of a label company was solved by using proposed method to show applicability and performance of the proposed methodology. By the compromise ranking method, the compromise solution is determined which would be most acceptable to the decision makers because it provides a maximum “group utility” for the “majority”, and a minimum of individual regret for the “opponents”. In next studies analytic network process (ANP) may be used to structure network and identify dependence among criteria. The proposed methodology can also be applied to any other selection problem involving multiple and conflicting criteria. Selection of the facility location can also be done using other MCDM techniques for comparing the results.

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MORE OF THE SAME OR INNOVATIVE DEVELOPMENT?
ETHNIC ENTREPRENEURSHIP IN CASE OF TURKISH IMMIGRANTS IN GERMANY –
A REGIONAL CASE STUDY

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Abstract
As a response of labour immigration in Germany across different generations, ethnic entrepreneurship creates added value to the German economic development. This paper examines the development of the biggest ethnic minority group in Germany, the Turkish immigrants, based on a cross-sectional survey in 2012 which leads to the first conductive empirical case study and descriptive analysis of 50 Turkish entrepreneurs in Siegen city. There’s a research gap concerning the innovative capability of entrepreneurs in different milieus. The objective was to look for a correlation between social environment based on “Sinus migrant milieu model” and a development of ethnic entrepreneurship questioning if there are determinants pushing innovative capability from socio-cultural perspective. The study shows that those who differ from old patterns are the emerging ambitious milieus and thus, they are the key actors creating more opportunities. The author calls them “Germanized Turkish creative class” who open up to new markets.

Key words: Ethnic entrepreneurship, Turkish immigrants, creative class, development

1. INTRODUCTION
The emancipation in terms of the development or change of minorities led to the establishment of a new middle class in Germany. Turkish immigrants started this long road 50 years ago when they came as temporary workforce, called ‘guest workers’. However, the social and human capital of immigrants have changed. Their educational and professional skills opened up further opportunities in new markets. Ethnic minority-owned businesses, as Baycan-Levent et al (2006) use to define ethnic entrepreneurship, evolved to an economic power and support the integrative function of ethnic business activities to create a side-by-side of nations.

About 19 per cent of the total German population (80.2 million) are migrants; approximately every fifth person is an immigrant (Stadt Siegen, 2013). In the decades, generation groups of immigrants developed. Immigrants of the first generation either moved to Germany after 1949 (mainly guest workers). Immigrants of the second generation were born in Germany as foreigners whose parent at least has immigrated to Germany. Their children belong to the immigrants of the third generation respectively are called ‘people with migration background’. The largest ethnic group in Germany consists of Turkish immigrants.

Development can be described as the growth in the range of options. From the economical point of view, innovation can push the development of social systems, but studies about innovation are often reduced on technical aspects, measuring innovative strength on mostly patent based analysis, the share of
employees with academic degree in ventures and further on development of technique. In this study the spotlight will be on the rise of key actors, that means the innovative capability contexts of immigrants (migrants) initiated by the socio-cultural perspective of SINUS-milieus-model for migrants in terms of lifestyle and living rooms. Ethnic diversity is illuminated as the innovation promoter in entrepreneurship.

Most studies focus on bigger economic areas and light out smaller but dynamic regions in Germany. This research analyses innovation activities of Turkish entrepreneurs in Siegen, a smaller but dynamic German city. No research or data exists for this context so that this study is conducted on a partial survey of 50 entrepreneurs and a subsequent descriptive analysis. A main result underlines education as a personal key factor for developing and opening up to new markets which is a modern habitus in entrepreneurial context.

The rest of the paper is structured as follows: ethnic entrepreneurship and development, innovation by intervention, research design and methodology, exploratory findings, discussion, limitation, conclusions and finally future implications.

2. ETHNIC ENTREPRENEURSHIP AND DEVELOPMENT

2.1 Theories of migration

Migration cannot only explained by a single theory. Several migration theories exist so that the most important ones will be shortly described. Migration theories either focus on macro-structural political and global environments or on micro-structural approaches which are about individual utility maximization. Thus, the theory of social capital emerged on the meso-level (Faist, 1997). There is a differentiation between economic capital (money, stocks and other material possessions), social capital (results of friendly, familiar or religious relationships) and human capital (skills, education and knowledge of a person). According to this theory, people only emigrate by expecting a bigger amount of social, human and economic capital in the destination country (Faist, 1997).

The oldest theory is called neoclassic economic and is based on a micro-structural individual approach of a utility maximization seeking rational person. Geographic differences cause different labour supply and labour demand. Nevertheless, this theory has been criticized in a number of points because no empirical evidence confirmed this approach so far.

The dual labour market theory differs from the neoclassic approach by taking the social aspects of persons into account. In contrast to the neoclassic economy, the labour market in industrial countries in this approach consist of two parts: the primary sector with its well-paid and high social status positioned jobs and the contrary side, the secondary sector with its bad-paid jobs without career opportunities and its low social status. Natives avoid the secondary labour sector. This creates labour demand in this sector (Parnteiter, 2000). But beyond that, migration is part of the global capitalist world economy (world systems theory). This gets clear when thinking about the destruction of humanity's basis of existence, for example in the African and Asian countries.

Another approach focuses on gender. Similar to the world systems theory, it focuses on inequalities of women and labour integration. The last attempt to describe migration is called the network theory as a set of interpersonal ties. This approach does not try to explain the development but rather the continuation and self-reproduction of migration, e.g. chain migration of relatives, friends and so on.
2.2 Entrepreneurship

A definition of entrepreneurship after long researching is up to the research undertaken (Verheul et al., 2001). A common voice of many studies has become the entrepreneurial behavior and the reflection that entrepreneurs are created. This leads to an open discussion in entrepreneurship literature whether these actors are born or made. One argumentation for created entrepreneurial performance comes from the common view of a strong environmental influence on actions. In the literature of business motivation by Marx and Cantillon, profit is of primary importance (Brewer, 1992; Marx, 1938). Schumpeter defines entrepreneurs as innovators who create new service and products in a process of creative destruction (1934, 1950). According to Smith (Cannan, 1977), entrepreneurs are identified as capital investors. Actually, being an entrepreneur is a multidimensional act with a strong necessity of rising resp. meeting the innovative challenge of the dynamically increasing and complex global network. Other studies show correlations between self-employment and education (Robinson and Sexton, 1994). In the US, this correlation is positive but negative in the EU (Blanchflower 2004).

2.3 Ethnic Entrepreneurship

After World War II Germany was in need of labor force. Linked to the rotation principle of the Federal Republic of Germany (FRG), Turkish immigrants came as temporary workforce. At the beginning, they were allowed to stay there for two years and then had to go back to Turkey. They fulfilled jobs where no education or no skills were needed. After many years and lots of changings in legal provisions, e.g. family reunification process, these former guest workers started to settle down. However, coming as guests and settling down, opened up first steps to ethnic business. Mannheim Research Institute and Center for Studies on Turkey in Essen mainly focused on ethnic entrepreneurship which became an impressive economic power (cf. Delft et al. 2000, Min 1987, Waldinger et al. 1990, Ward and Jenkins 1984).

Ethnic businesses are generally characterized by small and family managed. In response to changing needs, migrants started their businesses in traditional markets and niches with a low level of skills in the workforce like trade and food services (Leicht et al, 2006). With increasing diversity the ethnic businesses of the second and third generation of immigrants expand to markets with innovative products, new niches and knowledge-intensive services. Nevertheless, labour market integration of immigrants in Germany still turns out to be difficult (Dameling, 2011). In a study by Constant and Zimmermann (2004, 2006), they point out that discrimination is a push factor into self-employment among immigrants.

2.4 Innovation

Activities or actions in innovative cultures depend on the social environment by education, creativity, social and cultural capital as input factors. Innovation by Bergmann (2006) known as a renewal process is characterized by serendipity, development, learning and changing. Social actors of ethnic groups may be associated with Schumpeter’s term of innovator creating new service and products in a process of creative destruction. Thus, they become a key factor in the discussion of innovation and development. Following the studies by Cooper (1985), Ritter and Gemünden (2002), innovation discussions are mostly technologically orientated. Innovative entrepreneurs by Garavan and Barra (1994) are marked by skills, knowledge and attitudes.

According to Bergmann (2006), innovation is the result of implemented ideas in new products, services or processes which are useful detected and accepted by the target group. Figure 1 shows the link between innovation and competence which is viable and defined as the externally attributed problem-solving skill: low competence and high challenge lead to stress and an uncomfortable context, high competence and low challenge lead to boredom. Flow requires a balance between challenge and competence with
the additional impact of learning. This figure shows the importance and big effectiveness of the environment as people act context-related. In the previous text it was mentioned that development can be described as the growth in the range of options; actually, information form the ground of change.

![Flow Model](image)

**Figure 1. Link between innovation and competence (Bergmann, 2006)**

### 3. INNOVATION BY INTERVENTION

The derivation of the research question and proposition will be explained hereafter. Key actors as the driving force promote innovation. Development of innovation in Turkish entrepreneurship is possible by a habitus in new social environments, the so called “Germanized Turkish creative class”.

Habitus is characterized by Bourdieu and Wacquant (1992) as a socialized subjectivity. Wimmer (2005) developed the term of habitus through cultural process by capable of change and being adaptable. This leads to actions which may differ from old patterns of habituated behavior. Thus, innovative capability of Turkish entrepreneurship is possible by a new kind of social and capital creative class.

The Sinus Sociovision Institution (2008) study of migrant-milieu is an instrument which helps to classify migrants sharing common values, lifestyles and beliefs in a map of eight clusters of migrant-milieu:

- multicultural-performer,
- intellectual-cosmopolitan,
- adaptive-middle-class,
- status-orientated,
- religious-deep-rooted,
- traditional-blue-collar,
- uprooted and
- hedonistic-subcultural.
4. RESEARCH DESIGN AND METHODOLOGY

This empirical case study is based on a contextual-relational approach and started with a structural analysis of ethnic entrepreneurs and ethnic markets of Siegen city. The biggest ethnic minority, namely Turkish immigrants, is the focused group of entrepreneurs in Siegen which is a city in North Rhine Westphalia, the most populous state in Germany, located between Frankfurt and Cologne; both are amongst the largest cities in Germany. The region of Siegen is an urban agglomeration with about 99,187 inhabitants (Stadt Siegen, 2013) and one of the most successful industrial regions with lots of ‘hidden champions’. Ten per cent of the population in Siegen consist of foreigners - Turkish people with nearly three per cent are thereby the largest group of immigrants (Statistics Office Siegen, 2012).

The study started by analyzing the structure of the entrepreneurs in Siegen since there is no data available for evaluating the Turkish entrepreneurs. As research method partial survey is used and proportionally reflects the Turkish entrepreneurs. The empirical analysis is based on a detailed survey of 50 Turkish entrepreneurs. Further 15 entrepreneurs refused to participate due to lack of time. The cross-sectional analysis was conducted during the period May-June 2012 by means of face-to-face interviews in the business of the interviewees. It was used a detailed questionnaire studying different aspects of the entrepreneurial actors. The primary data collection in the survey concludes large socio-economic data of the Turkish entrepreneurs. Taking the next step, the data was prepared by summarizing, descriptive analyzing and finally presenting the results graphically.

Data evaluation is built on the Sinus Sociovision milieu model. The milieu map is created on two dimensions: ‘social status’ (education, profession and income) and ‘basic values’ (tradition, modernization and reorientation). The survey language was German. In very few cases, there was the need of switching from German to Turkish which was no challenge because of a Turkish-speaking interviewer. The questionnaire consists of 30 questions and is divided into the categories ‘socio-economic status’ and ‘business data’ as well as information of ‘background variables’ of the entrepreneurs. If needed, the interviewer asked questions to clear up all obscurities.

5. EXPLORATORY FINDINGS

5.1 Social actors

Over half of the entrepreneurs in this case study are between 30 and 39 years old, only 10 per cent belong to the younger generation of 20 to 29 year old entrepreneurs. Figure 2 shows that 30-49 year old entrepreneurs are overrepresented.
With 52% of the entrepreneurs (see figure 3), the second generation plays a major role in the Turkish entrepreneurship. Less important are those of the first generation with only 2%. Every sixth entrepreneur belongs to the third generation of immigration (16%). The rest of the entrepreneurs (30%) came to Germany as refugees or asylum seekers, married-in or came to study.

The characteristic of the business is very clear, as about 80% are very small enterprises with 0 to 9 employees, 18% work with 10 to 49 employees and only 2% work with more than 50 employees. At least every second Turkish enterprise is family-managed.
About a third of these companies were found between 1978 and 2000, at least are 12 years old, 24 at the latest. Otherwise, there is another big trend of establishments (50%) in the period from 2007 to 2012.

Regarding the economic sectors (figure 5) of Turkish entrepreneurs in Siegen, it is noticeable that gastronomy, retailing (food and other) and services (knowledge-based and other) make up for one fourth each of dominated economic sectors. Craft with a share of 18% also belongs to major lines of business. To the less present but adolescent sectors with about 6%, the creative industries (in this study: design, architecture, and managing events) are listened.
5.2 Graduation

Figure 6 shows the graduation of all entrepreneurs. An upward trend to university degrees with 30% is noticed, nevertheless, there are 14% without any educational attainment. High level education (Abitur and university degree together) account for 44%, however, lower education (Hauptschule and Realschule together) make up 42%.

Figure 6. Graduation of entrepreneurs

Figure 7. Graduation and economic sectors
An overview of the correlation between graduation and the operation of entrepreneurs in different economic sectors is given in figure 7. Lower degrees (Hauptschule, Realschule) can be found in all sectors especially craft, retailing and gastronomy excluding creative industries.

Unlike these sectors, the creative sector only consists of higher educated Turkish entrepreneurs with university degrees. Knowledge-based services are also captured by this picture aside from one aspiring entrepreneur with low education (Hauptschule). Considered as a whole, well educated people were not only found in sectors of high skills, but also in traditional markets like gastronomy and retailing.

5.3 New social environment

After evaluating the data of the Turkish entrepreneurs and assigning them to the Sinus Sociovision milieu model, the results are summed up in figure 8. The general model works with eight milieus (cf. discussion). According to the results, Turkish entrepreneurs in Siegen can be assigned to five milieus:

- status orientated milieu,
- traditional worker milieu,
- adaptive middle class milieu,
- intellectual-cosmopolitan milieu
- multicultural performer milieu.

However, these identified five milieus are reduced and summarized by their similarities to only three social milieus composed of the following milieus:

- traditional-rooted (traditional worker milieu),
- middle-class (status orientated and adaptive middle class milieu) and
- ambitious milieus (intellectual-cosmopolitan and multicultural performer milieu).

![Figure 8. Simplified social milieus of Turkish entrepreneurs in Siegen](image-url)
The traditional (24%) and middle class milieu (50%) represent nearly three-quarter of the entrepreneurs. In addition to these two dominant milieus, every fifth belong to the adolescent and emerging ambitious milieus (26%).

According to the star plot in figure 9, promoters of innovation as key actors of new habitus may rise from the ambitious milieus. Their best patterns are characterized by serendipity, development, learning and changing. This modern milieu of “Germanized Turkish creative entrepreneurs” mostly works in knowledge based services and the creative industry, however, this case study surprisingly shows a representation of them in traditional sectors, too. As expected, the traditional markets like gastronomy, retailing and craft are composed of entrepreneurs of traditional and middle-class milieus.

6. DISCUSSION

The context of Turkish entrepreneurship is dynamic. The thesis of Constant and Zimmermann of older generations tending to self-employment can be confirmed so far. Second generations play a major role in entrepreneurship; third generations are more reserved. Nevertheless, entrepreneurship’s motivation interplays between intrinsic and extrinsic reasons such as unequal labor market opportunities, low payments, taken over, independence, self-fulfillment and personal development. So self-employment often becomes second-best alternative. Most of them found in Siegen either of spontaneous decision, of market gap or because they grew up there and have networks, family or of ethnic target groups. Future expectations vary between expansion, existence protection or giving up and remigrate to Turkey. The fact that family-run enterprises occupy an important position leads to the implication that Turkish family-run enterprises may emerge as SME of the future in Germany.

Turkish entrepreneurs in Siegen city are pooled to three social milieus: traditional-rooted and middle-class yielding the dominant milieus. The rise of the adolescent but emerging ambitious milieu opens up new markets like knowledge-based services and creative industries (see figure 10). This leads to the implication that the key actors promoting innovation in small and medium enterprises (SME) and
sustainable development in (Turkish) entrepreneurship are noticed in ambitious milieus. This habitus in new social environment driven by education is called the “Germanized Turkish creative class”.

Figure 10. Sinus Sociovision migrant milieu and located “Germanized Turkish creative class” (notation: percentages refer to total migrants’ population in Germany), Sinus Sociovision 2008

The new habitus may differ from old patterns of habituated behavior. For a dream of a better life, immigrants of the first generation worked very hard and put their health at risk. Their life was full of privations facilitating social advancement for their children. This lifestyle is comparable to Weber’s Calvinist entrepreneur which went down in history as the “spirit of capitalism” (Weber, 1930), rooted in the Protestant ethic. Diligence and virtue earned to success. Actually, this study presents a majority of traditional-rooted and middle-class milieus. The next implication is that the habitus of mostly traditional-rooted and middle-class entrepreneurs’ don’t differ from the habitus of the first generation workers: less development, less learning, less innovation.

People from traditional milieus mostly work in traditional markets of very competitive contexts like gastronomy, retailing and craft which all are labor intensive with low entry barriers, above-average working hours, rare differentiation strategy, less innovative pioneers and more imitators. In a profit orientated culture with hierarchical structures and without free zones, creativity and innovation are killed.
According to the definition by Bergmann (2006), innovation is a renewal process characterized by serendipity, development, learning and changing. This implies that ambitious entrepreneurs differ from old patterns of first generations’ habituated behavior; they are regarded as key innovators.

The results of sector distribution reflect the national wide positioning of the Turkish entrepreneurs with a shift to open up new markets by Germanized Turkish creative entrepreneurs. Furthermore, the findings show that education as an effective variable is a main promoter and opens wide doors. It supports and enhances social integration of Turkish immigrants. Integration is not a garage but much more an open door to new possibilities. Considered as a whole, we meet well educated people not only in sectors of high skills, but also in traditional markets like gastronomy and retailing. Innovative contexts can be raised by six factors of inventive spheres by Bergmann (2012), which are:

- diversity (e.g. cultural differences, different competences)
- equality (heterarchy, low power and income differences)
- density (community, piazza)
- interaction,
- access to resources (e.g. free access to knowledge, networking)
- scope for development (e.g. free zones)

The results show less interaction and unequal opportunities based on closed mentality of the natives. This positively effects the decision of talents leaving Siegen. In such a context, the social and economic rise of immigrants is mainly looked up in traditional fields rather than creative industries which can be stressed by the surprising effect finding ambitious entrepreneurs in unexpected milieus. This leads to the last implication of becoming attractive for (ethnic) diversity as a region which is one of the answers of upcoming challenges of demographic change and ‘war of talents’.

LIMITATION

A partial survey is used as research method and does not reflect all Turkish entrepreneurs but at least three-quarter. Further and detailed statistical evaluation was not taken into account as the stated goal was to transform data on the Sinus Sociovision milieu model and give a descriptive overview of the empirical context for which data did not exist before. In addition, the region was limited to downtown and its districts south, Weidenau and Geisweid.

CONCLUSIONS

Ethnic entrepreneurship turns out to a response of the labour immigration in Germany throughout generation groups. It creates added value to German economic development as well as it supports the social integrative function of immigrants. This paper examined the research gap of ethnic diversity of Turkish immigrants and their interventions for innovation and development of entrepreneurship especially SMEs. That gap was identified for Siegen. The city is one of the most successful industrial regions in Germany indicated by the location of “hidden champions”. The results are presented below.

I. The evaluated data of Turkish entrepreneurs lead to following three social milieus: traditional, middle-class and ambitious milieu.
II. The key actors are suggested to promote innovation in SME and sustainable development in Turkish entrepreneurship. These are noticed in ambitious milieus. The author defines this habitus in new social environment as the “Germanized Turkish creative class”.

III. There are similarities between the habitus of current traditional milieus and middle-class entrepreneurs on the one side and the immigrants of the first generation resp. guest workers on the other side. Entrepreneurs of ambitious milieus are regarded as key innovators because they differ from old patterns of first generations’ habituated behavior.

IV. Power, money, a society marked by materialism, routine, traditions and imitation are the significant drivers of the “more of the same” economy. For the path of inventiveness, creative and conducive contexts or milieus are the fundamental elements. But creativity and innovation is blocked in cultures where profit maximization and hierarchical structures rule and where scope for development i.e. free zones nearly does not exist. It is not possible to change people. However, in times of contingency it is needed to intervene in the context of people to create changes and developments.

V. Repetition is the most important feature of tradition. In this way, past and future are constantly linked up with each other. The repetition of old habits block changes and reduces the range of further options so that development becomes unlikely.

VI. The case study underlined the importance of craft and offering goods and services of traditional markets. Nevertheless, a shift to open markets by the new habitus of ambitious is observable.

VII. The main promoter which enhances the integrative function of immigrants is education. However, integration is an open door and no garage to new possibilities.

VIII. According to Florida and especially to Bergmann, inventive environments affect the attractiveness of regions and the innovative development of economies. Therefore, the following modified driving factors are suggested to promote: diversity, equality, density, interaction, access to resources, and scope for development.

FUTURE IMPLICATIONS

It would be useful to continue the research in a larger sample of enterprises or include other ethnicities of entrepreneurs giving a better comparison and insight of innovation capabilities in ethnic entrepreneurship, too.

However, future prospects of developing ethnic entrepreneurship depend on the interaction of many actors, innovation and open-minds. The need of education is underlined in order to differ from old patterns which lead to a behavior of doing “more of the same” instead of creating more opportunities. Nevertheless, one possible future scenario develops by the question if nowadays family-managed Turkish businesses in SME are becoming a larger economic power or the prospective small and medium enterprises in Germany?

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IMPACT OF THE CURRENT ECONOMIC SITUATION ON SOCIAL CARE FINANCING
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Abstract

There is no doubt that the current economic conditions are having several effects on financing of social services, being especially visible in terms of dependent people care.

In recent years some measures had been adopted to address dependency, specifically to meet the needs of those persons who, by virtue of their circumstances and resulting vulnerability, required special support to help them carry out their everyday activities, and to determine the necessary expenditure. Unfortunately, the current economic context is affecting these implemented measures.

The situation can pose tremendous difficulties for many dependent people, because only those with more severe needs could have access to social care. And those who still received financing could be forced to choose between social care and other basic needs, such as health care.

In this paper the effects of cuts in public services on the dependent people care are analyzed.

Key words: economic situation, cuts, social services, dependency.

1. INTRODUCTION

With decreasing birth rates and increasing life expectancy many countries are facing the economic impact of the aging population on their social care systems, especially public funded health care services. This, together with rising expectations for the quality of care, has made health care reform a major challenge of many governments (Reinhardt, 2000).

In the next years, the proportion of people in situations of dependency will increase very much, hence the quality and financial implications of care will be a pressing issue and to establish an effective social care system will be a main task.

In Spain, the regulation for dependent people operates via the Autonomy and Care for Dependent Persons System (which depends on the national Government) with the collaboration and participation of regional Government bodies. It sets minimum levels of protection, this being financially guaranteed by the General State Administration. In turn, a second tier of protection is provided by means of system of cooperation and co-financing between the General State Administration and the Autonomous Regional Communities, these having committed to formal agreements regarding the development and application of the other provisions and services covered by this Law. Finally, the Autonomous Regional Communities can also, should they so wish, provide a third, additional, tier of protection for citizens.
The very nature of the issues underlying this regulation for dependent persons requires shared commitment and combined action on the part of all the public bodies, and, as such, coordination and cooperation with the Autonomous Communities and Cities are fundamental. For this reason, the legislation establishes a series of mechanisms between the General State Administration and the Autonomous Communities and Cities, a noteworthy example being the *Territorial Council of the Autonomy and Care for Dependent Persons System*.

Starting from the international and national spheres, this paper focuses on the impact of the current economic situation on the social care financing in the Autonomous City of Ceuta, for which an exhaustive study about the provision of care for dependent people has been conducted. Specifically, the concept of Dependency is introduced in the following section. Section 3 details the measures adopted at international, national and regional levels. Then, in section 4 and 5 the dependent population of Ceuta and the cost of the required assistance are quantified, respectively. Finally, in section 6 the discussion is presented.

### 2. DEPENDENCY

According to the expert group constituted in 1998 by the Council of Europe, dependency is a state in which persons, by reason of lack or loss of physical, psychological or intellectual autonomy, require significant assistance or help in carrying out their basic activities of daily living.

From this definition three basic factors that define the status of a dependent person can be extracted:

1. **The existence of a physical, mental or intellectual limitation.**
2. **The inability to perform autonomously the basic activities of daily living.**
3. **The need for assistance or help from a third party.**

The need for assistance derived from dependency situations is not a new issue. In every age there has been a part of the population that, because of age, illness or deficiency, has needed, more or less intensely, the attention of third parties in the development of the daily life. What has changed has been its size (due mainly to the growth in the number and proportion of older people), its social importance (no longer seen as an exclusively individual or family issue, but a problem affecting to society as a whole) and its nature (while representing a redelimitation of the objectives and functions of the Welfare State and involving new protection and funding commitments). For this reason, dependency has become both a social and familiar issue and, at the same time, opens a new field of intervention that tests the ability of society and its institutions to adapt to the new realities of social fragility (IMSERSO, 2005).

When speaking about dependency, three levels of severity are applied:

- **Degree I. Moderate dependency**: when the person needs help in order to perform various basic activities of daily living, at least once a day or when the person needs intermittent or limited support for his/her personal autonomy.
- **Degree II. Severe dependency**: when the person needs help in order to perform various basic activities of daily living two or three times a day, but he/she does not want the permanent support of a carer or when he/she needs extensive support for his/her personal autonomy.
- **Degree III. Total dependency**: when the person needs help in order to perform various basic activities of daily living several times a day or, due to his/her total loss of physical, mental,
intellectual or sensorial autonomy, he/she needs the indispensable and continuous support of another person or when he/she needs generalised support for his/her personal autonomy. Each of the degrees of dependency established above is classified into two levels, depending on the person’s autonomy and on the intensity of care that is required.

3. MEASURES ADOPTED TO ADDRESS DEPENDENCY

3.1. In the international context

The protection of people with disabilities or those who are dependent on others for their care has become the focus of increasing attention on an international scale. The United Nations’ 1948 Universal Declaration of Human Rights, and the Council of Europe’s Convention for the Protection of Human Rights and Fundamental Freedoms (1950) and European Social Charter (1961), were the first such international treaties to make explicit mention of people with disabilities and set out measures designed to achieve optimum support for their personal and professional wellbeing.

In the 1970s, the European Union began to focus its attention on improving the living conditions of people with disabilities, approving in 1974 the initial Community Action Program for the Vocational Rehabilitation of Handicapped Persons. This established a basis for cooperation between those entities responsible for this area, and outlined actions intended to establish and disseminate good practice in the field.

These texts, together with others promoted by the World Health Organization, were followed in 1982 by the United Nations’ World Program of Action Concerning Disabled Persons. The UN also declared 1983-1992 the Decade of Disabled Persons, which was conceived as a vehicle for the World Program of Action. In more recent years, 2006 saw the UN introduce The Convention on the Rights of Persons with Disabilities, which aims to promote, protect, and ensure the full enjoyment of human rights by persons with disabilities, ensure their fundamental freedoms, and protect their innate dignity.

Also worthy of note is the current Council of Europe Action Plan to Promote the Rights and Full Participation of People with Disabilities in Society: improving the quality of life of people with disabilities in Europe 2006-2015. This plan considers that non-governmental support organisations – that is, those charities and voluntary groups that are exclusively devoted to helping people with disabilities – are perfectly competent and qualified to make policy in this area, and that they should therefore be consulted when making any decision that may have repercussions for the lives of the people they represent.

3.2. In the Spanish national sphere

In Spain, the social realm experienced a significant turning point in 1971, when the national Service for the Care and Rehabilitation of the Handicapped (Servicio Social de Recuperación y Rehabilitación de Minusválidos, or SEREM) was established. By the 1980s, the treatment and care offered by various different bodies to people with disabilities or those in situations of dependency had achieved considerable visibility. In 1982, Spain passed the Social Integration of the Handicapped Law (Ley de Integración Social de los Minusválidos, or LISMI), which made generalised reference to matters of care and integration relating to this collective and included preventative measures in the social, economic and educational realms.

Some twenty years following the introduction of the LISMI, and coinciding with the European Year of People with Disabilities, in 2003 Spain passed the Law on Equality of Opportunity, Non-Discrimination
and Universal Accessibility for Persons with Disability (Ley de Igualdad de Oportunidades, no Discriminación y Accesibilidad Universal de las Personas con Discapacidad, or LIONDAU). According to Lidón (2008), this law was the subject of much criticism due to its residing with the State, whilst the issue of accessibility was exclusively the domain of Spain’s Autonomous Regional Communities, leading to conflicts between national and regional jurisdiction.

In more recent years, several major national measures and pieces of legislation have been implemented, the most recent being the Third National Plan of Action for Persons with Disability 2009-2012 (III Plan de Acción para las personas con discapacidad). However, even more noteworthy is the Promotion of Personal Autonomy and Care for Dependent Persons Law (Ley de Promoción de la Autonomía Personal y Atención a las personas en situación de Dependencia), passed in 2006, which constitutes the greatest advance to date in the sphere of protection for people living in situations of dependency.

3.3. In the regional context of the Autonomous City of Ceuta

At regional level, the development of the Autonomy and Care for Dependent Persons System corresponds to the Regional Directorate of the Spanish Institute of Elderly and Social Services (Instituto de Mayores y Servicios Sociales, or IMSERSO). Specifically, the IMSERSO is responsible for the assessment and the recognition of the dependency, the entitlement to welfare benefits and the provision of service or payment of the economic benefit determined in the individual care program. However, according to the Organic Laws 1 and 2/1995, the government of the city has competence to develop social policies by implementing measures in order to facilitate the promotion and social integration of the population living in its territory.

Thus, the Royal Decree 1289/2007 regulates the direct award of grants to the City of Ceuta, by signing several agreements with the Ministry of Labour and Social Affairs (through the IMSERSO) to act on behalf of the elderly and those in situations of dependency, with the implementation of several programs and activities. These agreements have been renovated in 2013.

4. QUANTIFYING THE DEPENDENT POPULATION IN THE AUTONOMOUS CITY OF CEUTA

According to the Spanish national Survey on Disability, Personal Autonomy and Dependency (Encuesta de Discapacidad, Autonomía Personal y Situaciones de Dependencia, or EDAD) published by the National Institute of Statistics (INE) in 2008, the number of dependents living in Ceuta is as follows:

<table>
<thead>
<tr>
<th>Age</th>
<th>Both sexes</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>From 6 to 44 years</td>
<td>1,1</td>
<td>0,7</td>
<td>0,4</td>
</tr>
<tr>
<td>From 45 to 64 years</td>
<td>1</td>
<td>0,5</td>
<td>0,5</td>
</tr>
<tr>
<td>From 65 to 79 years</td>
<td>1,7</td>
<td>0,5</td>
<td>1,2</td>
</tr>
<tr>
<td>From 80 years upwards</td>
<td>0,9</td>
<td>0,1</td>
<td>0,8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4,7</strong></td>
<td><strong>1,8</strong></td>
<td><strong>2,9</strong></td>
</tr>
</tbody>
</table>

Table 1.

Dependent population in Ceuta by age and gender (in thousands of people)
In Ceuta, a total of 4,700 people over the age of five have some degree of impairment when it comes to carrying out everyday activities. By age group, the majority of these people are aged 65 or over. More specifically, this population comprises just over 2,800 individuals, this value having increased by 25% compared to nine years ago. The population of 6-64 year-olds has also increased during this time period, by around 29%.

Relative to the preponderance of either sex, in the following figure is possible to view it for more disaggregated age ranges.

If we take into account the maximum degree of severity of limitation, the dependent population in Ceuta is distributed as follows:

<table>
<thead>
<tr>
<th>Level of dependency</th>
<th>Both sexes</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate dependency</td>
<td>0.9</td>
<td>0.6</td>
<td>0.3</td>
</tr>
<tr>
<td>Severe dependency</td>
<td>0.6</td>
<td>0.1</td>
<td>0.5</td>
</tr>
<tr>
<td>Total dependency</td>
<td>3.2</td>
<td>1.1</td>
<td>2.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4.7</strong></td>
<td><strong>1.8</strong></td>
<td><strong>2.9</strong></td>
</tr>
</tbody>
</table>

These data suggest that two-thirds of the dependent population in Ceuta have total dependency. Regarding the remainder, 13% are severely dependents and 19% present a moderate dependency.
It is worthy of note that the data above, extracted from the Spanish national Survey on Disability, Personal Autonomy and Dependency, have been projected to the current year through a multi-state Markov model (Blanco, 2013).

5. COST OF THE SOCIAL CARE REQUIRED BY THE OLDER DEPENDENT POPULATION IN CEUTA

The expenditure on social care is higher for persons in situations of dependency and for those in their declining years. This expenditure increases in line with age, as the older people become, the more likely they are to find themselves in at least one of these categories (Bryant et al. 2004). This, combined with the increasingly aging population, suggests that demand for care amongst the elderly dependent will become a socio-economic issue of growing concern. Thus, our study focuses on the dependent population aged 65 and over.

In order to estimate the cost of care for the older dependent people in Ceuta, we can draw on the number of dependents, together with the unit cost of services that may be used, such as home helps, day care centers, residential care homes and telephone-based remote care services (‘telecare’).

Taking as source the Regional Directorate of the Institute of Elderly and Social Services in Ceuta, the following table presents the average cost of the social services offered by the city according to the latest available report (IMSERSO, 2012). To know the evolution of the prices in recent years, the data of the previous reports are also presented.

<table>
<thead>
<tr>
<th>Service</th>
<th>2006</th>
<th>2008</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home help (per hour)</td>
<td>10,50</td>
<td>11</td>
<td>11,60</td>
</tr>
<tr>
<td>Telecare (per month)</td>
<td>225</td>
<td>223,56</td>
<td>223,56</td>
</tr>
<tr>
<td>Day care center (per year)</td>
<td>7,500</td>
<td>7,500</td>
<td>15,000</td>
</tr>
<tr>
<td>Residential care home (per year)</td>
<td>14,924,85</td>
<td>15,695</td>
<td>17,155</td>
</tr>
</tbody>
</table>

Table 3. Cost per unit of service in Ceuta (euros)

As can be seen, the cost of the majority of social care has not vary too much; just the cost of a place at a day care center has considerably increased between 2008 and 2010. For a more thorough work we have proceeded to upgrade the cost to euros 2013. To this end, the Consumer Price Index (CPI) for the subset of social services in Ceuta has been applied to the costs at 2010.

There are many different ways to assign care services to each degree of severity for the dependent population (Gómez, Peláez & García, 2007; Guillén, 2006). For example, one of the options may only consider home help. Another alternative assignation of services, thinking that they are close to the real needs of the moderate, severe and total dependent population, may be the following: for the moderately dependent person, telecare and home help (one hour per day); for the severely dependent person, a place at a day care center and home help (one hour per day); and for the person who is totally dependent, a place in a residential home.

Although in Ceuta there is not only the possibility for care at home, the alternative consisting entirely of home help is contemplated as informative, because the day care centers and the residences at the city
could not have sufficient capacity to accommodate all dependents. Another issue that justifies the inclusion of this alternative is that the regional government bets on home help service. This is evident, for example, in the collaboration agreement signed between the City of Ceuta and the IMSERSO in terms of program of home care to people in situations of dependency, with an economic quantification of 1,499,996.00 euros.

Regarding the economic valuation of the Dependency (and the Ageing) at the Autonomous City, in the tables below we present the estimated total annual cost for both alternatives, first for the mixed assignation of services and then for the alternative which only considers home help.

<table>
<thead>
<tr>
<th>Total cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate dependency</td>
</tr>
<tr>
<td>(Telecare + Home help)</td>
</tr>
<tr>
<td>Severe dependency</td>
</tr>
<tr>
<td>(Day care center + Home help)</td>
</tr>
<tr>
<td>Total dependency</td>
</tr>
<tr>
<td>(Residential care home)</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Table 4. Cost of social services in Ceuta with the mixed assignation of services (million euros)

<table>
<thead>
<tr>
<th>Total cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate dependency</td>
</tr>
<tr>
<td>(Home help, 365 hours per year)</td>
</tr>
<tr>
<td>Severe dependency</td>
</tr>
<tr>
<td>(Home help, 1.825 hours per year)</td>
</tr>
<tr>
<td>Total dependency</td>
</tr>
<tr>
<td>(Home help, 3.650 hours per year)</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Table 5. Cost of social services in Ceuta with the exclusive assignation of home help (million euros)

According to these results, the first alternative (that groups the basic social services offered in the Autonomous City of Ceuta) has a lower cost, less than half of the one that would be incurred if only the home help was considered. However, if the care that the dependent received was informal, i.e. if it was dispensed by family or friends, the results for the exclusive assignation of home help alternative could be considered as opportunity costs rather than economic costs, whereby the above values would be greatly reduced.
6. DISCUSSION

The quality and financial implications of care for dependent people is a pressing issue. In the short and medium term, the proportion of people in situations of dependency will increase very much, so to establish an effective social care system will be a major task.

Although in recent years several measures have been adopted to address dependency, unfortunately the current economic context is affecting these implemented measures. The budget deficits which the government is struggling with have led to cuts in public services; for example, some day care centers and residential care homes have reduced their schedules and services and, in some instances, closed their doors. This leads to older people to rely more strongly on informal care and pay more for private care.

Other consequence of reduced public services spending has been the decrease of the fee perceived by the dependents, so some of them could be forced to choose between social care and other basic needs, such as health care.

The ‘Promotion of Personal Autonomy and Care for Dependent Persons Law’ was planned to be established gradually, in accordance with the following schedule from January, 2007:

- Year 2007: For total dependents, levels 1 and 2.
- Years 2008 and 2009: For severe dependents, level 2.
- Years 2009 and 2010: For severe dependents, level 1.
- Years 2011 and 2012: For moderate dependents, level 2.
- Years 2013 and 2014: For moderate dependents, level 1.

But as the recession has deepened, the incorporation into the system of benefitted people with a less severe dependency level has been delayed. The situation can pose tremendous difficulties for many dependent people, since only those with more acute needs have access to social care.

The current economic crisis is also affecting the labour market in relation to health care. Within the Dependency Law the figure of nonprofessional caregivers emerged. Since then, all the relatives of dependent people could perceive an economic benefit for performing such care, being the Social Security quote defrayed by the Government. However, after the cuts the caregivers have to pay this quote, so many of them have been deregistered of Social Security.

REFERENCES


DEMAND FOR ELECTRONIC PAYMENT IN CROATIA
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3 Faculty of Economics and Business, 10000 Zagreb, Croatia

Abstract
Electronic payment is a system for transferring money based on the use of information technology. It is the easiest, fastest and cheapest way of making the transactions, but there are also some potential problems, as the distrust of clients in the safety and reliability. This paper analyses the attitudes towards the electronic payment in Croatia. The main goal is to detect how much electronic payment in Croatia is used and what are the main advantages and disadvantages of electronic payment from the aspect of clients. The analysis will be done using date collected through the questionnaire.

Key words: Electronic Payment, Croatia, Information Technology, E-payment Demand

1. INTRODUCTION
Electronic payment has become very important way of making money transactions. Its popularity arises from low costs of making transactions, simplicity of the whole process and wide accessibility worldwide 24/7. In this paper authors analyze the demand for electronic payment in the Republic of Croatia. The analysis is based on the research, which was done using questionnaires on the sample of 202 respondents. The aim of the research is to detect what are the main advantages and disadvantages of electronic payment from the perspective of customers, as well as to find out what are the main motives for using electronic payment.

2. ELECTRONIC PAYMENT
In the world of e-commerce, electronic payment most commonly refers to the use of a credit or debit card by a consumer to purchase a product or service online. For online merchants to accept credit or debit card numbers as payment, they must use online credit card processing technology that processes payments via online platforms such as the World Wide Web. To alleviate consumer concerns regarding the risk involved in using credit and debit cards online, most online sites use secure electronic transaction specifications that help to protect personal information like credit card numbers (Encyclopedia of e-commerce, 2002).

Payment services are services relating to the operation of payment accounts (for example, cash deposits and withdrawals from current accounts and flexible savings accounts), execution of payment transactions, card issuing, merchant acquiring, money remittance and certain mobile phone-based payment services (Kemp, 2013).

Business is being conducted very differently and has been reshaped by such genius Internet technology. The concepts of electronic commerce (e-commerce) or electronic business (e-business) have gone through a rapid evolutionary process. Today, applications of e-commerce can be seen almost
everywhere, from product design, business operations, business transactions, and even to the services delivery. New electronic channels are replacing the more traditional ones. The Internet offers many opportunities and benefits to financial services providers by using the Internet for information presentation, two-way communications, interaction with users, and transaction banking. E-banking refers to the use of Internet as a remote delivery channel for providing services. The payment of transaction can receive and send right in several seconds. It is an extremely convenient way of online payment instrument enabling consumers to allocate or transfer funds, effect payments, and make account inquiries 24 h a day, all year round (Tsai et. al., 2010).

With advancement of the Internet, Web, and Mobile technologies, online customers can gain unlimited access to the information they require and enjoy a wider range of choices in selecting products and services with highly competitive prices. Simple and flexible payment methods, provided by the online retailer can dramatically improve consumer perceived online shopping convenience. While shoppers can benefit from online shopping by avoiding long customer queues to pay, they may encounter another type of waiting, i.e., slow download speed of websites for payment. Customers tend to feel frustrated and may even abandon the entire purchasing process when they have to wait an inordinately long time for online payment, even worse they never again return to the same online retailer. Payment speed is dramatically affected by transaction design and internet connection functions. While a pure online retailer can save costs in terms of rent and labor, being a hybrid retailer employing both online and offline channels entails several significant benefits for consumer convenience. Hybrid retailers have the advantage of offering flexibility of payment methods from which customers can select their preferred means, thus reducing consumers’ perceived expenditures of time and effort to complete a transaction. (Jiang et. al., 2013).

E-payment capabilities are now being applied in business world to overcome the numerous problem of the traditional payment system (Vincet et. al., 2009).

Customers’ perceptions of the security of e-payment systems have become a major factor in the evolution of electronic commerce in markets. Kim et. al. proposes a research model that delineates the determinants of consumers’ perceived security and perceived trust, as well as the effects of perceived security and perceived trust on e-payment systems use. Their findings show that both technical protections and security statements are significant factors for improving consumers’ perceived security. Consumers’ perceived security is positively related to consumers’ perceived trust and e-payment systems use. Finally, consumers’ perceived trust also has a positive impact on e-payment systems use (Kim et. al., 2010).

The emergence of online transactions, enabled through internet media, has led to an increase in the availability of electronic payment (e-payment) systems. Özkan et. al. aims to investigate, through theoretical constructs (technology acceptance model, theory of reasoned action) and an empirical analysis, the critical factors that may ensure consumer adoption of these facilities. The research proved that the perceived importance of the critical factors was correlated through security, trust, perceived advantage, assurance seals, perceived risk and usability. The results demonstrate that three of the critical factors were necessary (security, advantage, web assurance seals) and three were relatively sufficient (perceived risk, trust and usability) through customer intentions to adopt an e-payment system (Özkan et. al., 2010).

In their research Hsieh et. al. showed that online behavior patterns exhibited regional differences, as the regional segments affected the individual segments of different use patterns. For instance, the urban area comprised a higher proportion of members who were accustomed to internet applications and skilled in
online shopping by using a credit card. The rural area made up a higher proportion of members who only occasionally used online services. Moreover, rural region residents used other payment methods (excluding credit cards) more often than urban region residents. As expected, users’ personal characteristics also dictated the online behavior pattern. For instance, people with higher-level income spent relatively more money for online shopping and often used various internet applications than others (Hsieh et. al., 2013).

Hung et. al. in their paper identifies the factors that determine the publics’ acceptance of e-Government services especially the online tax filing and payment system. They find out that the critical factors included perceived usefulness, ease of use, perceived risk, trust, compatibility, external influence, interpersonal influence, self-efficacy, and facilitating condition (Hung et. al., 2006). Well-designed electronic payment schemes and high-quality digital contents are two critical successful factors for digital content transactions through the Internet. The well-designed electronic payment scheme must ensure fair exchange and customer anonymity on e-commerce transactions. It can be constructed by cryptographic techniques to ensure fair exchange and customer anonymity (Lin & Liu, 2009).

Ruiz-Martínez et. al. presented the approach for the definition of payment frameworks. Approach facilitates the discovery of payment information associated to electronic contents and services and the performance of the payment process in a uniform way (Ruiz-Martínez et. al., 2012).

3. DETERMINANTS OF DEMAND

Generally spoken, the determinants of demand in microeconomics are price, income, prices of related goods, tastes, number of customers and expectations (Pindyck & Rubinfeld, 2009). Price is in the term of electronic payment almost unimportant, because it is very small. The only price is the price of Internet connection. Income is definitely connected to the demand for electronic payment. People with higher income usually buy more products and services, and they are in touch with new technology, which results in the positive correlation between the income level and the demand for electronic payment. Related goods are all other ways of payment, and today the cheapest and easiest way is electronic payment. Tastes are very important factor. People who like new technologies first adopted electronic payment. Now all others also do this, because they realise all advantages of using electronic payment. Number of customers is related with tastes and expectations. The number of potential costumers is equivalent to the number of adult inhabitants. Depending on their tastes and expectations, they form the demand for electronic payment.

4. METHODOLOGY AND SAMPLE

In this research the survey was taken on student population. An online questionnaire was formed and it included 19 questions of different types: 15 one-choice questions and 4 Likert scale ranking questions. Questions were divided into several groups: (1) Demographic characteristics, (2) Modalities and motives for Internet usage (3) Online shopping behavior and (4) Attitudes towards e-payment issues. Questionnaire was structured on the basis of previous research studies. All the data were collected in the period from January 25, 2013 (the beginning of the research) to February 15, 2013. There are used descriptive statistics methods, as well as inductive conclusions. The gathered poll consisted of 213 answered questionnaires and 202 of them were fully valid.
5. ANALYSIS OF SURVEY

In this chapter we analyze the results of the research done using questionnaire on the sample of 202 respondents.

Graph 1: The structure of respondents by sex

Graph 2: The structure of respondents by age
Graph 3: The structure of respondents by education

In the survey there were 202 respondents. 40% of them were male, and 60% female (Graph 1). Regarding the age structure (Graph 2), 45% of respondents had between 18 and 24 years, 46% between 25 and 34, and 9% from 35 to 44 years. This means that the majority of respondents (91%) is younger than 35. The structure of respondents by education (Graph 3) shows that 35% of them were students, 21% were people who had finished high school (or any other secondary school), 12% had higher education, and 32% university education. From all this data, we can conclude that our sample is well distributed according to sex, age and education structure.

Graph 4: How long have you been using Internet?
The majority of respondents (Graph 4) stated that they have been using Internet more than 10 years (62%). About one third said that they have been using Internet from 7 to 9 years, and 8% have been using Internet from 4 to 6 years. None of the respondents have been using Internet shorter than 4 years, and also none of them said that they are not using Internet at all. From this question we can conclude that all our respondents have the access to Internet, which is the main assumption for participating in e-activities.

Graph 5: How often do you use Internet?

Very high percentage of the respondents uses Internet every day (Graph 5). Only 10% of respondents use Internet once in two days, while there were no respondent using Internet less than that.

Graph 6: How much time do you spend on Internet daily?
This question (Graph 6) shows that 14% of respondents spend less than 1 hour on Internet daily, 31% spend from 1 to 3 hours, 28% from 4 to 5 hours, 11% from 6 to 7 hours, and 16% more than 7 hours. The majority of respondent spend between 1 and 5 hours on Internet daily.

Table 1: Motives of using the Internet

<table>
<thead>
<tr>
<th>Motives</th>
<th>Very important</th>
<th>Important</th>
<th>Moderate important</th>
<th>Less important</th>
<th>Not important</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can find information about study and student rights</td>
<td>36</td>
<td>22</td>
<td>31</td>
<td>20</td>
<td>93</td>
</tr>
<tr>
<td>I can find information from my personal interest</td>
<td>116</td>
<td>65</td>
<td>16</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I can follow the news about social events through portals of public media</td>
<td>66</td>
<td>72</td>
<td>51</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>I can watch and listen to free media content (music, video)</td>
<td>80</td>
<td>50</td>
<td>56</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>I can download free multimedia content</td>
<td>73</td>
<td>48</td>
<td>35</td>
<td>37</td>
<td>9</td>
</tr>
<tr>
<td>I can play online games</td>
<td>35</td>
<td>19</td>
<td>18</td>
<td>46</td>
<td>84</td>
</tr>
<tr>
<td>I can communicate with my friends</td>
<td>85</td>
<td>66</td>
<td>28</td>
<td>15</td>
<td>8</td>
</tr>
<tr>
<td>I can be well informed about the products and services I intend to buy</td>
<td>108</td>
<td>63</td>
<td>22</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>I can do shopping from my home</td>
<td>47</td>
<td>44</td>
<td>57</td>
<td>29</td>
<td>24</td>
</tr>
<tr>
<td>I can play games of chance</td>
<td>11</td>
<td>14</td>
<td>25</td>
<td>33</td>
<td>119</td>
</tr>
</tbody>
</table>

Table 2: Motives of using the Internet (percentage)

<table>
<thead>
<tr>
<th>Motives</th>
<th>Very important</th>
<th>Important</th>
<th>Moderate important</th>
<th>Less important</th>
<th>Not important</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can find information about study and student rights</td>
<td>17,82%</td>
<td>10,89%</td>
<td>15,35%</td>
<td>9,90%</td>
<td>46,04%</td>
<td>100,00%</td>
</tr>
<tr>
<td>I can find information from my personal interest</td>
<td>57,43%</td>
<td>32,18%</td>
<td>7,92%</td>
<td>0,99%</td>
<td>1,49%</td>
<td>100,00%</td>
</tr>
<tr>
<td>I can follow the news about social events through portals of public media</td>
<td>32,67%</td>
<td>35,64%</td>
<td>25,25%</td>
<td>3,96%</td>
<td>2,48%</td>
<td>100,00%</td>
</tr>
<tr>
<td>I can watch and listen to free media content (music, video)</td>
<td>32,67%</td>
<td>35,64%</td>
<td>25,25%</td>
<td>3,96%</td>
<td>2,48%</td>
<td>100,00%</td>
</tr>
</tbody>
</table>
From the Tables 1 and 2 we can see the motives for using Internet. The most important for the majority of respondents is the possibility of finding information from the personal interest. Very important is also the possibility of collecting information about the products or services that one intends to buy, as well as communication with friends and watching and listening to free media content. Very low level of importance have the possibility of playing games of chance, finding information about study and student rights and playing online games.

Graph 7: How often do you buy on Internet?

62% of respondents (Graph 7) buy on Internet more than 6 times a year, and this group of respondents can be regarded as regular customers of e-market. 28% of respondents buy on Internet several times a year, and 6% buy once a year. Only 4% of respondents in the survey do not buy on Internet at all.
Table 3: Do you buy or plan to buy online these products?

<table>
<thead>
<tr>
<th>Product type</th>
<th>I have bought more times online</th>
<th>I have bought once online</th>
<th>I haven't bought online yet, but I plan to</th>
<th>I haven't bought online yet, and I don't plan to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer equipment and software</td>
<td>45</td>
<td>21</td>
<td>51</td>
<td>85</td>
</tr>
<tr>
<td>Consumer electronics</td>
<td>28</td>
<td>22</td>
<td>64</td>
<td>88</td>
</tr>
<tr>
<td>Travels</td>
<td>53</td>
<td>29</td>
<td>79</td>
<td>41</td>
</tr>
<tr>
<td>CD, DVD, digital multimedia (music, movies)</td>
<td>27</td>
<td>16</td>
<td>63</td>
<td>96</td>
</tr>
<tr>
<td>Books</td>
<td>64</td>
<td>17</td>
<td>38</td>
<td>83</td>
</tr>
<tr>
<td>Clothing, footwear and fashion accessories</td>
<td>116</td>
<td>24</td>
<td>37</td>
<td>25</td>
</tr>
<tr>
<td>Products/services for health and beauty</td>
<td>90</td>
<td>34</td>
<td>42</td>
<td>36</td>
</tr>
<tr>
<td>Jewelry and watches</td>
<td>76</td>
<td>27</td>
<td>66</td>
<td>33</td>
</tr>
<tr>
<td>Food and drinks</td>
<td>33</td>
<td>23</td>
<td>52</td>
<td>94</td>
</tr>
<tr>
<td>Tickets for the cinema, theater, concerts and sport events</td>
<td>102</td>
<td>33</td>
<td>40</td>
<td>27</td>
</tr>
</tbody>
</table>

Table 4: Do you buy or plan to buy online these products? (percentage)

<table>
<thead>
<tr>
<th>Product type</th>
<th>I have bought more times online</th>
<th>I have bought once online</th>
<th>I haven't bought online yet, but I plan to</th>
<th>I haven't bought online yet, and I don't plan to</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer equipment and software</td>
<td>22,28%</td>
<td>10,40%</td>
<td>25,25%</td>
<td>42,08%</td>
<td>100,00%</td>
</tr>
<tr>
<td>Consumer electronics</td>
<td>13,86%</td>
<td>10,89%</td>
<td>31,68%</td>
<td>43,56%</td>
<td>100,00%</td>
</tr>
<tr>
<td>Travels</td>
<td>26,24%</td>
<td>14,36%</td>
<td>39,11%</td>
<td>20,30%</td>
<td>100,00%</td>
</tr>
<tr>
<td>CD, DVD, digital multimedia (music, movies)</td>
<td>13,37%</td>
<td>7,92%</td>
<td>31,19%</td>
<td>47,52%</td>
<td>100,00%</td>
</tr>
</tbody>
</table>
Tables 3 and 4 show the attitudes towards online buying for product categories. The majority of respondents have bought clothing, footwear and fashion accessories online more times, as well as tickets and products for health and beauty. Almost the half of respondents has not bought and does not plan to buy online CDs and DVDs, as well as food and drinks.

Graph 8: Do you use electronic payment?

62% of respondents (Graph 8) use electronic payment often, 31% use electronic payment sometimes, and 7% do not use electronic payment. This shows that 93% of respondents have used electronic payment at least once.
Graph 9: What do you use electronic payment for?

More than the half of the respondents (Graph 9) uses electronic payment for online shopping. 31% use Internet banking, 6% play games of chance and 6% use electronic payments for entertainment.

Graph 10: When paying via the Internet, what do you primarily pay attention to?
The most respondents pay attention to safety when paying via Internet (Graph 10). On second place are low costs, which are most important for 24% of respondents. 15% pay most attention to reliability, and 9% to the speed of service.

Graph 11: How reliable, in your opinion, is the system of electronic payments over the Internet?

The majority of respondents (Graph 11) consider the system of electronic payments over the Internet completely reliable. 37% of respondents think that the system is partly reliable, and 4% consider the system of paying over the Internet unreliable.

Graph 12: What do you like most about the electronic payment systems?

The majority of respondents (Graph 11) consider the system of electronic payments over the Internet completely reliable. 37% of respondents think that the system is partly reliable, and 4% consider the system of paying over the Internet unreliable.
47% of the respondents (Graph 12) consider saving time as the most important advantage of electronic payment systems. On the second place is global availability with 39%. For 12% of respondents privacy is the most important part in electronic payment systems, and for 2% this is safety.

Graph 13: What are you most concerned with electronic payment systems?

The majority of respondents (62%) are concerned about fraud (Graph 13). 16% of respondents is concerned about safety, 11% about the lack of authenticity and 11% about the lack of personal communication.

Graph 14: How well, in your opinion, are informed the citizens of the Republic of Croatia in features and essential details of electronic payments?
The majority of respondents (Graph 14) consider citizens of the Republic of Croatia partly informed about features and essential details of electronic payments. About one third of respondents in the survey said that citizens of the Republic of Croatia are not informed about features and essential details of electronic payments, and only 14% consider them enough informed.

Graph 15: Do you think that the system of electronic payments will become more popular in the Republic of Croatia?

90% of the respondents (Graph 15) in the survey think that the system of electronic payments will become more popular in the Republic of Croatia, and only 10% of them think that it will not become more popular.

In next two tables there are main advantages and disadvantages of the system of electronic payment. The respondents had to evaluate every advantage or disadvantage from 1 to 5, where 1 is the lowest level of importance and 5 the highest level of importance.

Table 5: Advantages of electronic payment

<table>
<thead>
<tr>
<th>Advantage</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Average</th>
<th>St.dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Privacy</td>
<td>9</td>
<td>34</td>
<td>42</td>
<td>36</td>
<td>81</td>
<td>3.72</td>
<td>1.27</td>
</tr>
<tr>
<td>Saving time</td>
<td>2</td>
<td>11</td>
<td>29</td>
<td>59</td>
<td>101</td>
<td>4.22</td>
<td>0.95</td>
</tr>
<tr>
<td>Safety</td>
<td>4</td>
<td>4</td>
<td>14</td>
<td>46</td>
<td>134</td>
<td>4.50</td>
<td>0.87</td>
</tr>
<tr>
<td>Global accessibility</td>
<td>5</td>
<td>19</td>
<td>31</td>
<td>51</td>
<td>96</td>
<td>4.06</td>
<td>1.11</td>
</tr>
</tbody>
</table>

The most important advantage of electronic payment is safety (Table 5). On the second place is saving time, and third place global accessibility. The last place is for privacy.
Table 6: Disadvantages of electronic payment

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Average</th>
<th>St.dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>8</td>
<td>9</td>
<td>47</td>
<td>40</td>
<td>98</td>
<td>4.04</td>
<td>1.12</td>
</tr>
<tr>
<td>Lack of personal communication</td>
<td>31</td>
<td>46</td>
<td>63</td>
<td>45</td>
<td>17</td>
<td>2.86</td>
<td>1.18</td>
</tr>
<tr>
<td>Fraud</td>
<td>4</td>
<td>4</td>
<td>43</td>
<td>47</td>
<td>104</td>
<td>4.20</td>
<td>0.97</td>
</tr>
<tr>
<td>Lack of authenticity</td>
<td>20</td>
<td>40</td>
<td>67</td>
<td>47</td>
<td>28</td>
<td>3.11</td>
<td>1.17</td>
</tr>
</tbody>
</table>

The biggest disadvantage of electronic payment is fraud (Table 6), and on the second place is safety. Lack of authenticity and lack of personal communication are not so important, with lower average grades.

6. CONCLUSION

Electronic payment is the "cornerstone" of electronic business. In this research the survey was taken on student population. The gathered poll consisted of 202 fully valid answered questionnaires. This paper analyses the attitudes towards the electronic payment in Croatia. The main goal was to detect how much electronic payment in Croatia is used and what are the main advantages and disadvantages of electronic payment from the aspect of clients. According to research result the most important advantage of electronic payment is safety and the biggest disadvantage of electronic payment is fraud.

Limitation of this paper may arise from the fact that only descriptive statistics was used to validate research result. Having in mind the fact that e-payment systems are relatively novel in the Republic of Croatia, we found this approach correct. Plans for future research include detailed research of various e-payment models as well as new countries should be included in research.

REFERENCES

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A SOCIAL PROBLEM RESOLUTION-ORIENTED CORPORATE STRATEGY
AND COMPETITIVE ADVANTAGE: A QUESTIONNAIRE-BASED STUDY
OF INTER-ORGANIZATIONAL RELATIONS

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Abstract

In order that a company may grow sustainably with a society, new corporate strategies such as creating shared value (Porter & Kramer, 2011) are attracting attention. There are those who point out the utility of a corporate strategy of cooperating with various stakeholders and solving social problems, such as environmental problems. The aim of this research is to establish whether social problem resolution-oriented enterprise activities yield a competitive advantage. Thus, the research hypothesis is as follows: a good relationship with stakeholders is required for the resolution of a social problem and it becomes a source of long-term competitive advantage. The following findings were verified through the administration of a questionnaire to companies. A short-term competitive advantage is gained by implementing supply chain management and a system of cooperation between companies. On the other hand, a long-term competitive advantage is derived from stakeholders' satisfaction resulting from social problem resolution-oriented enterprise activities.

1. INTRODUCTION

The aim of this research is to establish whether social problem resolution-oriented enterprise activities improve competitive advantage. In the management environment which surrounds the multinational firm these days, various transitions in international competition or cooperative relationships are seen with the growth of an emerging market. For example, a shift to a model which pursues improvement in quality may be required by the behavioural model of a company; this involves, inter alia, confronting various social problems of a country or region, carrying out the optimum allocation of scarce resources and aiming for continuous growth within the region through implementing a volume competition model by mass producing a popular-price quality product. In order that a company may grow sustainably with a society, new corporate strategies such as shared value creation (Porter & Kramer, 2011) attract attention. Discussion of these strategies points to the utility of a corporate strategy of cooperating with various stakeholders and solving social problems, such as environmental issues.

On the other hand, the correspondence of corporate strategy to social problems such as environmental disruption and economic discrepancy has conventionally been positioned as part of a company’s philanthropic activities for returning a part of its profit to a society and improving the corporate image. Corporate social responsibility (CSR) has not always been regarded as something that improves the competitive advantage of a company. For example, at the Earth Summit held in Rio de Janeiro in 1990, the top managers of approximately 50 large-scale corporations gathered from every country in the world to deliberate upon environmental problems. This saw the birth of the World Business Council for Sustainable Development. The Rio Declaration on Environment and Development was released, the
The concept of eco-efficiency was advocated and it was insisted that profit be made by reducing pollution and managing resource expenditure wisely. However, this philosophy did not become widespread as a core subject in the management strategy of multinational firms for a long time after that. Also, in many previous studies on CSR activity and corporate earnings, the conclusions concerning correlations are not coherent: some are positive, some are negative and others are unrelated.

However, it seems that conditions have changed in recent years. One of the major transitions in the international economy in this century has been the rapid improvement in the economies of emerging countries, including BRICs countries (Brazil, Russia, India, China and South Africa), and this has spread further with the potential for rapid development in Southeast Asia, Central and Eastern Europe, Central America and Africa. Such a transition offers multinational firms from developed European and American countries a major business opportunity that differs from conventional Western markets and also leads to the rapid rise of companies in emerging countries. The regions involved in the supply-chain activities of multinational firms are increasingly expanding with the development of production and consumption districts of such emerging countries.

On the other hand, rapid improvements in living standards in emerging country groups cause the rapid intensification of environmental impacts accompanying the expansion of production or expenditure; thus, changes to mass production systems based on conventional production techniques are required. One of the main issues facing companies in terms of competition this century is that of energy. The serious air pollution in newly industrialized countries (China, India, etc.) has become a major problem. The development of sustainable energy technologies and a harmonious environmental urban system will bring a company a long-term competitive advantage if it realizes the potential ahead of other companies because highly complicated and integrative technology, including information technology (IT), is required.

Moreover, since the markets in which continuous new growth systems are applied extend not only to developed European and American countries but to the whole emerging country groups in which billions of people live, the impact is huge. A further major business environment transition of this century is that businesses targeting people with the lowest incomes (the Bottom of the Pyramid, BOP) in regions where economic development is expected from now on, such as Africa, have attracted attention. In conventional industrial development following the labour intensive model, conditioned on lower wages, structural outlines have sometimes caused the intensification of economic discrepancies by yielding only some of the local wealth connected with the multinational firms of developed countries. On the other hand, under a BOP business model local citizens have the means to gain economic independence, improved earnings and better living standards. Furthermore, it aims at a win-win relationship between an enterprise activity and local development, built on a long-term view, by bringing the volume zone population up to a middle-income group.

Thus, for the multinational firm at present, the supply chain will expand increasingly and will confront more varied economies and social surroundings. It is considered an important issue in competitive strategy to tackle various regional issues up front and to build a win-win relationship with various stakeholders. A fundamental aspect of this research is that companies today earnestly consider that solving a social problem leads to long-term competitiveness rather than merely constituting advertising and promotional activities. The aim of this research is to carry out an empirical study based on a questionnaire concerning awareness of the issues related to social problems and competitiveness.
2. PREVIOUS RESEARCH

In this section, previous research on CSR theory, inter-organizational relation theory, supply chain theory, and competitive advantage theory are reviewed one by one based on the above-mentioned awareness of issues driving strategy.

2.1. Relationship between CSR and firm profitability

First, previous studies on CSR and corporate performance are reviewed. A number of such studies have indicated that CSR and corporate performance are positively related. Waddock and Graves (1997) developed two hypotheses concerning the relationship between CSR and corporate performance: 1) if corporate performance was good, CSR would be addressed (the slack resource hypothesis); the company would see good earnings as a result of addressing CSR (good management hypothesis). Through analysis of data from a US firm, the relationship between CSR and corporate performance was found to be positive in both directions. According to McGuire et al (1988), business results greatly influence the extent to which a CSR policy is followed, meaning that consideration is given primarily to financial results and then to social responsibility. Moreover, in terms of the relationship between CSR and business results, they found that CSR is not directly linked to following strong business results, but that first risk is reduced and this then leads to high financial results in the future. Orlitzky et al (2003) undertook a meta-analysis of approximately 52 empirical studies performed in relation to sociality, such as environmental countermeasures, and financial business results in the 30 years after the 1970s. According to this study, there is a significant positive correlation between financial business results, price earnings, and societal or environmental performance; their results also verify the existence of mutually complementary cause–effect relationships on the basis of a time series analysis.

On the other hand, Mahapatra (1984) and Jaggi and Freedman (1992), amongst others, found a negative relationship between CSR and corporate performance. According to Mahapatra (1984), eco management (or social responsibility) and financial business results are negatively related. Aupperle, Carroll and Hatfield’s (1985) study indicated CSR and corporate performance are not related. Similarly, Ullman (1985) observed no significant trend between CSR and corporate performance and McWilliams and Siegel (2000) found that CSR has a neutral impact on corporate performance.

According to Vogel (2005), no decisive conclusion has been reached about the relevance of social responsibility for revenue in a company. It has not yet been proved whether more responsible action suits the self-interests of all companies or whether CSR always takes a margin of the profit. Moreover, the direction of the correlation between CSR and profit is undetermined. Financial success may be a cause of social responsibility or an effect.

The various study results reported here suggest that there may be high potential for a positive relationship between CSR and corporate performance in general, but it could be negative, or the two could be unrelated. To date, there is no positive established theory.

2.2. Passive CSR and strategic CSR

Porter and Kramer (2002) point to strategic philanthropy as providing a competitive advantage. This focuses on the context of a strategy which benefits a company and a society mutually by simultaneously tackling a social objective and an economic objective and by each offering its own assets or special capabilities. Since philanthropy is the contribution of activities to a society, strategic philanthropy provides a competitive advantage by aiming at unification between a social subject and the primary business of a company.
Porter and Kramer (2006) also argue the significance of evolving strategic CSR which exceeds responsive CSR. It is necessary to create an association between strategy, the business, and the CSR of a company, paying attention to the relations of interdependence – as opposed to an adversarial relationship between a company and a society – in order for the company to promote CSR and not to dissipate the social influence of the company. The social problem related to the company business is extracted, and both a social value and an economic value are achieved by addressing the social problem. Thus, the company aims to engage in strategic CSR, strengthening a strategy with the goal of improving a society, thereby going beyond passive CSR which seeks to reduce the level of nuisance.

The concrete value which passive CSR yields is as follows. First, there are benefits to relationship: as good corporate citizenship, the trust of the local society is gained; relationships in every direction, such as with regional government, are improved through activities which correspond to issues of concern to the stakeholders, such as an endowment to a local group; employees’ pride in the company increases. Second, when carrying out everyday activities (activities of a value chain), potential adverse effects – present or future – can be mitigated by discerning general social risks and environmental risks and the social influence of each enterprise activity. On the other hand, at the level of passive CSR, representing compliance or risk management, it is difficult to improve the profitability or competitiveness of a company. Ethical communications, such as the guarantee of the safety of a product or service, relevant price support, an increase in a dividend, serious consideration of the work–life balance, consideration of profit from business connections, and the realization of zero emissions, are appraised by the stakeholders. Through such appraisals, a company can build a fiduciary relation with a stakeholder, gain a stakeholder's support, and establish a competitive advantage indirectly. That is, passive CSR can have an indirect influence on improvement in profitability.

On the other hand, strategic CSR indicates the potential of the existence of CSR which yields innovations contributing to both the improvement of the competitiveness of a company and the value offering to society. For example, the hybrid car (Prius), developed in response to the problem of effluent gas, became a forerunner of novel automotive development; this reconciled competitive advantage and environmental protection and it was on this basis that Toyota built its reputation for originality. In one stroke, by investing in a community college, Microsoft solved the chronic labour shortage problem of the IT industry and paved the way to considerable benefit in the future. Thus, a value shared with a society is yielded by a company investing in a competitive environment so that it may be connected with the competitiveness of the company, and the symbiotic relation that business income and social profit mutually reinforce is built. Thus, the practice of strategic CSR aims at a model which strengthens the competitiveness of a company and increases business income by the creation of an innovation.

Porter and Kramer (2006) discussed CSR from the viewpoint of the corporate strategy of establishing a competitive advantage and categorized CSR in the following three ways:

- A general social problem is one which does not receive major impact from an enterprise activity even when it is socially important and does not influence the long-term competitiveness of a company.
- The social influence of a value chain concerns a social problem which the everyday enterprise activity influences considerably.
- The social dimension of a competitive environment relates to a social problem which influences the competitiveness of a company greatly, among outside environmental factors.
Almost all CSR activity at present is based solely on whether it is a ‘good’ corporate–citizen activity or comprises passive CSR which mitigates the adverse effects produced by the activity of a value chain; as such, CSR is related to the treatment of symptoms, but is deficient in terms of social significance and the significance for the strategy. Thus, strategic CSR which strengthens a strategy aimed at improving society is proposed. Since a strategy is a selection, in CSR as in other spheres, it is important for a company to select the social problem to which it can contribute most, one which is most connected to a competitive advantage, and to invest managerial resources. Ethical or philanthropic responsibility will be fulfilled just as in passive CSR, but it is also important for a company to solve a social problem which results in a competitive advantage and leads to fulfilling an economic responsibility.

2.3. Creation of common value

The creation of shared value (CSV) was advocated in Porter and Kramer (2011). A company raises social value by meeting social needs through internalizing external diseconomies, such as environmental pollution, water pollution, or traffic congestion. A company raises economic values, such as sales or profit, through the CSR as a primary business. CSV is a concept which shares both values: it is a management concept which reconciles social business solutions, business income and improvement in competitiveness, but it also yields a value both to society and the company. The resolution of the social issue by a business offering value is added to strategic CSR and is integrated into it as CSV. CSV was proposed as a different concept from CSR. Generally CSR tends to be realized in terms of alleviating the adverse effects of an enterprise activity, or as philanthropic activities. Therefore, it seems that business administrators tend to accept CSV by advocating as a different concept from CSR. Although it is difficult to express the effect of CSR in numerical terms, the effect of CSV is expressed numerically as profit to the company.

CSV essentially has three dimensions. First, it is an offering of a product or service which solves a social issue. Second, the competitive enhancement of a value chain and the contribution to society coexist. Third, the enhancement of the competition base in a corporate development region and the contribution to the region coexist. An example of a business engaged in CSV would be a company working on one of the renewable energies important for the diversification of energy sources or the battle against global warming. Equally, BOP business which, for example, might develop a customer base of four billion people living on less than $2 per day and meet their needs, in many cases operates based on the spirit of CSV. The success of the company business is also achieved by solving social issues, such as regional economy development, job creation, or the eradication of sickness in a developing country. Such business enterprises for BOP markets can also be put into the category of CSV.

2.4. Sustainability

According to Hart (2005, 2007, 2010), the umbrella term ‘sustainability’ covers many different ways of thinking, issues and concepts, and modes of practice. The degree of involvement can be described using 2x2 matrix: the first axis is present/future; the second axis is inside/outside an organization. A strategy and a return are considered for each of the four quadrants:

1. Present/inside: pollution abatement and demolition (reduction of cost and risk).
3. Future/inside: environmental technology (innovation, repositioning).
Pollution abatement and demolition involves reducing waste or emissions resulting from the current business activities of the company, and thus reducing cost and risk. For example, the implementation of a lean manufacturing strategy in a motor industry would be included in quadrant.

Product stewardship is a strategy not only covering the company but all stakeholders in a supply chain. Many multinational firms have confronted problems with fairness in relation to the whole supply chain through consumer strikes, labour disputes in an emerging country, etc.

Environmental technology is not the continuation of conventional industrial waste suppression technology. For example, the structural design of products which can easily be disassembled is included in this. The innovation of the internal capability which changes the ways of thinking and routines of a company dramatically and results in repositioning to the use of sustainable technology is necessary. Few large-scale corporations have thus far succeeded in this innovation due to fixed ideas or embedded routines. Although there are cases, such as that of the development of the hybrid car recently commercialized in the motor industry, they are still insufficient.

The BOP market is essential in order to take the lead and meet the needs of future economic growth. The majority of large-scale corporations which have targeted the rich customers in developed countries are insensitive to BOP needs and cannot manage this huge market of four billion people. Successful cases, such as Hewlett Packard and Procter & Gamble, are the exception rather than the rule.

According to Hart (2005, 2007, 2010), ‘sustainability’ is a keyword in shareholder value which leads human beings to a sustainable society. In relation to this, a business organization plays a different role from that in the old capitalist system. According to Prahalad and Hart (2002), a company becomes a core node in the network of a co-creation value. A market is no longer the occasion of a mere transaction in a new capitalist society. A market becomes a forum in which stakeholders, such as the company, consumers and suppliers, co-create a value. The new capitalist concept takes society into a dimension that differs from the capitalism of the 20th century which centred on industrialization. Although this concept has not yet matured, it provides a useful insight into an unknown future.

2.5. The BOP market and stakeholders

A BOP market is that comprising an income group the annual GDP of which is $1,500 dollars or less ($4.1 dollars or less per day) per person in a developing country. In contrast, a middle of the pyramid (MOP) market is located above the BOP market and comprises the semi-wealthy whose GDP is $3,000 or more per person. The upper wealthy segment is at the top of the pyramid – a TOP market.

According to Hart and Sharma (2004), since much of the previous research on international business has targeted the activities of local subsidiaries in developed countries, there is no telling whether the theory can become applied to a developing country (probably only a TOP layer is applicable in the former case). In order to complement previous research, the new concept of radical transactiveness (RT) with dynamic capability has been developed. This capability is defined as the capability systematically to authorize, search for and integrate the viewpoint of the stakeholder at the fringes in order to respond to the destructive transition in a developing country market. The stakeholders in developing country markets are divided into core stakeholders and fringe stakeholders. The former comprise investors, customers, government authorities, competitors, employees, non-governmental organizations, suppliers, communities, etc.; the latter stakeholders are the poor, socially vulnerable groups, isolated people, hostile groups, non-regularity groups, etc. In order for a company to enter a BOP market, both core stakeholders and fringe stakeholders need to be involved and to have full knowledge of confrontations and conflicts. RT is the capability to explore business potential, building a relationship with fringe
stakeholders, opening up the framework of knowledge development and experience, and considering social constraints and potentialities.

In London and Hart (2004), the capability necessary for BOP market entry was inductively verified based on 24 cases. Global capability was analysed in terms of three aspects: collaboration with an unorthodox partner, custom-made solution co-creation, and construction of local capacity. This capability is almost synonymous with the above-mentioned RT dynamic capability. There is variation in the necessary conditions for these three capability groups between successful and unsuccessful companies in a BOP market and they influence the growth potential in a lower layer market.

According to London and Hart (2004), when entering a BOP market, a company cannot depend on the transfer or protection of the knowledge or resources developed in the TOP market. Additional capabilities are needed to surpass those used in TOP markets, such as conventional global operational efficiency, local adaptability, and existing knowledge transfer. When entering a BOP market, an effective strategy is for a company to understand the social context and to specify and use its strengths in the business environment concerned. Moreover, a strategy built through a bottom-up process and sharing resources across organizational boundaries is effective. A company with a high social embedding capability can easily be successful.

2.6. Reverse innovation

The notion of reverse innovation considers the potential of the BOP market strategy more positively than mere penetration at a local level. According to Immelt et al (2009), two kinds of innovation – development in an emerging country and development for developed countries from an emerging country – are contained in a reverse innovation. Product development adapted to the customer needs of the emerging country is indispensable and the product also becomes an innovation which is adapted for the niche markets of developed countries. This means that product proposals which have until now failed to be adopted under a glocalization strategy are developed at the local emerging country level and subsequently offered in developed countries. That is, products that are not taken up under a glocalization strategy are developed through reverse innovation.

Glocalization is a strategy through which an excellent product is developed in the company’s own country, is sold on the world market, and is partially changed according to local characteristics. In taking this approach, the trade-off between minimizing costs through globalization and maximizing market share through localization can be optimized. However, the development of the reverse innovation strategy has ended the period in which the glocalization strategy dominated. Like glocalization though, if multinational firms do not recognize the capability of reverse innovation, it will be difficult for them to survive ten years from now or to ensure good earnings. Succeeding in an emerging country is a necessary condition for remaining prosperous in developed countries.

Nonetheless, although the reverse innovation strategy is indispensable to business, the glocalization strategy is also important for the future. The problem is that they conflict with each other. Centralized product-focused organizational structures and management practices have led to the success of the glocalization strategy. Since the reverse innovation strategy aims at a regional market through a distributed structure, its character is the reverse of the glocalization strategy. For example, General Electric (GE) launched local growth teams (LGTs) in order to locate and manage most of its human and other resources invested in reverse innovations in regional markets. While placing the responsibility for profit and loss separately, responsibility for product development, production, distribution and service is assigned to LGTs, exploiting local characteristics and resources. Furthermore, products which achieve success in the emerging markets can then be distributed globally. Such an approach is the opposite of
that taken through glocalization. J.R. Immelt, who replaced J. Welch as CEO of GE in September 2001, has diverged from Welch’s approach to promote a different route to growth that is less dependent on acquisitions. Along with this policy, there was a new focus on developing innovative products corresponding to the special needs and financial conditions in emerging and growing markets in heavily populated countries such as China and India; hence reverse innovation.

According to Immelt et al (2009), it is necessary to overturn two beliefs. The first is that there is a flying geese pattern of development whereby developing country markets develop gradually similarly to developed countries. In fact, in terms of introducing innovations, it is not unusual for an emerging market to leap ahead of developed countries. The second erroneous belief is that products that correspond to needs peculiar to an emerging country are deficient in terms of their competitiveness in developed countries. On the contrary, such products can create new markets in developed countries by virtue of being low cost or leading the way in the development of new directions. These are the new significant insights obtained through the practice of GE.

According to Govindarajan and Trimble (2012), as the development style of emerging countries is not the same as developed countries, models that succeed in developed countries cannot be applied to them. In order to meet the needs of an emerging country, it is important to achieve innovation at a local level from a zero base. In terms of management for implementing the reverse innovation strategy whereby the innovation evolves from an emerging country for global distribution, they identify five gaps between developed countries and emerging countries: performance, infrastructure, sustainability, regulatory and preferences.

The performance gap. Since the consumers in an emerging country have little revenue, they require 50% of the solution at 15% of the price rather than the localization of a product oriented to developed countries. For example, in India, Nokia reduced the functions of its mobile telephones, but added the functions needed most at the local level, such as text messaging in Hindu and a powerful electric torch, and thus obtained more than 60% of the market share in India.

The infrastructure gap. In an emerging country, infrastructure is still under construction. The consumer in an emerging country requires solutions independent of reliable infrastructure; as there is no tie to existing infrastructure, the supplier of improved infrastructure can adopt the latest solution immediately. An example of this is the highly successful low-cost battery-operated electrocardiogram meter developed by GE for India which can be used even if the electric power is unstable. In another example, a local telecommunications company in India jumped over the development step of a fixed-line telephone, promptly adopting radio technology instead and was successful.

The sustainability gap. Sustainability issues are particularly acute for emerging countries and they are anxious for next generation environmental solutions. The market share for electric vehicles developed by BYD in China is growing.

The regulatory gap. As regulatory systems in emerging countries are still developing, they may benefit from a decreased time lag before an innovative solution is launched. For this reason, a new product may overcome regulatory hurdles when originated in an emerging country. Diagnostics for All, a non-profit organization (NPO) which markets a new paper-based diagnostic method developed at Harvard University, succeeded in commercial production in emerging markets, whereas regulations prevented this in European and American countries.

The preferences gap. Every country has different tastes and preferences and innovation needs to take such differences into consideration. In India, PepsiCo has experienced success producing snacks flavoured with herbs growing wild in Eurasia.
2.7. Stakeholders
Freeman et al (2007) defined the stakeholders of a company as groups or individuals who can affect the achievements of a company or are influenced by it. Stakeholders, or interested parties, can be categorized as primary and secondary according to their degree of influence in relation to a company. Primary stakeholders are those with advanced relevance to a company, those providing funding, local societies, employees, customers, suppliers, etc. Secondary stakeholders are those who affect a company indirectly or influence primary stakeholders, rival companies, government authorities, consumer support groups, etc.

The success of a company is realized through multiple stakeholders’ mutual connection networks. Even if the interests of different stakeholders may be in opposition in the short term, the company has to harmonize them in the long term. In order for a company to pursue profit for those providing funding, it is necessary to create value for other interested parties, and fundamental to the profit-seeking approach is a sense of ethics. A company is successful as long as value is continuously created to the satisfaction of the main stakeholders. By defining the stakeholder concept, the concrete target of a company in terms of implementing social responsibility can be clarified and the goals of social responsibility can be realized.

A number of studies have investigated the necessary conditions and administrative structure for client-centred management on the basis of case studies of companies which practised such management. Norman (1984) presented the service management system, comprising five factors: market segment, service concept, service delivery system, managerial image and corporate culture or philosophy; this constitutes a theoretical framework for consumer-oriented management. According to Zemke and Schaaf (1989), two capabilities are essential to a customer service company in terms of competitive advantage. The first is the capability to consider customer service strategically and to establish effective service intention as a vision of the organization. The second is the capability to design, develop and offer a customer an experience effectively and efficiently. Furthermore, it is necessary to evaluate and understand consumer orientation, have a well-developed customer service strategy and ensure that the system and employees are customer-friendly.

There have also been studies which have explored the extent to which a salesperson is customer oriented or market oriented. Saxe and Weitz (1982) developed the Sales Orientation/Customer Orientation (SOCO) scale in order to measure an individual salesperson’s degree of consumer orientation. Based on a literature review and interviews with salespeople and distribution managers, a questionnaire on the features of consumer-oriented practice was designed; the SOCO was then developed by analysing the responses to the questionnaire using principal component analysis and factor analysis. In SOCO, organizational factors and individual factors were found to structure consumer orientation. Organizational factors are the service climate, assistance with workplace relationships, manager–employee relations, managers’ leadership, empowerment, etc. Individual factors are gender, period of service, commitment, job satisfaction, learning intentions, task significant emotions, etc.

Kohli et al (1993) developed the MARKOR scale in order to measure the market orientation of an organization. Using factor analysis, three factors – senior management, the dynamics between sectors and the organization system – were found out to influence market orientation.

2.8. Strategic alliance or partnership
When examining the relationship between a company and a stakeholder, it is necessary to consider whether it is a strategic alliance or a partnership. According to Das and Teng (2000), a strategic alliance is the spontaneous collaboration between companies aimed at attaining a competitive advantage.
Spekm at al (1998) take the view that strategic alliances are close and long-term, and that there is reciprocity between plural partners in terms of sharing resources, knowledge and capabilities with the aim of strengthening each partner’s competition status. While networking between companies can be considered important, an alliance is embedded in the management strategy of a company and is expected to play a major role.

Inkpen (1998) argued that for an alliance to evolve, ties between the partners which engender trust are important. From Larson’s (1992) perspective, a business relation based on trust between organizations makes it possible for each to understand their partner’s situation and high levels of satisfaction and benefits can be achieved. According to Bradach and Eccles (1989), when partners negotiate with mutual profit and loss and a companion’s viewpoint in mind, trust increases further and this relationship is sustained on a long-term basis.

In terms of environmental issues, Stafford and Hartman (1996) contend that for a company to derive profit from pioneering the resolution of an environmental problem, a green alliance must be realized, taking a long-term outlook, and that the strategic advantage of a win-win model must be built. According to Mendleson and Polonsky (1995), in engaging with environmental issues, alliance with an environmental NPO is important. When setting the environmental target of a company, in order to understand the environmental added value sought by consumers, alliance with an environmental NPO facilitates understanding of the consumer viewpoint and potential needs, leading to market opportunities in the future and an improvement in the organizational capability of a company. A continuous competitive advantage can be acquired by selecting a suitable environmental NPO. According to Hartman and Stafford (1997), the company can gain profit by entering a market initially with an environmental NPO. When turning an environmental problem into a strategic and attractive business, there must be integration of economic aspects and the social dimension of the resolution of the environmental problem. Through alliance with an environmental NPO, a company can gain public trust, together with the specialized knowledge necessary for the resolution of an environmental problem.

2.9. Inter-organizational relations and competitive advantage

As mentioned above, it is thought that inter-organizational relations with a partner are closely related to the competitive advantage of a company. According to Day (1994), competitive advantage can be viewed in terms of two approaches: the positioning approach and the resource-based approach. In a positioning approach, it is supposed that competitive advantage is determined by the environmental factors which surround a company, whereas in a resource-based approach, the source of competitive advantage is considered to be the resources which each company holds. In other words, in the positioning approach, which pays attention to external factors, a company derives high earnings by positioning itself in a good environment, such as finding an attractive market and implementing prompt participation in that market compared with other companies. In the resource-based approach, which pays attention to internal factors, a company derives benefit in terms of earnings by having resources which are superior to those of other companies, are difficult to imitate and are scarce.

In a positioning strategy, several measures can be taken to differentiate a product or a business model, increase market share, heighten price competitiveness, namely: 1) selecting a market in a competitive environment that is not overly taxing; 2) selecting an activity which best fits the strategy of the company the value chain; 3) selecting a strong partner company. In terms of partnership, selecting a partnership which can build most mutually advantageous value chain at each moment is desirable; a power union type of partnership constitutes a source of competitive advantage. In contrast, from a resource-based view, accumulating organizational capability constitutes a source of a unique advantage and is connected with the competitive advantage of a company. While a positioning strategy focuses on the
static environment at a certain time, a resource-based strategy can be employed to derive competitive advantage through dynamic and long-term improvement of organizational capability.

According to Dierickx and Cool (1989), accumulation is the generation (creation or accruing) of organizational capabilities. Forming various asset stocks which are difficult to imitate or substitute is a decisive factor for competitiveness. How such organizational capability is accumulated is debatable. What seems to be evident is that it is important to build the unique advantage of a company on a long-term basis by accumulating organizational capability through a dynamic learning process.

Verdin and Williamson (1994) classified the acquisition process of managerial resources as internal and external. An internal process constitutes accumulation by converting past managerial resources used within the business and learning over a long period of time, etc. External processes are procurement in a market, setting up a cooperative business agreement or a consortium joint venture with a partner, etc. In order that a company may adapt to transitions in the outside environment or may work on the transition of an industry structure, the acquisition of managerial resources from outside the company is important.

An effective approach, according to Knudsen (2007), is to adopt a new and different organizational capability from that which constitutes a source of the present competitive advantage by the transfer of technology between organizations from the outside. In the development of a new product, building a partner relationship with a company which has complementary knowledge is linked to innovation and mutual transfer of resources has a direct impact on the result.

Teece et al (1997) describe a company’s capacity to integrate, build and reorganize the inner/external capabilities of an organization in order to address rapid environmental transition as dynamic capability. This is the capacity for renewal in terms of achieving an organization’s conformance to a business environment undergoing continuous change.

From Badaracco’s (1991) perspective, the essence of the strategic alliance is a knowledge chain; knowledge is divided into two types, migratory knowledge and embedded knowledge. Migratory knowledge is packaged in a formula, working drawing, manual, book, etc.; as this is a form of knowledge which can be expressed clearly, it is easy to move. On the other hand, the transfer of embedded knowledge is slow and it exists in a complicated social relationship. For example, skills and know-how are the most typical forms of embedded knowledge. Embedded knowledge may be learned gradually and slowly through a long-term strategic alliance. However, once a company learns embedded knowledge, in contrast to migratory knowledge, it can become a source of long-term competitive advantage.

2.10. Supply chain management and sustainability

Global supply chain construction and management is core to a multinational firm’s implementation of a social problem resolution-oriented management strategy. According to Bowersox et al (2002), supply chain management (SCM) constitutes channel formation based on interdependence and relationship management between enterprises which collaborate in the quest for improvement for strategic advantage or for the efficiency of an operation. Furthermore, Christopher (1998) considers that SCM is a form of management which controls relationships upstream or downstream, for example with suppliers, customers, etc. to reduce costs along the whole supply chain and increase customer value. Simchi-Levi et al (1999) classify content which should be considered in SCM in three levels and contend that it is fundamental to develop from a higher ranking level to a low ranking level. The three categories are as follows:
• **Strategic level.** This is a field of decision making which exerts continuous influence over a long period of time, for example, ensuring that there is correspondence between the flow of a number of warehouses or factories, locations, throughputs, and the whole logistics network, etc.

• **Tactical level.** At this level, decision making tends to be updated anywhere between once every quarter to annually. It includes purchasing planning, production determination, stock policy, transportation strategy, and the frequency of visits to a customer, etc.

• **Operational level.** This level involves daily decision making, such as scheduling, lead time estimation, delivery planning, and cargo planning.

Thus, the aim of SCM is to respond quickly and strategically to transitions in a market, and for each company to cooperate in the whole supply chain, building a system which obtains a profit as a whole and generating an enterprise value. The practice of relevant SCM heightens the competitiveness of a company and contributes to improvements in business results.

However, in the definition of the above-mentioned SCM, there is no explicit mention of the influence which a supply chain has on a society or an environment. Since the 1990s, global environmental problems, such as climate change and crises in biodiversity, have been aggravated. At the same time, there has been increased condemnation of companies from developed countries operating in developing countries for the use of child labour and inferior working conditions. Applying CSR in such supply chains has come to be required and sustainable SCM (SSCM) is now advocated. Many papers concerning SSCM have been published since the 1990s.

Haldórsson et al (2009) examined the existing research and identified the following three approaches to SSCM:

1. **Integrated strategy:** sustainability is completely coherent with SCM and adds and integrates sustainability to the existing SCM. Reverse logistics, green SCM, product stewardship, etc., are based on this approach.

2. **Alignment strategy:** in offering a product or service, economic concerns, societal concerns and environmental concerns are mutually complementary and all three are taken into consideration simultaneously. The notions of a triple bottom line, CSR in a supply chain, etc., are based on this approach.

3. **Replacement strategy:** the existing SCM is substituted and SCM which considers an environment or a society is proposed. The carbon footprint in a supply chain and local production for local consumption are based on this approach.

In alignment with the above-mentioned integration strategy, Carter and Rogers (2008) developed the following theses concerning existing SSCM. SSCM involves controlling the business processes between the main organizations as a whole, and integrating the economic objectives of each organization in relation to the social environment strategically and transparently in order to improve the long-term economic performance of each company and its supply chain. A situation in which all three fields – the business, society, and the environment – derive benefit is optimal. Two fields benefitting (the business/the environment, or the business/society) is a comparatively good scenario; it is difficult to envisage a situation in which a multinational company might operate for the benefit of only society and the environment.

Četinkaya et al (2011) generated a practical text for a company to build efficient SSCM based on best practice. As in Carter and Rogers (2008), for SSCM, any actions should incorporate economic, societal
and environmental perspectives. The UN Global Compact Office (2010) recommends a process of sustainable supply chain construction based on the best practice of a company. This guide aims at extending the social responsibility of enterprises, not only to the company itself but also to the supply chain, and represents an approach consistent with the afore-mentioned alignment strategy. However, no objective indicators for the contribution of company efforts to sustainable development are proposed. Although the relevance of SSCM and corporate performance have been shown theoretically, there is little quantitative research on which to draw. Thus a number of future lines of research on SSCM have been identified: Carter and Rogers (2008) state the need to establish a means of measuring the performance of the triple bottom line in a supply chain as a gap; Haldórsson et al (2009) consider the relationship between SSCM and economic performance to be as yet undetermined; Carter (2005) found that although there was no direct relationship between SSCM and corporate performance, the training of an organization was related to corporate performance and thus, potentially, corporate performance may be increased if training to heighten the capability of an organization in relation to SSCM is implemented.

Mefford (2011) proposed a theoretical model of SSCM based on modern manufacturing systems, such as the lean production method and quality control. If a company applies sustainable methods in a global supply chain, sales will be increased, costs will be reduced, financial risk will be reduced, profit will be increased, and eventually the gains for stockholders of a company will be increased. However, the realization of a lean manufacturing system takes several years. Because of differences in the conditions of countries or corporate cultures, etc., it is can be very to implement such a system in an international supply chain and doing so requires endurance and a long-term vision.

2.11. The scale of the relationship with a supplier or a partner

Building a long-term relationship with a partner requires ensuring satisfaction with the partner and developing reliance between the organizations. For that purpose, a scale which appraises the relationship with a partner appropriately and continuously is useful.

According to Rappaport (1998), a company’s value should be evaluated using hierarchical performance measurement: the business administrator level is evaluated using total stockholder return (TSR); the departmental manager level is evaluated using shareholder value added (SVA) and the value leading indicator; the lower management level is evaluated using performance on a more concrete key value driver. Neely et al (2002) identified a set of five scales relevant to a supplier or a partner in relation to the value drivers of SVA and the value leading indicator:

1. The degree of satisfaction: what does the supplier/partner require? This scale examines the degree of satisfaction of suppliers/partners in terms of the amount of annual purchases, dealing time period, dealing share, rate of return, ratio of payment within a time limit, and the accounts payable turnover period.

2. Contribution: why does the company require a supplier/partner and what does it get from them? The scale considers the sales growth ratio (contribution), production cost ratio (contribution), number of customer complaints (pace of decrease), ratio of returned unsold goods (pace of decrease), proportion of defective goods (pace of decrease), cut rate, purchase expense, delivery time obedience ratio/delivery time reduction ratio, quality conformance (sufficiency degree), after-sale support, and product warranty (quantity).

3. Strategic scale: what kind of strategy satisfies the requirements of a supplier/partner? This scale incorporates the purchasing–planning achievement ratio, the percentage completion of a purchase
cost cutting plan, and the achievement ratio of a supplier audit plan.

4. Process: is a strategy carried out by the business process effectively and efficiently? Here, the accuracy of demand forecasting, external rate of purchase, net rate of purchase, stockout cost (pace of decrease), supply chain lead time (contribution), and standard cost achievement ratio (contribution) are considered.

5. Capability: what kind of capability does the company need to establish and sustain for an effective and efficient business process? This encompasses the number of suppliers, the amount of purchase(s) per company, the share of major suppliers, the financial stability of suppliers, and the productivity of a purchase function.

3. QUESTIONNAIRE AND HYPOTHESIS DEVELOPMENT

Following the identification of issues based on the review of prior research, this section develops hypotheses in relation to cause and effect relationships.

3.1. CSR

The research question at the heart of this paper is whether a management strategy which aims at the resolution of a social problem improves competitive advantage. The study examines this research question quantitatively using a questionnaire. Previous research has found differing results in terms of the influence of corporate performance on CSR activity and vice versa. Therefore, it is necessary to arrange and categorize CSR activity.

According to Porter and Kramer (2002, 2006, 2011), although not based on quantitative studies, ideal types are passive CSR, positive CSR and CSV. Moreover, according to Hart and Sharma (2004), activity which aims at the sustained growth of a company is categorized according to matrices, incorporating axes such as internal/external and present/future. In conventional passive CSR, by returning a part of the primary business profit to society, the brand image of a company is improved, consumer purchases are promoted, or it is anticipated that dealings with various kinds of stakeholder will be facilitated. On the other hand, in positive CSR or CSV, the resolution of a social problem is the primary business of the company and aims at the simultaneous realization of the resolution of the social problem and the growth of the company. Also, in efforts aimed at sustainability, such as product stewardship (Hart & Sharma, 2004) and reverse innovation (Immelt et al, 2009), companies approach social problems through the research and development of a product or the construction of a supply chain. These are considered to be the concepts with an affinity to positive CSR or CSV.

In the questionnaire implemented in this research, there were items concerning CSR aimed primarily at external public relation and other items related to company strategy and operations. The former question items concern the public presentation of CSR activity, improvement in social appraisals, links to business connections, facilitation of dealings, etc. The latter question items consider CSR as a management strategy, efforts in each SCM activity, and efforts made with other business connections, etc.

3.2. Relationship with stakeholders

Next, the relationship of a company and various kinds of stakeholder is examined. Naturally, the resolution of a social problem is not accomplished by only one company. Solving a social problem is attained in cooperation with various stakeholders, such as the local society and various companies which constitute a supply chain. Furthermore, the resolution of a social problem aims at increasing satisfaction.
not only for the company but also for various stakeholders. Thus, it is important to examine how the relationship with various stakeholders is constructed and managed.

The significance of external partners is indicated by previous research on strategic alliance as a source of information or knowledge which cannot easily be acquired otherwise. Establishing a cooperative information structure with an external partner is a significant move. It is thought that cooperation which can harness mutual strengths leads to competitive advantage. Moreover, previous research on stakeholder roles illustrates that increasing a stakeholder’s level of satisfaction is key to the long-term success of an enterprise. Fostering trust between organizations leads to an improvement in levels of satisfaction. Thus, companies need to grasp stakeholders’ needs, appraise performance and increase satisfaction.

In the questionnaire implemented in this study, question items concerning the construction of a company’s advantage through cooperation and those concerning a stakeholder’s level of satisfaction were included. The former question items relate to the complementary relationship between organizational capability and a cooperating company, informational structures between component companies in a supply chain (a supplier, a complementary company, a distributor, etc.), and so forth. The latter question items concern corporate culture or philosophy which raises the level of satisfaction of a customer or a stakeholder company, a rating scale or an indicator, a scheme to improve, etc.

3.3. SCM

According to the previous research, SCM is management aimed at increasing customer satisfaction while lowering the cost of the whole supply chain through cooperation between the various companies which constitute the supply chain. SCM can be categorized as management at a strategic level which increases customer satisfaction in the long term and improves the competitiveness of the whole supply chain through management at the operational level in terms of the retrenchment of daily inventory losses. A strategic goal of the whole supply chain is sustainability that is in harmony with society or the environment.

Thus, the questionnaire in this study includes items relating to SCM at an operation level and a strategic level: the former concern co-ordination of the daily inventory or material flow, improvement of material flow, etc.; the latter relation to the clarification of strategic goals or share of the whole supply chain, joint construction or improvement of industrial infrastructure (such as a physical distribution system or an information network), etc.

3.4. Competitive advantage

Drawing on previous research, the sources of competitive advantage can broadly be divided into positioning and resource management. According to the positioning strategy, competitive advantage is determined by the severity of the market environment which surrounds a company, the degree of differentiation in a product or service, partnership selection, etc. According to the resource-based strategy, competitive advantage is determined by the superiority or inferiority of organizational capability. Since absorption, accumulation, or exploitation of organizational capability internal and external to an organization takes time, especially for sustainable competitive advantage, this relates to mid- to long-term competitive advantage.

In this study, question items were developed concerning positioning and management of resources as a source of competitive advantage. Question items related to the former concern market share, product differentiation, business model differentiation, price bargaining power, etc. Those concerning the latter
examined managerial resources, the fit between strategy and the organization, strengths of the organizational process, etc.

3.5. The relationship between CSR and competitive advantage

Next, the study considers the relationship between the three above-mentioned factors (CSR, the stakeholder relationship and SCM) and competitive advantage. First, it examines whether the CSR activity itself may improve the competitive advantage of a company directly. As mentioned above, CSR comprises both external and internal activities. Although external CSR activity may improve competitive advantage through positioning by improving the brand name of a product or service, it is difficult to establish a direct cause–effect relationship with competitive advantage in terms of resources. In terms of internal CSR activity, since the primary business aim itself is an innovation for sociality, the competitive advantage gained from positioning may be improved by a first mover advantage. Moreover, organizational capability may be increased by incorporating CSR in a long-term strategy. Therefore, the following four hypotheses are developed:

H1. External CSR improves competitive advantage by positioning.
H2. External CSR is independent of competitive advantage derived from organizational capability.
H3. Internal CSR improves competitive advantage by positioning.
H4. Internal CSR improves competitive advantage through organizational capability.

3.6. Relationship between CSR, the stakeholder relationship and competitive advantage

The study further examined whether CSR activity improves competitive advantage indirectly through relationships with stakeholders. It is thought that the source of competitive advantage derived from social strategy may be embedded in relationships with various outside organizations. External CSR activity may take advantage of an alliance with an external company, or other stakeholder, which constitutes a supply chain. A more advantageous alliance may realize a supply chain with a higher degree of competitiveness and may improve competitive advantage by positioning. On the other hand, internal CSR activity increases operating revenue through various stakeholders’ problem solving activities and may also increase a stakeholder’s level of satisfaction. The construction of a sustainable partnership is attained by a stakeholder’s satisfaction level increasing and the gaining of trust. In a sustained partnership, an accumulation of organizational capability may be facilitated in future business which requires long-term input and the competitive advantage derived from resources may be improved. Therefore, the following two hypotheses are developed:

H5. External CSR makes alliance with a stakeholder advantageous and improves competitive advantage by positioning.
H6. Internal CSR raises a stakeholder’s satisfaction level, enables the gaining of trust and improves competitive advantage through long-term organizational capability.

3.7. The relationship between CSR, SCM, the stakeholder relationship and competitive advantage

Finally, the relationship between each factor in the supply chain is examined. According to previous research, SCM is categorized into management at a strategic level and an operational level. The aim of strategic level SCM is undertaking customer-oriented innovation through the whole supply chain and attaining differentiation through the whole supply chain; if this is achieved, it will be considered highly competitive. On the other hand, in order to carry out strategic SCM, investment in the strategy by each
company which constitutes the supply chain and information disclosure concerning customers, production, or distribution are needed. Such practices extending beyond one company is accompanied with difficulty.

External CSR activity may make alliance with an external company or other bodies which constitute a supply chain advantageous. If investment toward a realization of strategic SCM is undertaken mutually among allied entities which have complementary information or technology, it may result in what is called a strong-man fusion, competitiveness may be achieved and competitive advantage through positioning may be improved.

Since internal CSR activity tends to raise operating revenue through various stakeholders’ problem solving, it may raise a stakeholder’s satisfaction level. By virtue of a stakeholder’s satisfaction level increasing and trust being gained, strategic SCM between partners is facilitated and the establishment of a sustained partnership is attained. Through a sustained partnership, an accumulation of organizational capability in a long-term future business may be attained and competitive resource-based advantage may increase.

Operational level SCM relates to information sharing for daily stock control, etc., and such activities tend not to be considered related to CSR.

Therefore, the following three hypotheses are posited:

H7. External CSR makes alliance with a stakeholder advantageous: strategic SCM is achieved and competitive advantage is improved through positioning.

H8. Internal CSR raises a stakeholder’s satisfaction level, trust is gained, strategic SCM is carried out and competitive advantage is improved by organizational capability in the long term.

H9. External and internal CSR are independent of operational level SCM.

4. RESULTS

4.1. Summary of survey

The questionnaire was implemented in order to verify (falsify) the hypotheses of this research. For the examination of strategies, operations, etc., a five-point Likert scale was used. The companies selected to complete the questionnaire were drawn from those listed on the stock market in Japan and included manufacturers of electronics, cars, precision equipment and machinery. These types of business comprise the main multinational industrial firms in Japan and the companies selected are considered to have long experience of developing series of supply chains globally in terms of procurement, production, or distribution. The questionnaire survey was conducted from November 2012 to December 2012. For the purposes of statistical analysis, we decided to use the data for the 20 companies which responded to almost all the questions. The questionnaire was distributed to 357 companies which yielded a 5.6% response rate (20 companies in total); the low rate of return was attributed to the difficulty of eliciting cooperation in an economic depression.

Responses to the questionnaire were analysed using principal component analysis to extract components (factors). This was followed up with path analysis to explore cause–effect relationships between factors. The statistical analysis software package (IBM SPSS® version 20) developed by IBM was used for the analyses.
4.2. Principal component analysis

Since multiple questions were asked in relation to each hypothesis in the questionnaire, in order to enable a follow-up cause–effect relationship analysis by categorizing question items and integrating them within a characteristic factor, a principal component analysis was conducted initially. In advance of this analysis, the distribution of the responses for each question item was checked, the ceiling effect or the floor effect was calculated, and the items close to a normal distribution were extracted. As a result, the statistically significant factors extracted are addressed below.

4.2.1 Competitive advantage

Seven items related to competitive advantage and the analysis resulted in the extraction of two factors with one or more eigen values. The sum of the squared factor loadings was 67%. The first factor concerns positioning in markets and products, such as market share, product differentiation, business model differentiation, and price bargaining power, and thus can be named a positioning factor. The second factor relates to organizational capability in terms of the strengths of management resources, the fit between strategy and organization, and organizational process; this can be termed a resource factor.

Although Cronbach’s alpha coefficient was 0.786 and thus was not sufficiently high to confer reliability, in consideration of the significance of each question item, they were adopted as they were.

4.2.2 CSR

Nine items concerned CSR and two factors were extracted with one or more eigen values. The sum of the squared factor loadings was 78%. The first factor concerns the public presentation of CSR activity, improvement in social appraisal, exposure to business connections, and facilitation of business operations, and can be termed an external CSR factor. The second factor relates to the espousal of CSR as a management strategy, efforts made in relation to each SCM activity and efforts made with business connections, and can be termed an internal CSR factor. In terms of reliability, Cronbach’s alpha coefficient was 0.911 and thus was sufficiently high.

4.2.3 Inter-organizational relations.

In total, 12 items concerned inter-organizational relations and two factors were extracted with one or more eigen values. The sum of the squared factor loadings was 79%. The first factor relates to the complementarity of an organizational capability with a cooperating company, and information cooperation structures between component companies in a supply chain (supplier, complementary company, distributor, etc.), and can be termed an advantageous cooperation factor which combines the strengths of each company. The second factor comprises corporate culture or philosophy which increases the satisfaction level of a customer or a stakeholder company, a rating scale or an indicator, and a scheme to improve, and can be termed a stakeholder satisfaction factor. Cronbach’s alpha coefficient was high at 0.939.

4.2.4 SCM.

Nine items concerned SCM and two factors were extracted with one or more eigen values. The sum of the squared factor loadings was 74%. The first factor relates to strategic levels, such as strategic goal clarification or share in the whole supply chain, joint construction or improvement of industrial infrastructures (such as a physical distribution system or an information network), and can be termed a strategic SCM factor. The second factor relates to operational levels, such as daily inventory or material flow co-ordination, and improvement of material flow, and can be termed an operational SCM factor. Cronbach’s alpha coefficient was high at 0.895 and thus confers reliability.
4.3. Path analysis

Next, in order to verify how CSR is directly or indirectly related to competitive advantage, a path analysis was conducted using the scores for each of the afore-mentioned factors. In addition, since there were few samples, techniques such as covariance structure analysis were not used; rather, a 1x1 stepwise regression analysis was performed, the results of which are given in Figure 1 (** the regression coefficient is significant at the 1% level, both sides; * the regression coefficient is significant at the 5% level, both sides).

4.3.1 Competitive advantage from positioning.

The following was verified as a path which leads to a positioning factor:

Strategic SCM factor -> Advantageous cooperation factor -> positioning factor

(Regression coefficients are 0.653** and 0.636** respectively)

On the other hand, no positioning factor was observed for either of the other two CSR factors. Competitive advantage in relation to positioning is a static competitive advantage at a certain time and is a short-term advantage. In order to establish a short-term advantage, even if there is not necessarily a CSR perspective, if companies engaged in competition in terms of product or production, etc., decide to cooperate and thus achieve strategic SCM, they will derive competitive advantage. So to speak, a transient competitiveness is gained by strong-man fusion.

4.3.2 Competitive advantage in terms of resources

Two kinds of path were verified in terms of the competitive advantage derived from resources. The first path is as follows:

Strategic SCM factor -> Internal CSR factor -> Resources factor

(Regression coefficients are .820** and .448* respectively)

The second path is the following:
The competitive advantage derived from resources is one which yields a product or service with competitiveness in the future and thus has a long-term competitive advantage. First, according to the first path, it was verified that addressing the resolution of a social problem strategically with various companies which constitute a supply chain improves future competitive advantage directly. The resolution of a social problem requires the accumulation of organizational capability over the long term and cooperation with various stakeholders is important.

Moreover, according to the second path, through the resolution of the social problem by cooperation with various stakeholders, the level of stakeholders’ satisfaction increases, as does reliability, and the improvement of competitive advantage is also verified. It is thought that the competitive advantage acquired by addressing CSR strategically is embedded in the relationship built through a strategic effort with various stakeholders. It is difficult for a late-coming company to copy such a good relationship formed on a long-term basis and thus such a relationship is a source of a surely sustainable competitive advantage.

In addition, the external CSR factor was connected with neither factor of the competitive advantages. It is thought that the CSR aimed at PR does not always link directly with competitiveness.

Moreover, the operational SCM factor was connected with neither of the competitive advantages. Even if efforts are undertaken in terms of cost-cutting, such as improvements in the accuracy of stock control, it is thought that the influence on improvement in terms of the satisfaction of customers and stakeholders is limited.

From the results described above, it is apparent that H2, H4, H6, H8, and H9 were verified, and H1, H3, H5, and H7 were rejected. External CSR is independent of competitive advantage and internal CSR is connected only with long-term competitive advantage.

5. CONCLUSION

The aim of this research was to establish whether social problem resolution-oriented enterprise activities confer competitive advantage. Prior research has not established whether CSR activity is connected with the profitability of a company. As CSR includes various activities and a number of factors are intricately related to the profitability of a company, measurement of a direct influence is difficult.

This research categorized the CSR activities of companies using a range of prior studies to consider the remarkable transition of today’s international business environment. The plural intermediate paths between CSR and related factors leading to business competitiveness were clarified. As a result, this study has shown what kinds of CSR activity are connected (or not) with different kinds of competitive advantage. In essence, it seems that short-term CSR activity does not have the potential to confer a competitive advantage. It is the conclusion of this research that a long-term competitive advantage derives from assuming a social problem resolution into management strategy as a primary business, cooperating with various stakeholders, and improving stakeholders’ satisfaction levels.

Today’s international business environment is undergoing considerable transition in terms of the economic growth of emerging country groups. The potential for economic growth as attractive markets move to emerging countries and the autonomous and healthy growth of the emerging country groups
represent an important and interesting target for firms globally. Solving social problems for the healthy growth of an emerging country is a way in which both the local society of an emerging country and multinational firms in developed countries can enjoy sustained growth on a long-term basis. It is expected that the results of this research will serve as an aid to multinational firms assigning the direction of their management strategy in a more desirable direction in the future.

However, a limitation of this research is the limited data available for quantitative analysis and the fact that the object of analysis inclines toward Japanese firms. Expanding the scope of the survey and developing a comparative study in various countries will be the subject of further research.

REFERENCES


PRIVATIZATION AS AN ORGANIZATIONAL SOLUTION

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Abstract

In an effort to revivify certain nominated goals, the society goes through certain evolutionary phases – it transforms into a new, better, and more persistent one. In the wake of such determinations many countries allowed privatization as a natural, historic, and economic course through which private ownership would be «legalized» and gave up on yesterday's initiatives of the state in running state enterprises, or rather on state ownership. Many countries, especially countries in transition (central and east Europe), went through a privatization period in a way that they independently set and installed their own models, phases, and procedures of privatization, and thereby determined their statutory and other requirements. Analogously, the results of the privatization process vary from country to country. Republic of Croatia implemented its privatization process so far with, unfortunately, very poor results, and often with extremely untransparent conditions of privatization of certain enterprises. Through analysis of the total privatization results, undoubtedly the privatization process in Croatia so far has been below its real possibilities and the reached level of liberalization, and it is seriously irritated by constant repercussions, accusations, embezzlements, charges, and court proceedings. We could say that the privatization process compromised the entire Croatian society, especially political, legal, and institutional environment, which easily allowed the sale of Croatian interests and national economy, in a way that the positive effects of privatization are deep in the shadow of the ill, marginal effects, and, at this moment, maybe, unforeseeable consequences. Comparing the «wanted» with the «realized» from a today's perspective, it is obvious that there is a huge dispute between the same categories, that the significance of privatization is enormously small on the overall society, that the goals are mostly not realized, and that the bitterness of this process left a deep trace and vivid consequences on the total Croatian public and its economic strength. Such cognitions, however, bind that the further transformation of non-private enterprises is approached on a completely different, more transparent way, without any stigma, with known criteria, because every further conscious «ramble» would allow further compromise of the total Croatian society and its national being, true accomplishment of goals and the overall dignity of privatization.

Key words: processes, privatization, models, phases, Croatia

INTRODUCTION

Different views, as well as real social and economic needs, dictate certain code of conduct, adjustment and modulation in the «society of changes», which produces evolutionary changes in the society. Accordingly, the diameter of views on state ownership and private ownership got sharper, which influenced on changing history, with the proviso that privatisation, looking from a today's perspective, became a global process which characterized developed, as well as transition countries. Private ownership became an irreplaceable and untouchable authority in allocation of resources, in supervision and in carrying the risks. However, in the late 70s of the last century state enterprises, firstly in the
western, and afterwards in the eastern economies, began to lose its credibility, mostly because of the dominant perception of their inefficiency. It is evident that such stands seem grounded, since many studies have confirmed that state enterprises are less efficient that the private ones, what by some authors (Starr) is an argument enough for privatization, which enables such form of decision-making that assumes profit maximizing. Studies have proved, however, that private enterprises have a higher productivity and overall better performance. Equally, recent experiences of economies in transition point out better efficiency of private enterprises, although a time for adjustment and distancing from the behavior models of state enterprises. Analogously, privatization premiums freeing the enterprise form the political «competitiveness» and its (with no market criteria) evident entanglement, and also limits politicians in the possibility of shifting the activities of an enterprise primarily in order to promote their own personal goals or short-term political interests at the expense of efficiency (Crnković, Požega, Briševac, 2001, 336). On the opposite, in the case of state ownership, political «motivation» channelizes certain treatment (providing subsidies, benefits, etc.), creates compromises even at the cost of economic efficiency. Besides, today is also possible, and even necessary, to objectify the superiority of private ownership in regard to state ownership by testing the improvements of post-privatized business results of enterprises, as did Megginson, Nash, and van Randenborgh. They, after comparing business results of enterprises (three years before and three years after privatization) for 61 enterprises in 18 countries in 32 branches of business, which have been privatized from 1961 -1990, argued that privatized enterprises make higher profits, operate more efficiently, make larger capital investments, have higher output and employment. The fact that is most impressive is that there is an increase in employment after privatization (Crnković, Požega, Briševac, 2001, 338). Although that perception today is quantitatively and qualitatively measurable, the same was the base for starting numerous privatization processes, which peaked with the beginning of the transition. And while in the western economies the «sindrome» of state ownership, and even defeatism is/was spreading as a consequence to the aloofness and/or disappointment in inefficient state enterprises, in the eastern european countries privatization is considered an important factor of economic policies after the fall of socialism and introducing the necessary adjustments of eastern-european economies to market type economies. Namely, with the fall of the socialist system in countries of central and eastern Europe, a need for transmission of ownership and responsibility from the state portfolio, or rather the public sector into the private sector occurred, which emphasizes the importance of the privatization issue and the most transparent «modus operandi» in implementing the same. In support of this is the knowledge that today's processes in the labor market of different, especially transition, countries are in the focus of interest of professionals and politicians, because the latter countries are still going through a very difficult period of adjusting to the market economy. Certainly the privatization process had some, very specific, but negative implications on these courses. That process is very complex and exhausting for all countries of which every single one has its particularities (Kutnjak, 2012). However, it is inevitable that every country has its specific social expectations, which in Croatia, in regar to the privatization process, emphasize (Čučković, 1999):

- An increase in economic effectiveness – rationalization of relations between ownership and management necessarily results in greater economic efficacy. Privatization and entrenchment of market ensure «import» of the world's experience and criteria of business;
- Achieving social justice – legal and transparent privatization, which respects the rights of all titleholders, enables maintenance of social solidarity in spite of great subsistence costs which are imposed by the transition;
- Raising funds needed for restauration – selling stocks should ensure funds needed for restauration of war-affected areas, and also solving other social problems of the transition period, such as rising unemployment;
Implementing foreign capital – privatization tends foreign capital, what guarantees higher competitiveness and stronger inclusion into world's economic flows.

These expectations fully correspond and acknowledge economic premise of the professional and scientific community that treats private ownership as a basis of market operations, through which the sole privatization issue almost became one of the most significant «topics» of today, with the most present trend features in economy overall. Every country has/had to find its own determination, its own path to the goal, and the success of privatization is/was determined by the mode in which the privatization is/was installed. Dubiousness that arise from this issue, at least in Croatia, insist that the overall evolutionary valuation must be put in a time context of Croatia's fight for independence in the 90s of the last century, and an environment marked by war. It is a fact that during that period on an untransparent way and without clear criteria, whose «limits» existed on political allegiance and party affiliation, and even criminal activity, a number of Croatian enterprises in state ownership was privatized. Precisely because of that, this is an issue that pulls many repercussions, discussions, polls, accusations, etc, and it is certain that pro futuro, at least with some enterprises, the «story» will go back to the beginning because, with the latest legislation, criminal actions in privatization have no statute of limitations. Therefore, it is confirmed that privatization with some enterprises was not the best solution, especially if we assume that in the last 20 years, in market economy countries, thousands of state enterprises were privatized. If we add to it an enormous number of state enterprises privatized through different views of privatization in former communist countries, this number becomes significantly higher. (Crnković, Požega, Briševac, 2001, 334).

CONCEPTUAL DEFINITION OF OWNERSHIP, TRANSITION, TRANSFORMATION AND PRIVATIZATION

The society has, in the last few decades, evolved in a way that the social organization, character of ownership, legal status of enterprises have changed – certain social metamorphosis has manifested, which were supposed to ensure efficiency of the society, or rather an efficient economy. This efficiency should be/have been based on a free market, free entrepreneurship and private ownership. And while, on one side, the socio-economic crisis of «real-socialism» rapidly deepened, on the other, in the countries of free private ownership a wide science-technology revolution occurred, significantly changing the conditions and parameters of economic efficiency and development, creating a new development paradigm that stands for knowledge, flexibility, creation, and innovation (Njavro, 1993, 83). Because of such economic «conflict» and the diameter of historic facts, as well as a need for understanding certain situations, historic sequences and acknowledging diversification between certain «steps», it is necessary to give a specific concretization, or rather define conceptual determinations of: ownership, transaction, transformation, and privatization, and standardize the conditions of their formation. Namely, public ownership, as a typical characteristic of the socialist system and its total economic and social organization, has shown certain anomalies qualified by complete inefficiency of society. Because of the character of the mistakes it is inevitable that the ownership structure of the society has/had to transform, and that the necessity of privatizing public, or rather state property – that is state ownership manifests/manifested as a critical need. By abolishing the so-called public ownership, a new, private ownership structure of relations was created, which was the basis of market self-regulation. The change in ownership on such a big scale such as the post-communist transition implies completely new «structure of possibilities» (Frančetić, 1997, ?), which results in massive changes in the social culture, that is variable chances of actors. Besides the change in ownership, a change of basic
operating parameters is registered. With the change of the ownership structure, recapitalization is important, and with the change in the economic structure, by restructuring enterprises competitiveness of goods and services is achieved. Autonomy of enterprises is preferred in the sense of increasing their competitiveness, and the risk and (social) responsibility is transferred to the owners, entrepreneurs, and managers. Following the introductory, Croatia has also stepped into the transition process by declaring independence, and with it into the process of transforming ownership. Transition is also a characteristic of other central and eastern Europe countries that are transiting from one socio-political system into another, and it is defined as a series of institutional changes and appropriate collective psychological reactions (Economic lexicon). The transition cycle is inseparable from the category of transformation and/or privatization, whose concepts are often used as synonyms; with it the success or failure of transition is, in public, equated with the positive or negative image of the privatization process, whereby all its dimensions (economic, political, socio-cultural) are objectified and are, in the same way, critically treated. But, the transformation is related to the changing of the legal status of public enterprises into trading companies. Privatization is a term closely related to transition, and the main link between transition and privatization is that the privatization is a medium of transition or a way of transiting from one socio-political system into another. Nevertheless, the size of these changes makes post-communist transition a particular or challenging phenomenon, since the privatization process is a burden of (post-communist) transition. Privatization, as a central political and theoretical issue in central and eastern Europe, is a process of transforming public into private ownership, ie selling of state enterprises to entities or individuals in order to ensure an efficient economy. Therefore, privatization is defined as a process of transferring total ownership or a majority stake of ownership of the public (or social) sector to private entities or individuals (Jurković, Luković, Pribičević, Ravlić, 1993, 395). Beside the complexity and the extent of privatization, many authors diverge between 2 extents of privatization: a) privatization in a broader sense and b) privatization in the narrow sense. Privatization in a broader sense marks the process of expansion of the private sector to national economies (Minzsei, 1992, 288). Privatization, in this case, is imposed as a process of expanding the role of the private sector and limiting the role of the state. Basic institutions are created, «game rules» need for the market system are created. Privatization in the narrow sense is linked to the techniques of transferring state resources and enterprises from state to private ownership of individuals or entities. Privatization, in that sense of the word, becomes a subject of a technical discussion about preparing enterprises for sale, by alternative mechanisms for transferring ownership and the efficiency of enterprises once the privatization has been completed. Therefore, privatization in the narrow sense can be defined as a process of transferring state capital in someone else's hands, ie selling an enterprise as a whole or partially, to private entities or individuals at reasonable prices (Poznanski, 1992, 641-644). Through privatization, a citizen is implemented as an individual owner or entrepreneur, free and protected in his property, as the most important holder of property rights. However, there must be an awareness that neither the market, nor property rights, nor the final products of the privatization process do not breed non-conflict relations between individuals, nor between individuals and collectives and the society as a whole (Kalodjera, 1993, 55). Ultimately, privatization is a «conditio sine qua non» for the development of market economy, it represents a social and an economic change, and if you know how to manage the privatization process, it can contribute the entire economy long-term; which is, unfortunately, on Croatia's experiences, not the case.
GOALS AND MODELS OF PRIVATIZATION

The goals that were nominated in the 80s of the last century still exist today as the basic goals of all privatization projects, since the same, historically and contextually speaking, did not change that much. However, the diapason of goals to be achieved during and/or after the implementation of privatization is wide. Those goals, broadly, are: increase states income, stimulate higher economic efficiency, decrease the influence of the state in the economy, stimulate a wide distribution of ownership, stimulate competition, force state enterprises to market discipline (Meggison, 2001). However, the basic goals is increasing the efficiency of enterprises in the state and private sector. Those enterprises are usually operatively inefficient, inadequately managed, technologically uncompetitive, too capacitated with employees, are operating in the red. Privatization would, hence, be the «last salvation» that brings makings in efficiency, healthy motivation, better work discipline, systematical organization, etc. Other emphasized goal is improving the financial position of the state, since the privatization itself brings revenue to the state through subsidies, taxes, etc. Privatization also leads to innovation, and by that to new goods and services. Therefore the goal of privatization is to also encourage innovation investments in the subjects of privatization, which should ensure independence, continued growth and development, security, and stability of operations for the enterprises, and therefore the existence of their employees and interest accomplishment of owners of profitable enterprises. On the level of Croatia, by the Law on Privatization (www.nn.hr), which was brought by the Croatian Parliament in March 1996, the main goals of privatization were set: achieving faster economic growth, creating new work places, including the economy into global economic flows, stimulating growth of Croatian entrepreneurship, reconstructing the supply of Croatian economy, decreasing the public debt, etc. Since the private ownership is the basis of market operations, the change of the ownership structure in Croatia had the function of achieving two primary goals (Babić, 2008, 222):

1. increasing the efficiency of Croatian economy – it is necessary, in the maximum extent, to transform public ownership into private ownership, however, the privatization process must be preceded by the process of de-monopolisation – reconstructing big systems and stimulating competition;

2. starting and accelerating economic development of Croatia – the change principle of public ownership into private should be the selling of public ownership, in order to ensure the funds for financing investments into economic growth, and this would also open new jobs for those who will, because of the reconstruction of economy, lose their jobs.

On the other hand, from the stand of enterprises, priority goals, which are to be achieved through the privatization process, were also nominated: production efficiencies of enterprises, exemption from the influence of state and politics, ensuring healthy financing of enterprises, financial strengthening of enterprises, implementing modern technological innovations, making space for entrepreneurship, ensuring the flow of foreign capital, increase in mobility of capital, liquidation of unprofitable enterprises, transparency of enterprise operations (Gregurek, 2001, 156).

Achieving stated goals is possible to achieve by implementing a certain model, which would be, according to the discretion of every state, be independent, created internally, and able to be implemented during the phases of the privatization process, within which different models of privatization were suggested. Broadly, four dominant models of privatization crystalized (Čengić, 1995, 14):

a) External privatization – is a model in which the stocks of the enterprise are given (or are sold cheap) exclusively to workers (current and former) for free or their nominal price. The advantage of this model is that it is not administratively demanding, as well as a positive
«halo effect» between employees. The disadvantage is that it favors employees of profitable enterprises, while the employees of non-profitable enterprises and those employed in state services are marginalized.

b) Internal privatization – is a model in which the founding shares of an enterprise are sold to the highest bidder, while the bidders can be divided into several non-competing groups. That way monopolization of shares in the hands of one category of buyers is avoided. The advantage of this model exists in the fact that it enables the state to accumulate a certain amount of funds by selling the enterprise. However, symptomatically, the enterprises are bought exclusively by wealthy parts of the society at affordable prices. In that sense, the circle of possible buyers is dictated by the purchasing power, and this model of privatization often depicts the existing distribution of wealth and social power.

c) Free distribution of shares model – is a model in which the citizens of a country are given «certificats» (coupons) exchangeable for stocks of state enterprises, by which all citizens are potential co-owners of an enterprise that is being privatized. Therefore, the basic advantage of such model is egalitarianism. The disadvantage of the model manifests in the non-profitability of funds to the state, since the main characteristic of it is giving shares away for free.

d) Holding company model – is a model by which enterprises being privatized become the ownership of one or more holding companies. Those companies can be state owned or private. Holding company is a solution to dispersion of ownership and the lack of clearly defined owner/manager in a way that allocates a big number of shares on a small number of holding companies or joint funds. The basic problem of the model is the danger of postponement of privatization indefinitely. Namely, hypothetically, some political parties can assume the creation of holding companies as a chance to maintain state ownership as long as possible (Čengić, 1995, 42-44; Njavro, 1993, 95-97).

But, regardless of the model by which the privatization process is/was implemented, it should be indicated that no process, privatization included, is not implemented solely for economic purposes, regardless of the difficulty of confining ideological and political reasons for privatization on one side, and economic arguments on the other.

PHASES OF THE PRIVATIZATION PROCESS IN CROATIA

The entire process started by adopting and implementing the Law on Transformation of Public Enterprises in 1991, and it continued in 1995 by also adopting and implementing the Law on Privatization. The first key step in the privatization process was the transformation of previous public enterprises into enterprises with a known title to property (which was actually the state, which led to a significant nationalization of public property), after what privatization followed. Current «principle» of privatization in Croatia was, in the first place, based on privatization «from case to case», and was largely identified as a social «buffer-program», ex. through free distribution of shares to certain social categories of the society. Since 1991, through the process of privatization and trasformation in Croatia, almost 3000 companies, previously state owned, were included, and the privatization process was implemented through four phases (Grgurek, 2001, 156):

1. 1991-1994 – in which the key problem of relations between banking and economy started;
2. 1994-1998 – in which the recovery of the economy was disabled and delayed;

But, regardless of the model by which the privatization process is/was implemented, it should be indicated that no process, privatization included, is not implemented solely for economic purposes, regardless of the difficulty of confining ideological and political reasons for privatization on one side, and economic arguments on the other.
3. 1998-2000 – which was market by PIFs and privatization of banks;
4. since 2000 – in which bankruptcies dominate, with a tendency of selling the remaining portfolio and potential revision of transformation and privatization.

Phase one – it began by adopting the Law on Transformation, by which all enterprises, through the transformation of property, became trade companies or limited companies with a known title to property. All enterprises were divided into two categories: 1) big companies which, from the state's standpoint, have a strategic significance (Croatian Electric Company, Croatian Railways, Croatian Roads, Croatian Forests) that are in the immediate ownership of the state and are not included in the privatization process, and 2) all other companies that entered the privatization process which was conducted through two phases. In the first phase in Croatia there was a stronger focus on inclusion of employed, and a lesser on gathering resources for the state budget, which is achieved by selling state enterprises. It was a substitute for mass privatization. The disadvantages of such approach are numerous, but they all come down to unequal distribution of benefit because of different affects of certain enterprises, underestimation of company's value, in which case the profit of the state decreases, or in the case of overestimation, it makes the privatization process longer. Besides, in Croatia the use of the so-called «statistical method of estimation» opened room to illegal actions.

Phase two – includes those enterprises that did not perform the conversion by themselves before the deadline set by the Law on Transformation. Those companies fell under the supervision of the Croatian privatization fund (2/3) and the Pension fund (1/3). Funds use different methods of privatization, such as selling on public auctions or by direct sale (without public auctions or gathering tenders). By law, the state took the role of the arbitrator instead of a coordinator. The Law on Privatization (1996) states that the privatization is a part of the total economic and development policies of Croatian state. The Law includes all companies that have not yet been privatized, but are in the ownership of funds. Big public (strategic) enterprises (again) have not been included by this Law, but their transformation had to be arranged by a special law, and the privatization of those the Croatian Parliament had to prepare additional funds and measurements. A part of the conglomerate that has been privatized was disintegrated into a number of smaller enterprises that operate individually. At the same time, a greater number of big enterprises stayed in the ownership of the state and did not undergo any serious reconstructions, what showed lethal to the quality of the transition, ie those companies, with their business results, negatively affected the basic development indicators of the whole country. The resources from selling the companies in the ownership of a fund transfered into the Croatian Bank for Restructuring and Development (HBOR-CBRD), and the resources from selling state enterprises into the state budget. The Law on changing the Law on privatization from 1997 changed the funding of CBRD, and payments of all named funds was made into the state budget.

Phase three – The Law on privatization investment funds (PIF) initiates a mass privatization based on giving shares for free to certain categories of the society (veterans, families of deceased, imprisoned, or lost Croatian veterans and civilians, civil war invalids, exiles and refugees, returnees, former political prisoners, etc.). That population included 350.000 people, and in the coupon privatization only 240.000 war casualties participated, to whom around 50% of the shares of the Fund's portfolio were given. The quality of the portfolio was questionable, because 550 enterprises from the list for coupon privatization were illiquid from the start, and around 90-95% of the shares offered were illiquid shares which were not traded. The real value of the offered stocks was around 800 million DEM, which menas there was 1.7 billion DEM missing, what should have been the total real value of the stocks. Because of it there were four informal rounds of privatization, what was called the process of replacing stocks after
finishing three auction rounds. The third phase of privatization was dominantly politically motivated and her financial effects are undoubtable, since its affect on forming additional saving (still) was not felt. Economic and political appeal of mass, ie voucher privatization was misplaced because its stands on establishing real owners, because instead of owner's equity, stock speculators appear.

Phase four – according to the Law on the scope of work of the Croatian Ministry of Economy from 1999, the operations of privatization, restructuring, and recovery of entities and the supervision of legality of the Croatian Fund for privatization were transferred to the jurisdiction of the Ministry of Economy. The risks of privatization were taken by the new government, and that includes economic, institutional, and political risk. State's property is consolidated in the Croatian fund for privatization. The portfolio with the owner's equity of the state is sold up to 25% on a public auction through the stock market, and the rest goes under financial consolidation, ie on initiating bankruptcy procedures. According to available data, from entities in the state's portfolio over 25% of equity, by the end of 2000 40% was ready for privatization, 38% was going under bankruptcy, and the programs of stabilization analyzed 22% of enterprises. Stabilizing is/was going to be implemented through different interventions and types of assistance, by reprogramming payables, by writing-off receivables, and by disposing of the surplus of employees, in order for those enterprises to enter the privatization process with as little loads as possible. The decisive role in big privatization projects had Croatian Parliament, or rather the Ministry of Finance, and the biggest privatization projects still were not under the jurisdiction of the Fund for Privatization.

In comparison of the privatization process in Croatia with other countries in transition (Slovenia, Poland, Czech Republic, Hungary) (Polić, 2009) it is obvious that the privatization process in Croatia was realized much slower in regard to the group of transition countries of the first integration round with the European Union. Besides, for the quality grade of the «post festum» state of the privatization process, the fundamental question is: how was the privatization process implemented?, and on whose privatization results testifies the data from 2009, according to which the progress in the privatization process was very low. The share of the private sector in employment was only around 70%, while the share of the private sector in creation of GDP was 70-80%, what is significantly lesser in regard to other transition countries (Commission of the European Communities: Croatia, 2009). In support of this fact speaks the data on the number of entities in the state's portfolio that are operated by the Croatian Fund for Privatization (Crnković, Požega, Briševac, 2001, 340). Speaking by results, it is in collision, ie a contradiction with the nominated stands that which were related to a speedy privatization with a spike in savings, which would stimulate processes of restructuring. The intention was on fast privatization of the state sector, in order to ensure the efficiency of enterprises, because the state turned out to be a bad entrepreneur. Privatization is/was nominated as a prerequisite for normalization of operations of non-privatized enterprises.

QUALITY OF THE PRIVATIZATION FLOW IN CROATIA

The environment and the state of the economy impose the form of privatization, and every enterprise specifically chooses the best form between possible methods of privatization. Besides, every country, especially a country in transition, regardless of the universality of the process and the similarity of the causes and the motives, developed a relatively original model of privatizing state property. But, the success of privatization depends on the way that privatization is/was implemented, what is also determined by the political dimension of that process and the intention of each country to realize the
minimum of political goals. One group of countries preferred gradual privatization, while the other a «shock therapy». Some countries, however, tried to confine privatization inside national frameworks, while he others, more or less, opened themselves to investors from abroad. Besides, most countries defined an institutional framework and privatization models by stressing, before all, goals on a macroeconomic level, and a rare cases are countries that turned themselves to restructuring of companies as a primary task. However, all countries implemented privatization of state's capital as a process of transferring control from the state to the private sector, using certain models and methods (Polić, 2009, 397). For privatization and restructuring, a certain macroeconomic environment and stability are essential. Theoretically, privatization accelerates the process of restructuring, and that has a determining influence on the success of transition. Besides, some of the main measures that predetermine the character of privatization are considered financial discipline and legality, which create a basis of the creation of positive, as well as negative effects of privatization.

Using models of transformation and privatization generated both positive and negative effects. Some could argue that the structure of negative effects is not only wider, but, also, influences the state of the economy and the society as a whole more strongly. Macroeconomic results of the Croatian economy differ – very good relate to the level of stability of economic movements, and the bad ones relate to:

1. low level of development in relation to the pre-transition and pre-war 1989;
2. low level of GDP growth;
3. high level of increasing unemployment and low level of utilization of existing production capacity;
4. high international debt with a consequence of increasing the problem of illiquidity
5. unbalanced relations of value of domestic and foreign money;
6. low level of investments, domestic as well as foreign;
7. operating conditions that are better for importers than for exporters;
8. increase in trade and current deficit with a tendency of increasing foreign debt;
9. low level of completed privatization with a concomitant appearance of big social deviations and tensions.

Generally speaking, positive, or rather negative effects of privatization in Croatia manifest through the following:

<table>
<thead>
<tr>
<th>Positive effects</th>
<th>Negative effects</th>
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<tbody>
<tr>
<td>Nominating the owner</td>
<td>New owners without a development concept</td>
</tr>
<tr>
<td>Direct assignation of formal legal responsibility</td>
<td>Trade logic, not production logic</td>
</tr>
<tr>
<td>Direct assignation of economic risks</td>
<td>Inexpensive way of acquiring ownership decreases responsibility</td>
</tr>
</tbody>
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Table 1 – Positive and negative effects of privatization in Croatia
Forming a market macroeconomic system | Irrational breakdown of big business systems
---|---
Normative alignment with European standards and international comparability | Lack of untransparent privatization strategy
Increase in general and structural unemployment | Illegal employment, lower security and lower wages
Loss of work potential, especially highly skilled personell | Exacerbated structure of economic activities

Source: Processed by the author; according to Goriček, 2001, 179-180.

With achieving the goals of privatization, it is obvious that the positive effects of privatization can be realized only after a period of time, what, in Croatia, has not manifested yet, and the road to success permeated with bad implications; at first there are layoffs of the overabundant number of workers for the sake of financial recovery, what is Croatia's reality, but, unfortunately, is not leading to stabilization for privatized companies on the market. The level of production is decreasing daily, regardless that the number of workers has drastically fallen, and therefore the basis of decreasing the number of workers did not essentially predetermine a decrease in company's costs. The «thesis», according to which only after a period of adjustment to new market conditions has passed, space for expanding the market is opened, and there is a growing need for production and employees, in Croatia is still only theory. Unfortunately, it is symptomatic that despite all arguments that speak in favor of conducting privatization, the flow of privatization in Croatia is still going in an unwanted pace. Mostly, it is indicative when an operation analysis of companies (almost all are owned by the state), which are of special government interest, is in question (Crnković, Požega, Briševac, 2001, 341). By analyzing, for example, operations of said enterprises (companies of special government interest) in 2009, it is evident that operations of observed companies indicates bad business results, as well as their deterioration in relation to 2008. Observation of entities indicates the influence of the state (through ownership, and even management) maintained, despite all privatizations in the past 20 or so years (Bajo, 2010). In any case state ownership, when related to bad corporate management, untransparent choice of management based on suitability and party affiliation which is partly incompetent, unclearly defined goals, non-economic goals, as well as, unfortunately, high potential for many abuse, contributed to all stated bad results (Crnković, Požega, Briševac, 2001, 347). By analyzing the privatization flow it is evident that one of the most significant problems of efficient privatization is also high debt of companies, and so buying such a company meant taking over all of its high financial obligations. On the other hand, the practice of turning payables of creditors into shares and buying companies in such a way, they lost meaning when those companies were privatized. With many companies privatized in such a way, banks appear as co-owners, and even majority shareholders. Above all, companies without a clear short-term perspective, with problematic needs of restructuring, remained non-privatized, at the care of the state, and their restructuring and recovery are not possible in a short term. Besides, it is a fact that many companies are maintained, ie are used as social buffers to «hide» unemployment. Problems in privatization had as a result bad company management, and bankruptcies were not adequately implemented because of growing unemployment and inefficiency of the legal system. Problems of the bank system are also sensed, low level of domestic savings and small share of foreign investments. On the other hand, political power was concentrated in the hands of a one and only political party, and the legal and institutional frameworks were not built complexly, consistently, and operatively. In the
privatization process, current legislation and procedures were not respected, but privatization rather often took criminal characteristics. In such conditions, there was a lot of room for subjective courts and decisions, what could always be justified by legal interpretations. The privatization process in Croatia, until now, was below its real potential and the reached level of liberalization, and the dominant model used began different forms of manipulation. The term privatization associates the public on looting government state enterprises, protection on personal interests of individuals responsible for this situation. Many institutions, as well as the citizens of this country ask the question: Was it necessary to privatize in such a measure, or rather to release so easily, for our economy, strategically important enterprises from our supervision, since the privatization is not necessarily the best solution. That is best seen from today's examples where numerous Western European countries and the USA, in the midst of crisis, nationalize big banking and insurance companies, and industries of capital significance for a certain country (ex. automotive, chemical, etc.). Croatia has given its best and most significant resources into the hands of different foreign companies, maybe even persuaded by European institutions, and the EU itself. For comparison, in our immediate environment there are obvious examples where the country (Austria and Slovenia) holds the key sectors, and thus can indirectly control its economy.

Looking from a today's perspective, since Croatia did not brace for the current crisis, and even today does not have a vision of economic development, ie has no guidelines for emerging from the crisis, privatization has/had to be put on new fundamentals. Unfinished privatization, with legislation failed to ensure the rights of investors, especially small stockholders, from speculants, did not give enough reason to trust foreign investors. Untransparent trading and political influence during privatization were not factors that would appeal to foreign investors, not even the strategic investors. Croatia does not appeal (enough) to foreign investors, and the limiting factor is the level of privatization. Thus, we can conclude that current results confirm that the goals of privatization were not achieved, but rather it brought negative effects from a political, social, and economic viewpoint (Benković, 2000, 55). It is evident that the process of privatization, generally speaking, was relatively quickly compromised, since today, unfortunately, in Croatia the term privatization is tied to many affairs, many negative results of domestic and foreign public, and, also, negative perception of domestic and foreign institutions, which supervised the processes of transformation and privatization from the beginning in 1991.

In perspective, it is obvious that the further flow, ie the speed of the privatization process will be affected by political, but also economic moment. By creating new political relations based on pluralism and liberalization it is possible to create a climate for changes. By announcing the privatization of big state enterprises (Croatian Railways, Croatian Electric Company, shipyards, etc.), the Croatian Parliament wants to get rid of most enterprises in its ownership. For most of these enterprises, the privatization methods are not yet known, as well as if they will be sold as a whole or in segments.

CONCLUSION

On the verge of changes that marked the Croatian society in the last twenty years, the process of privatization was initiated, which was supposed to «reincarnate» the falen Croatian economy. Such approach corresponds with the tensions and the processes registered in other competing, possibly transition countries, where the rule of the state being a bad, or rather an inefficient leader crystalized, and they started to mass privatize state or public ownership. The realization of numerous defined goals of every country, and even those of companies individually, allowed different models, as well as evolving phases of realization, which determined for the results of the current flow of privatization to differ from country to country. Namely, changes in progress in Croatia, as well as other transition countries, and especially in countries of Central and Eastern Europe, are radical and comprehensive,
most often without a full implementation model. This is shown by different approaches and dynamics of implementation. Croatia realized its current privatization process, generally speaking, very poorly. Unfortunately, some of the defined goals (flow of foreign capital) were largely absent, and some of the generally accepted criteria (protection of the employed) brought to a problem of competitiveness of those enterprises on the market. The background of the total low quality of privatization can be determined by the fact that the privatization process was, primarily, politically motivated, and its general economic and especially financial goals were secondary. Undoubtedly, the current privatization process was below its real potential, largely irritated by constant repercussions, accusations, embezzlements, charges, and court proceedings. One could say that the privatization process compromised the entire Croatian society, especially the political, legal, and institutional environment, which easily allowed the sale of Croatian interest and national economy, in a way that the positive effects of privatization are deep in the shadow of the bad, compromising effects and at this moment, maybe, unforeseeable consequences. Comparing the «wanted» with the «realized» from a todays perspective, it is obvious that there is a huge dispute between the same categories, that the significance of privatization is enormously small on the overall society, that the goals are mostly not realized, and that the bitterness of this process left a deep trace and vivid consequences on the total Croatian public and its economic strength. The summary is that despite a big number of enterprises is included by the privatization process, the total progress of Croatia in that process is extremely weak. Besides the entire Croatian society and its national being, besides a true accomplishment of goals, as well as a complete dignity of privatization, it is necessary for the remainder of the non-privatized enterprises to be privatized without any stigma, meaning it should be correctly implemented (with a greater control of the state, through a public tender procedure, sale at market prices, with competence of entrepreneurs for running an enterprise), because otherwise minimal chances for long-term positive effects to be confirmed.

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AN ECONOMIC PARADOX - SOCIETY DEVELOPMENT THROUGH NOT EMPLOYING YOUNG PEOPLE?

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Abstract

Global unemployment rates are alarming, given problems won't improve soon, a new scenario plot is expected. The unemployment problem is constant, ubiquitous in all countries. Restructuring of post-crisis economies didn't adequately correspond to changes of their (un)employment structure. Unemployment consequences confirm an irrefutable fact - the society hasn't successfully adapted to changes. It's a result of societies' inadaptability during crises, which cannot successfully, through appropriate measures and development programs, confirm the "modus operandi" and remediate consequences. Particularly affected category is youth, which under lousy conditions and pays accepts jobs, only to meet their basic needs. Even those options are limited - many young people run for certain jobs. The consequences are: losing self-esteem, crime increase, defeatism. In this paper, authors focus on this problem which has disaster characteristics, trends of unemployed youth are defined, indicates needs of making urgent, efficient employment measures and programs, in frameworks of new employment policies, and redefining initiatives which haven't manifested in objective achievement.

Key words: unemployment, youth, children, limitations, EU

INTRODUCTION

Unemployment, as a social and an economic phenomenon, has always been in the World’s global economy, as well as in certain national economies, present to a greater or lesser extent. It is a reflection of specific historical phases of a society within which some social weaknesses manifested, which implicated disorders in the world of entrepreneurship as well, and as a consequence had layoffs, or rather lack of employment opportunities. In the context of the current and omnipresent economic crisis, the number of unemployed reached alarming proportions, which largely degrades all former efforts in the sense of promoting entrepreneurship development. Processes on the labor markets of different, especially transition, countries are in the focus of interest of professionals and politicians, because all latter countries are still going through a very tough period of adapting to the market economy. That process is very demanding and exhausting for all countries of which every individual country has its specificities. Numerous causes of unemployment are interacting, and the “link” is searched with different social and economic organization in relation to socialism, failed enterprises, compromising privatization, and inefficient private sector, as well as working in grey economy. Besides, bad macroeconomic policy, delay and/or weak implementation of structural reforms reduce perspectives of positive changes. Special burden of today has the problem of unemployment of highly educated youth, what causes particularly negative implications. However, the fact is that the problem of youth unemployment existed before the crisis, but the same was never this drastically numerous, or infinitely slowly resolved - despite of the fact that youth is ready to work in underpaid positions, despite of their qualifications.
The unemployment problem is currently the biggest “carcinoma” of today’s society as a whole, but also certain national economies. It is most hopeless thing is that despite the overall initiatives, measures, and programs, national economies cannot confront the same individually, nor integrally, nor can they stop the negative trends. Unfortunately, this problem “metastasizes” from month to month, and the crucial question is how much of it do we tolerate, or rather the possibility of ultimate stress, since the pressure is (becoming) unsustainable. Longterm unemployment became, within this global phenomenon, a problem for itself, as well as a problem of unemployment of youth, the character of the overall massiveness is converting into apathy, disbelief, depression, lack of self-confidence, isolation, crime, defeatism.

Regardless of the ratio and the character of the economic crisis, on the labor market and within civilized social communities there is always a commitment of employing less employable people as well. In the World, as well in Croatia, the less employable people usually include the following categories of the population: a) long-term unemployed, b) young people without working experience, c) elderly, d) people with low education levels, e) unqualified workers, f) people with poorer socioeconomic status, and g) people with lower ability to work (Psychological aspects of unemployment).

UNEMPLOYMENT TRENDS OF YOUTH

Even though according to the current definition of the International Labor Organization an unemployed person is considered a person without a job, but actively searching for one and is ready to start working within 2 weeks, the possibility of employment is not equal for all. Experience has shown that certain individuals are more difficult to employ than others. Youth is a very vulnerable group on the labor market. The International Labor Organization (ILO) has published that almost 12.7% of youth or 75 million, around the World does not have a job, what is a much lesser than during the peak of the crisis in 2009, but it is a devastating fact that the same does not believe that the situation regarding the employment of youth will improve in the next four years. Besides, many educated young people are forced to accept a part-time job, or jobs not in accordance with their qualifications, or they are intensely thinking about their future in other countries, primarily Germany, Austria, New Zealand, where the possibilities of getting a job on the labor market are far more favorable and versatile. On the other hand, six million people are so disappointed that they stopped searching for a job. According to the data of the said agency, since 2007 4 million more young people are unemployed, aged 15-24. In the European Union one out of five young people is unemployed (Figure 1). Besides, it almost becoming a common practice for many young people are intentionally prolonging their period of regular study on college in order to keep their student rights - above all health insurance, eventually the right to pensions of their deceased parents, scholarships, etc. By projecting the given problem onto future periods, it is considered that much of the unemployed youth could potentially become unemployable and stay a permanent “weight” for the society which, in a way, devaluated them (World catastrophe: 75 million youth unemployed). The situation is especially alarming in certain countries of the European Union like Greece, Spain, Cyprus, and the latest data speak in favor of an increasing number of unemployed youth in Italy, France, and other highly developed countries of Europe.

It is a fact that the unemployment of youth is increasing in developed and developing countries, what is a trend that could have non-foreseeable and far-reaching consequences, before all huge economic costs in the sense of loosing skills and motivation, and it could also lead to amortization of human capital. For example, the rate of unemployment in Greece increased to 21.8% in January this year, almost double than in January 2010 when it was 11.3%. In Greece in January 1.084.000 unemployed were evidenced, of which most are young people up to 24 years of age (50.8%). Furthermore, 3.34 million people were
classified as “inactive” - those without a job and not looking for one (The rate of unemployment in Greece 21.8%, in Croatia 20.1%). In Spain, for example, every other young person is unemployed (Figure 2).

Figure 1. Youth Unemployment Across Europe


Figure 2. High unemployment rates as a permanent problem

The consequences of unemployment of youth are evident in transition countries as well. As it was evidenced from the example of Republic of Bosnia and Herzegovina, in said country 45% of youth is unemployed, and every third unemployed person is below the age of 30. The rate of unemployment in youth is 2.5 times greater than the group ranging from 25 to 49 years of age. Unemployment of youth is a key factor for their risky behavior in society; 55% of youth is uninterested in starting their own business, and 30% more is discouraged to do so. Therefore, the fact that 73% of them wants to leave Bosnia and Herzegovina (Position of youth in BiH). In spite of everything, no one should or can make rash conclusions and with that devalue the overall efforts and investments, both of developed countries and the transition countries, in the sense of generating employment policies, which, unfortunately, do not give any concrete results. On the contrary, all transition countries are giving special attention to young job seekers, and special programs which are implemented by some countries can be used as a good example. For example, programs usually combine education with co-financing their (first) employment or self-employment. Professional training usually precedes first employment, and the employment service can co-finance training of unskilled workers, especially those which “dropped out” from regular education. Such programs are implemented by the Republic of Poland. Since the number of youth with low education is increasing in all transition countries, special programs which will integrate them socially can be of great use. The Czech Republic started such programs a few years ago. Within such programs they start with basic social skills, and continue with training for a job, building work habits, and finish with regular work. Experiences from such programs are very encouraging (Employment and labor market policies in transition economies).

The judgement of the International Labor Organization is very indicative, which predicts that unemployment of all categories of the society (including youth) will stay at 6% until 2016, what means that the unemployment because of young people who are entering the job market for the first time will rise up to 206 million unemployed. If the global economic growth continues to fall - and it fell by 4% in the last year alone, it is predicted that the unemployment is rise to 209 million by 2013. Youth will suffer the most (World catastrophe: 75 million youth unemployed). Accordingly, all countries are trying, in a concrete way and within their capabilities, to confront the burning unemployment generally, as well as the unemployment of youth as a special socioeconomic paradox. Regarding that, members of the European Union have defined and determined 4 big pillars on which rely the determinants regarding the European strategy of employment (Kandžija, vČečić, 2010, 1109):

- Ensuring the possibility of employment - i.e. the fight against longterm unemployment and the unemployment of youth, easing the transition from education to work, developing the cooperation between enterprises and social partners - the goal is to remove the causes of structural unemployment, attributed to the non-adaptability of the structural supply, the demand for labor of youth and those unemployed for a longer period, weak adequacy of the education system and professional education towards the economic needs and the qualification deficit, the compensation mechanism for the unemployed for the purpose of restoring their activity;

- Modernizing the society - i.e. strengthening the rights to equality, or rather suppressing discrimination of employing women and handicapped people, and reconciliation of family and business life;

- Development of entrepreneurship spirit - it is about the classic goals immanent in every supply policy, about removing the obstacles in performance of independent professions and development of small and medium enterprises, and the main determinants refer to reducing
overhead costs, administrative burdens, fiscal pressures, VAT, in order to develop a more active business environment and create new and better jobs;

○ Promotion of opportunities for adapting enterprises and their workers - this pillar has for a goal removing obstacles which prevent promotion of employment in an organization of labor, improvement of working time, safety at work, and diffusion of lifelong education.

**European employment strategy** should bring member states together in coordinating best practices of creating more and better jobs and providing high mobility of workers (labour migrations) depending on the needs of a specific economy. However, current state in Germany and Spain shows a huge discrepancy and inadequate measures of such policies (Figure 2).

Figure 3. Unexpected tendencies in the EU unique labour market

![Graph showing the percentage of German firms reporting labor shortages as a factor limiting production compared to Spanish unemployment]


German companies are reporting labour shortages as a limiting factor of production while at the same time Spanish unemployment rate grows to more than 25%. Unemployment among young Spaniards (between 16 and 24 years old) is at 52%. Recovered German economy is followed by it’s flexible immigration policy which especially encourages migrations of graduated young people. Additional problem arises when growing German sector of production is in constant need for much more medium-skilled workers than highly qualified ones. Medium-skilled workers from abroad are facing stronger German immigration policy barriers than the qualified ones who are favored in the same process. At this state unemployed Spaniards (young or old, highly or medium-qualified) and German economy are at lose-lose situation at which young unemployment paradox reflects its true meaning. EU unique labor market and employment strategy should show its best in such conditions - but it’s not happening. This implies that strong linkage mechanisms are yet to be developed within Union employment strategies in order to create united, and above all, functional labor market.
Consequently, it is clear that regarding the omnipresent unemployment there is a great disparity between the actual, real situation in business practices of numerous countries, even in the countries of the European Union, as well as countries which are not a part of the EU and the “determinants” of their strategic documents that, in a way, “only” articulate needs, possible desires and necessary initiatives, and which, unfortunately, in this situation of global crisis do not correspond with practice, actual needs and real possibilities of restoration of this paradox.

LIMITATIONS OF EMPLOYING YOUTH - AS A GROUP OF LESS EMPLOYABLE PERSONS

The fact is that the problem of unemployment directly confronts employment policies, for what all positive structures of modern society advocate for, from both the level of institutional forms and of every responsible individual. The goals of all employment policies are almost compatible, but those at the level of the European Union have special designation since it regards the synchronized policies of all members of the European Union, whose goals converge in the following directions:

1. Higher employment, with the simultaneous improvement of living and working conditions;
2. Strengthening the labor market and educated labor force, that can adapt to economic changes;
3. Improving the quality of the social policy and social protection.

Shared priorities and individual goals of the employment policy of member countries are given in multi-year guidelines, which make a part of the Broad economic policy guidelines (BEPG). Within those policies for fighting poverty and promoting equal opportunities for all, especially youth and women, are elaborated. New guidelines of employment, defined in October 2010, include the following goals (Kandžija, Cvečić, 2010, 1107-1108):

1. Increasing involvement in the labor market for women and men, reducing structural unemployment and promotion if quality of labor;
2. Development of capable (professional) labor force that corresponds to the needs of the labor market, and promotion of lifelong learning;
3. Increasing quality and implementation of the education system and training on all levels, as well as acceptance of participating in the tertiary or equivalent education;
4. Promotion of social involvement and fight against poverty.

Since the obligation of EU member countries of the need for employment of youth, which is a basic principle and a stance of almost all countries in the World, was proclaimed on a specific, concrete way, cognitions should be objectified and a conclusion should be made that young people have a special “burden” in today’s society, since they are a part of a group of less employable people. Namely, regardless of the state of the economy, the labor market always contains groups of less employable people who are often connected with common sociodemographic characteristics, and the probability for employment is not the same for all people, since experience has shown us that retain individuals are
more easily and more quickly employed than others. Depending on the state of the economy in a country, or rather the unemployment rate, number and size of such groups differ. During periods of mass unemployment number of such groups is greater, and the groups are also greater in number. Classifications are numerous and are subject to change. In the World the less employable people usually include the following categories of the population: a) long-term unemployed, b) young people without working experience, c) elderly, d) people with low education levels, e) unqualified workers, f) people with poorer socioeconomic status, and g) people with lower ability to work. Some research brings into context of employing youth four groups of psychological factors which influence the possibility of employing youth - a) their psychological orientation, b) self-concept, c) mental health, and d) some aspects of behavior during education (“behavioral predictors”) (Psychological aspects of unemployment).

A special burden of the unemployment problem carry certain categories of society, within which youth have their own noticeable place. These are social groups which are exposed to unemployment the most or have been pushed into inactivity, and those are: 1) people with lower ability to work, 2) minorities, 3) women with small children, 4) former convicts, 5) persons with low qualifications or with obsolete knowledge and skill, and 6) elderly. All transition countries are implementing the measures for encouraging their employment, but experiences of some countries have shown that these groups are generally less included into active employment policies than other work seekers (Lubyova, van Ours, 1999). First three of said groups form the core of the rising long-term unemployment. Since prolonged unemployment can mean the loss of work capabilities, the long-term unemployed job seekers should be given a more intensive assistance with employment and engagement into programs of the labor market. Many of them, however, must improve their bad image they have with the employers, strengthen confidence, improve the ability to present themselves on the job market, learn the steps in finding a job and competing for a job. This can be realized through so-called employment seeking clubs, designed after the British model, which are currently operating in a few transition countries, or through short courses. Persons who have been away from the labor market for a longer period need help in restoring their work skills. In these cases co-financing of employment is helpful, combined with training in the workplace. In that sense experiences of Hungary are useful, where the long-term unemployed were employed in public works, which were initiated by the community for care of homeless and social protection of elderly (Frey, 1995). Differentiated approaches, in the sense of employment promotion, or rather decreasing unemployment in different countries, are known, which are primarily conditioned by the economic power of a country, as well as with the intensity of the unemployment problem and open possibilities of employment. First work experience for young people, mostly those who are finishing their education, most often starts by co-financing the pays to the employers in a period of 6 to 12 months. If it is necessary, employment can be combined with training in the workplace, which costs are borne by the employer (what is done in, for example, in Hungary). Subsidies can be given to employers who give young people permanent employment when the co-financed employment expires. Young people, whose skills do not match the given free jobs, should be offered retraining. Programs for young entrepreneurs are especially desirable, because young people are more keen to take risks, in relation to other age groups. For a successful program, a comprehensive entrepreneurial training and other forms of help are needed (Employment and labor market policies in transition economies). Undoubtedly, the efforts and the role of every central state government in resolving problems of unemployment are most dominant, even though certain remarks, confirmed in practice, deny the overall expected realization, or rather stopping the unemployment trend and increasing employment in general, as well as unemployment of youth. In an attempt to systemize some remarks, based on concrete research conducted in Croatia, those same converge in the following (Psychological aspects of unemployment):
1. Insufficient funds
2. Inefficient subsidies
3. Narrowed crediting of self-employment
4. Questionable employment quality
5. Failure in solving the unemployment of youth and

Symptomatically, the stated weaknesses and deficiencies in the sense of implementing a proactive employment policy in Croatia do not appear individually, separately, but in an interaction of a few, what gives an additional burden in the sense of resolving the given problem of unemployment and insists on complete mobility of all relevant factors in remediation and neutralization of negative aspects of the same.

**FINANCIAL SUBSIDIES OF THE EUROPEAN UNION IN RESOLVING THE UNEMPLOYMENT PROBLEM**

The problem of insufficient financial resources is certainly the most dominant weakness, or rather a disadvantage in the sense of increasing employment, or remediating the unemployment problem, and as such implies and updates the importance and character of all other given problems. The example of the European Union obviously shows how much attention is given to this “anomaly” and concretizes through which institutions, mechanisms, strategies, and programs are used to oppose this problem. Namely, it is obvious that within the European Union a lot of attention is given to the role, or rather the segmentation of evaluation and investment into human capital, especially the potential of youth, and the basic financial instrument of the social policy of the European Union is the European Social Fund (ESF). Their basic goals are improvement of employment possibilities in the Inner market of the European Union, or rather creating numerous and better jobs, as well as giving subsidies for other social goals. Work of said Fund can be conceptualized into few main periods in the last decade. From 2000 to 2006 the European Social Fund was the main instrument of the European employment strategy, which in the frameworks of regional policies funds: regions which are lagging in development (goal no.1), regions of social and economic convergence (goal no.2), as well as projects regarding human resources (goal no.3 - specific to the ESF). Specific goals in that period are (Kandžija, Cvečić, 2010, 1104):

1. Development of active labor market policies fighting unemployment and long-term unemployment, and for easier integration of long-term unemployed youth;
2. Promoting equal opportunities, with a special accent on those who are vulnerable to social exclusion;
3. Promoting and improving education and training, as a part of the “Life-long Learning Program”
4. Promoting of a professional and adaptable labor force, innovation, and entrepreneurship;
5. Improve access of women to the labor market.
In the current time period 2007-2013 the European Social Fund has €77 billion at its disposable for achieving a wide range of goals - primarily improvement of adaptability of employees and enterprises, easing the access to employment, fight against discrimination, easing the access to the labor market to the vulnerable segments of society, improvement of the education system, as well as updating the institutional capacity in less developed regions. In that period, interventions of the European Social Fund should contribute a more effective achievement of employment goals in the frameworks of the Lisbon growth and employment strategy. Bonds between ESF and the European Employment Strategy (EES) were strengthened in order to achieve the goals of employment, especially full employment, quality and productivity of labor, social cohesion and social inclusion. In accordance with the goals of “Regional competitiveness and employment”, funding of the European Social Fund are concentrated in (Kandžija, Cvečić, 2010, 1104-1105):

1. Higher adaptability of employees and enterprises;
2. Strengthening access of unemployed and excluded to employment and participating on the labor market;
3. Strengthening social inclusion by fighting discrimination and enabling access of handicapped individuals to the labor market;
4. Promoting partnership in the field of reforming employment and social inclusion;
5. Strengthening of human capital by implementing reforms in the education and training systems.

European employment strategy or the so-called Luxembourg process, started in 1997, represents a framework of yearly cycles of coordinating and supervising national policies of employment. By the proposal of the European Committee, the Council of Ministers, through a qualified majority, accepts the “guidelines” which member countries should implement in their employment policy (article 148 UFEU). The Committee and the Council of Ministers jointly research national plans and report to the European Council (joint report on employment) and give recommendations for individual countries.

The other relevant “indicator” through which a program event for confronting the unemployment problems could be meritoriously seen is the joint program of the European Union for employment and social solidarity - PROGRESS, in whose program for the period of 2007-2012 €734,25 billion was provided for financial support for implementing the goals of the European Union in fields of: 1) employment, 2) social protection and inclusion, 3) working conditions, 4) non-discrimination and diversity, and 5) equality of sexes.

As third, through the European Globalization Adjustment Fund (EGAF) €500 billion a year was ensured for giving personalized help to workers who are losing their jobs because of trade liberalization and structural changes in members of the EU. EGAf finances: help in seeking a job, adjusted retraining, promoting entrepreneurship, help for self-employment, specific temporary subsidies on income (ex. subsidies in seeking a job or mobility, stimulation measures for the elderly or handicapped, etc.) (Kandžija, Cvečić, 2010, 1105-1106).

Following the above, it is obvious that within certain strategies and programs of relevant factor of the European Union, the enormously big funds, beside all other intangible “funds”, are invested in resolving the unemployment (problem), as well as remediation and mitigation of consequences which the problem of unemployment is still manifesting. In any case, it helps that the unemployment problem of youth is
especially recognized and is highly emphasized on the list of defined and determined issues. This could, in a way, be a guarantee that this economic paradox, by which the whole social development should be generated by unemployment of youth, will be solved as a priority issue. The realization of the same will only be done if the production is increased, what means that the increase in production is a reflection of the “therapy” recipe for decreasing unemployment, not only in Croatia, but in any other country as well.

**CONCLUSION**

The problem of unemployment is omnipresent in all national economies and represents one of the most current problems of today. As a consequence it has negative implications, what prejudices that the increasing unemployment and lowering pays are decreasing the demand for goods and services, what then leads to decreasing scope of business. In that context the unemployment problem of youth should be viewed and especially valorized, since it has a special burden from an economic standpoint, as well as from a social one. Regarding the focusing of this global economic phenomenon repercussions are numerous, since this issue is very sensitive. All countries in the world are trying to, through adequate measures and programs, fight and repel this issue. However, the impression is that the relevant factors, especially governments, did not devote to this problem continuously, professionally and deeply enough, but rather declaratively on the level of rhetorics, unsystematically, rash, sporadically, without proper elaboration, and without sufficient funds. Unemployment of youth must, before all, attract the attention of everyone, become a priority social commitment, it should be nominated as the number one macroeconomic priority and, accordingly, face that problem correspondingly, especially because the assessments of future unemployment and potential unemployment of youth are not encouraging.

History of deepened economic crisis showed that critically high unemployment rates are not only a socio-economic yet they are also a crucial political problem. Unfortunately some of the EU member states couldn’t avoid radical expressions of it in current political spheres. High unemployment rates in Germany during 1930’s empowered the strength of National Socialist political parties. Similar scenario, gratefully in much lesser extent, was partially present in Greece where far right and far left extreme political parties gain their chance due to crisis traumatized voters which are mainly unemployed young people. Sadly this new political choice is result of their constant suffering situation under austerity measures that leave them no perspective. So it should be analyzed more as a result of psychological crisis than rational economical or political issue. A derivative of such scenario is currently present in Spain, where crisis encourages the rise of Catalonian nationalism. European Union as economical and political integration must face it with integrated labor policies which overcome specific problems of one state and make it a unique solution for all of the member states. Every state must, in the frameworks of this problem, recognize its initiatives, chances, in accordance with their own capabilities. Measures which have not contributed to expected results should be redefined or, even, reject, programs should be newly generated, expanded, innovated further, remove and neutralize obstacles for entrepreneurs, procedures sped up, factor of mobility activated. This degree of social urgency insists on general mobility, and corrective and, before all, efficient operations based on increased production, and must represent a result of a joint “project” of all relevant factors. Therefore, the fight with the complex and layered issue of unemployment of youth is possible only with mobilization of those forces that will result with increased investment, increased production, and enabling a labor market that will timely and adequately, systematically and permanently adjust to new conditions and changes in the integrated global economy. The youth unemployment crisis can be beaten, but only if creating new jobs becomes a number one priority for governments, and if the investments substantially increase, regardless if in the public or private sector. Youth should be given active help when seeking employment, and on the state
level, measures of active policy for promoting their employment can be implemented, in a way that the EU member countries implement them in the frameworks of their integrated project. Every new delay of this problem will have unforeseeable consequences, for the individuals - young people, as well as for the state as a whole. And ironically, on the level of daily political needs, a slogan “youth is our future” is used. And can this ideology be “defended” in an economic paradox - development of society by not employing youth?

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HIDDEN INTANGIBLE ASSETS IN VALUE CREATION OF COMPANIES LISTED ON THE WARSAW STOCK EXCHANGE IN POLAND

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Abstract

Intangible assets due to their immaterial form are a particular resource. They are increasingly involved in the creation of the market value of modern companies. Until recently, tangible assets generated significantly their value. But now growing importance of hidden intangible assets in companies' market value, is indicated, which is confirmed by research conducted in this area.

The purpose of the paper is to present the research results conducted on companies listed on the Warsaw Stock Exchange in the area of intangible value generators. The research converted the period 2009-2010 and the analysis was conducted using the GIFT™ methodology.

Key words: Intangible assets, GIFT™ methodology, market value

1. INTRODUCTION

The most important generators of the company value are intangible assets that reflect the difficult to identify intangible resources as a source of flows of future benefits. The importance of intangible assets in the creation of the market value of companies has been exposed with the development of the concept of knowledge-based economy since the understanding of the term "wealth of the organization" and the manner of its creation changed.

The basis for the knowledge-based economy are creative enterprises building their competitive advantage on knowledge as a basic strategic factor. Knowledge is a key driver of their growth as well as a source of wealth creation. Its proper creation and use enables to survive in a situation of uncertainty. It also determines the competitiveness of enterprises and contributes to the increase of their efficiency and innovation. Thus, knowledge-based resources, that is intangible assets have started to gain importance. They are increasingly involved in the creation of the market value of companies in spite of the fact they are still primarily their "hidden" potential. This is due to the fact that most of them do not meet the criteria for recognition as an asset and are not recognized by the accounting as balance sheet items. Because of that, they are not reflected in the carrying value of companies.

Intangible assets unrecognized in the financial report are a complex, distributed and highly variable group of resources. Their systemization and organization was possible by developing the concept of intellectual capital. It is undoubtedly a relatively new and enigmatic concept which means that to date a number of definitions of intellectual capital trying to identify and categorize it has developed. The perception of intangible resources from the perspective of intellectual capital, however, allowed to
expose their growing importance in the creation of the market value of companies and to show this process.

The purpose of this paper is to present the importance of intangible assets in the creation of the market value of the company. Particular attention has been focused on Hidden Intangible Assets, which despite of the “hidden” potential of enterprises can contribute to the creation of above-average benefits. Whereas at the empirical level conclusions were supported by the results of research conducted on companies listed on the Warsaw Stock Exchange to which extent undisclosed intangible assets create the company value. The study covered the period of 2009 and 2010 and the analysis was conducted using the GIFT™ methodology.

2. THE IMPORTANCE OF HIDDEN INTANGIBLE ASSETS IN THE CREATION OF THE COMPANY VALUE

The market value of the company is determined to a greater extent by intangible assets i.e. organizational culture, information systems, contacts with customers, know-how, customer lists, trademarks, copyrights, patents, licenses, organizational structures, knowledge and employees’ skills. They become significant economic potential of many, if not most companies.

However, intangible assets are a complex issue. They are mostly known as “hidden” potential of the company. Only a small part of intangible assets is recognized in the area of financial accounting as an asset and is included in the book value of the company. A significant part of them are unrecognized intangible assets (in the balance sheet), which are identified in the components of intellectual capital.

Intangible assets within the individual components of intellectual capital in different ways and to a various extent are involved in the process of the value creation. These which make up the human capital (the thinking part of the intellectual capital), are considered an economic factor, which in itself and on its own can increase its value. As a combination of features contributed by employees, the ability to learn and their motivation to share information and knowledge are not owned by the company and only made available to the enterprise. Intangible assets constituting human capital are characterized by difficulty to imitate and rarity. For the most part, they are generated by tacit knowledge, constituting the sole property of the individual. Therefore, a transfer of tacit knowledge between employees is important from the point of view of the value creation. The effectiveness of this process is determined by the ease of the transfer and appropriate motivation of employees (King, 2009).

Intangible assets constituting human capital included in the structure of the company and its processes become a source of the creation of organizational capital. It should also be noted that the quality of human capital is determined by technological solutions, and modern technological solutions are not possible without employees’ adequate knowledge and level of concepts (Nita, 2009). As a result of the impact of human capital on the environment of an enterprise and interactions with intangible asset of organizational capital, capital connected with the customer is created. As the effect of formed interactions an invisible value is created which in a significant way determines the company's ability to succeed in the market. This value materializes in financial capital.

Another example of the value creation as a result of the interaction between different groups of intangible resources is implemented innovation by human capital, which contributes to introduce new products into the market. It results in greater customer satisfaction and increases their loyalty. Which in turn helps to generate additional benefits and increase the company's value. Another example would be the brand.(Waśkowski, 2005) Its high value consists primarily of its basic content and function which
is the visualization of the product and its distinctive features compared to other products. The value of the brand is also reflected in other intangible factors, which, though not visualized, contribute to the creation of additional value. Strong brand capital can not only attract, but also retain the right customers, strategic partners, employees, investors and develop a bonus for the company’s offer. Thus, brand recognition and its credibility become a source of additional benefits, which is reflected in an increase of the market value of the company. However, the occurrence of a negative perception of a brand can be a source of the value depreciation. This is due to the specificity of relational capital, which in contrast to the other components is difficult to control.

It should be emphasized that possession of individual elements of intangible resources alone is insufficient for the creation of the market value of the company. The added value is the result of interactions between intangible assets constituting main components of intellectual capital. Individual intangible resources differ in a way of the value creation. They can increase the value directly contributing to the generation of extra cash (e.g. due to customer loyalty, a trademark, a brand). The second method is a combination of complementary assets, which allows to generate cash flows (e.g. reducing the production costs, obtaining an adequate quality of products).(Dudycz, 2005) Complementary assets form a unique relationship that allows to transform innovation into the profits of the enterprise.

Obtaining additional, above-average economic benefits leading to an increase in the market value of the company is possible because of distinctive features of these intangible assets.

Undoubtedly, their fundamental feature is the lack of a material (physical) form, which means that it is not possible to directly see, capture, or determine them by the primary senses. Another important feature is their inexhaustibility. Intangible assets based on knowledge, in many cases, not only do not wear out, but on the contrary, as they are used they increase in value. They can be used together with other resources and capabilities of the company without losing the value. An important feature of intangible assets is their non-linearity. It results from their different role in creating the economic result of the company. Intangible assets also have the ability to increase their value through interactions between different elements.(Michalczuk, 2012)

The inexhaustibility and non-linearity of intangible assets is related to their another important feature, which is their dominance. It results from the fact that the effective use of intangible assets that take the primary role in relation to other assets in the creation of value, determines the competitive position of the company. Also, the unique nature of intangible assets resulting from their rarity conditions this position. It allows in its own way to stand the enterprise out against the other ones, e.g. by its name or products.

In addition to the features discussed, intangible assets have other distinctive characteristics: they are knowledge-based, are not fully identified, they have an internally diversified structure (they include components of different nature, such as patents, employees’ skills, organizational culture). An important feature is also a higher level of risk associated with the disposal (use of) this group of assets. They are easily penetrable, which allows to have an unlimited access to them across the enterprise. This provides the opportunity to create additional value, since their simultaneous use by many users not only does it not reduce their use value, but also it does not require the replacement by other assets. Intangible assets therefore are characterized by simultaneity in the possibility of their use at the same time by many people and in different places of the company.
These distinctive features of intangible assets contribute to obtain additional, above-average economic benefits leading to an increase in the company's value. As indicated by B. Lev (2001), it results mainly from:

— their divisibility, since most of the intangible resources can be used at the same time in different places without any loss of efficiency achieved. For example, a company's reputation can be used at the same time at obtaining a credit, and also at concluding a favourable contract. Each of these activities enables to obtain additional financial benefits,

— connections with the scale of the use, as the benefits of owning intangible resources are the result of the effect of increased return in relation to the scale of investment and involvement. The use of intangible resources alone may contribute to the increase in their value. An example would be the brand. Its use in the market increases awareness among consumers and as a result translates into increased brand value,

— the network effect, as the benefits of an entity increase together with an increase the number of participants in the network. This is due to the fact that potential participants in a network by joining it in order to increase their benefits, contribute to its growth. An example would be a new technology that at the beginning gets a slight advantage in the market, but in a short time can take control, obtaining additional financial benefits to the company.

Thus intangible resources embody possibilities of an increase in the company value in the future, and as indicated by B. Lev (2001) the value is the sum of the value of resources in a given place, the value resulting from possibilities of an increase in the future and the value of possibilities of an increase in newly generated resources. The first two factors are influenced by the degree of accumulation and previously realized investment. Therefore, the proper use of intangible resources allows to obtain additional, above-average economic benefits leading to the increase in the company's value⁴¹.

3. HIDDEN INTANGIBLE ASSETS IN COMPANIES LISTED ON THE WARSAW STOCK EXCHANGE (WSE) IN 2009-2010

Hidden Intangible Assets reflect intangible value generators not capitalized by accounting. Because of their individual and often unique features, such as the lack of material (physical) form, non-linearity, or domination, they contribute to gaining additional, above-average economic benefits which increase the company's value.

Since it is indicated that intangible assets increasingly determine the value of today's enterprises, the empirical verification is of great importance. For this purpose, the methodology applied to the GIFT™ (Global Intangible Finance Tracker)⁴² research was used to analyze the share of Hidden Intangible Assets in the creation of companies’ value listed on the Warsaw Stock Exchange. The adopted research methodology is based on the assumption that the company value is determined by both tangible and intangible assets, as illustrated in Figure 1.

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⁴¹ The practice shows many examples where information about the potential beneficial use of resources resulted in the growth of shareholder value. For example, in December 2005, there was more than nine times increase in the share price of Capital Partners SA (the company engaged in financing projects and financial advisory services) after transmission of the information about obtaining a license to trade natural gas.

⁴² These are the annual survey conducted by Brand Finance.
This approach to company value enables to identify two main groups of value generators. The first one are material factors, whose level reflects the net tangible assets. The second one are intangible factors, whose level reflects intangible assets, both disclosed in the reporting (as disclosed intangible assets) and undisclosed intangible assets. This approach allows to show the full potential of generators creating company value, especially in the area of intangible generators through a comprehensive approach to intangible assets.

The research was focused on hidden intangible assets and their share in the creation of value in companies listed on the WSE. The study covers 222 companies that have met three criteria: they were listed on the Warsaw Stock Exchange in 2009 and 2010; they published their reports for these years; they had the ratio P/BV over unity. Financial reports of companies for years 2009 and 2010 were used as analytical data.

Conducted research within a given area has shown that in analyzed companies listed on WSE hidden intangible assets, which are those not capitalized in the balance sheet, represented on average 37.39% of the value of surveyed companies in 2009, and more than 40.41% in 2010, as shown in Figure 2.

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The level of average share of disclosed intangible assets in the creation of companies’ value is slightly higher than that observed in the study conducted by Brand Finance for the years 2009–2010. During this period, the share stood at an average rate of 9% in 2009 and 8% in 2010. A similar level of 9% was observed in 2011. These are the results of research carried out for 56,000 companies, covering 53 national stock markets and representing 99% of total global market capitalization. (For more: The Brand Finance. Top 100 Singapore Brands Report – 2012)
Fig. 2. Share of hidden intangible assets in the market value of companies listed on the Warsaw Stock Exchange in 2009-2010

Source: Author’s own elaboration

This means that in the analyzed period on average more than 37% in 2009 year (40% in 2010 year) of the value of surveyed companies was generated by hidden intangible assets. However, companies are not uniform in terms of the share of disclosed intangible assets in the creation of their value.

Table 1. Basic descriptive statistics of the share of hidden intangible assets in companies of Warsaw Stock Exchange in 2009-2010

<table>
<thead>
<tr>
<th>Year</th>
<th>Mean</th>
<th>Median</th>
<th>Min.</th>
<th>Max.</th>
<th>Lower quartile</th>
<th>Upper quartile</th>
<th>St. Dev.</th>
<th>Coeff. of Variation</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>0.3739</td>
<td>0.3335</td>
<td>0.0016</td>
<td>0.9515</td>
<td>0.1507</td>
<td>0.5792</td>
<td>0.2569</td>
<td>68.697</td>
<td>0.2880</td>
</tr>
<tr>
<td>2010</td>
<td>0.4041</td>
<td>0.04027</td>
<td>0.0024</td>
<td>0.9116</td>
<td>0.2075</td>
<td>0.5995</td>
<td>0.2406</td>
<td>59.545</td>
<td>0.1646</td>
</tr>
</tbody>
</table>

Source: Author’s own elaboration using the program “Statistica”.

There are such companies in which undisclosed intangible assets do not exceed 1% of their value, and such ones in which their share in the company is more than 95%. In 2010, the distribution of shares of hidden intangible assets in the value of surveyed companies changed. Most of them, i.e. over ¼ companies reached shares from 40% to 60%. While in 2009 they accounted for less than 23%. Also the share of companies in which the undisclosed intangible assets generate less than 20% of their value declined. In 2010, it concerned only 24% of companies, while in 2009 almost 30%. However, in approximately 23% (2009 - 21%) of companies they accounted for over 60% of their value. It should also be noted that companies are less diversified in terms of the share of intangible assets hidden than disclosed assets.
The analysed companies in terms of the sector are characterized by diversification in the share of hidden intangible assets in the creation of their value, as shown in Figure 3.

![Bar chart showing the average share of hidden intangible assets in the market value of companies listed on the Warsaw Stock Exchange by sector.](chart.png)

**Fig.3.** The average share of hidden intangible assets in the market value of companies listed on the Warsaw Stock Exchange by sector

Source: Author’s own elaboration

The highest average share was recorded in the finance sector and in 2009-2010 it stood at the level 43.4% - 48.1%. While the lowest share, was reported for the industry (in 2009 intangible assets generated 34.8% of the value and a year later about 44%). In the services sector the average share of intangible assets was close to 40%.

The diversity in terms of the share of intangible assets in the value creation of surveyed companies can be observed from a sectoral perspective, which is presented in the Table 2.

**Table 2.** Basic descriptive statistics of the share of hidden intangible assets in the value of companies in 2009-2010 by sector

<table>
<thead>
<tr>
<th>Year</th>
<th>Mean</th>
<th>Median</th>
<th>Min.</th>
<th>Max.</th>
<th>Lower quartile</th>
<th>Upper quartile</th>
<th>St. Dev.</th>
<th>Coeff. of Variation</th>
<th>Skewness</th>
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<td></td>
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<tr>
<td><strong>Information Technology (32)</strong></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>0.268</td>
<td>0.274</td>
<td>0.013</td>
<td>0.767</td>
<td>0.111</td>
<td>0.357</td>
<td>0.202</td>
<td>75,296</td>
<td>0.908</td>
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<td>2010</td>
<td>0.266</td>
<td>0.234</td>
<td>0.006</td>
<td>0.705</td>
<td>0.032</td>
<td>0.431</td>
<td>0.239</td>
<td>89,899</td>
<td>0.512</td>
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<tr>
<td><strong>Telecommunication services (33)</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>0.275</td>
<td>0.312</td>
<td>0.008</td>
<td>0.494</td>
<td>0.230</td>
<td>0.329</td>
<td>0.177</td>
<td>64,466</td>
<td>-0.615</td>
</tr>
<tr>
<td>2010</td>
<td>0.345</td>
<td>0.340</td>
<td>0.023</td>
<td>0.595</td>
<td>0.314</td>
<td>0.455</td>
<td>0.211</td>
<td>61,210</td>
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<tr>
<th>Industry Type</th>
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<th>Commercial Services</th>
<th>Media</th>
<th>Other Services</th>
<th>Banking</th>
<th>Other Industries</th>
<th>Insurance</th>
<th>Building Materials Industry</th>
<th>Food Industry</th>
<th>Wood Industry</th>
<th>Construction Industry</th>
<th>Electroengineering</th>
</tr>
</thead>
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<tr>
<td></td>
<td>2009</td>
<td>0.323</td>
<td>0.269</td>
<td>0.024</td>
<td>0.845</td>
<td>0.098</td>
<td>0.466</td>
<td>0.258</td>
<td>79,951</td>
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<td>0.428</td>
<td>0.404</td>
<td>0.012</td>
<td>0.885</td>
<td>0.209</td>
<td>0.595</td>
<td>0.251</td>
<td>58,768</td>
<td>0.128</td>
<td>37,556</td>
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</tr>
<tr>
<td></td>
<td>2009</td>
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<td>0.424</td>
<td>0.017</td>
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<td>0.219</td>
<td>0.742</td>
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<td>68,773</td>
<td>0.053</td>
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<td>0.571</td>
<td>0.610</td>
<td>0.087</td>
<td>0.912</td>
<td>0.393</td>
<td>0.792</td>
<td>0.298</td>
<td>52,077</td>
<td>-0.665</td>
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<td>-</td>
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<tr>
<td></td>
<td>2009</td>
<td>0.537</td>
<td>0.606</td>
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<td>0.310</td>
<td>0.761</td>
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<td>37,556</td>
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<td>0.031</td>
<td>0.885</td>
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<td>65,435</td>
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<td>0.307</td>
<td>0.583</td>
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<td>0.329</td>
<td>37,556</td>
<td>56,312</td>
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<tr>
<td></td>
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<td>0.626</td>
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<td>0.579</td>
<td>0.160</td>
<td>37,556</td>
<td>-0.513</td>
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<td>-</td>
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<td></td>
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<td>0.008</td>
<td>0.889</td>
<td>0.087</td>
<td>0.734</td>
<td>0.339</td>
<td>80,832</td>
<td>0.157</td>
<td>56,312</td>
<td>48,697</td>
</tr>
<tr>
<td></td>
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<td>0.624</td>
<td>0.114</td>
<td>0.867</td>
<td>0.278</td>
<td>0.714</td>
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<td>48,697</td>
<td>-0.305</td>
<td>25,757</td>
<td>56,312</td>
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<tr>
<td></td>
<td>2009</td>
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<td>0.632</td>
<td>0.632</td>
<td>0.632</td>
<td>0.632</td>
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<td>-</td>
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<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>0.747</td>
<td>0.747</td>
<td>0.747</td>
<td>0.747</td>
<td>0.747</td>
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<td>-</td>
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<tr>
<td></td>
<td>2009</td>
<td>0.345</td>
<td>0.364</td>
<td>0.005</td>
<td>0.705</td>
<td>0.038</td>
<td>0.623</td>
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<td>84,581</td>
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<tr>
<td></td>
<td>2010</td>
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<td>0.373</td>
<td>0.049</td>
<td>0.631</td>
<td>0.220</td>
<td>0.565</td>
<td>0.211</td>
<td>56,312</td>
<td>-0.272</td>
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<td></td>
<td>2009</td>
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<td>0.002</td>
<td>0.874</td>
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<td>0.498</td>
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<td></td>
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<td>0.031</td>
<td>0.911</td>
<td>0.170</td>
<td>0.433</td>
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<tr>
<td></td>
<td>2009</td>
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<td>0.311</td>
<td>0.029</td>
<td>0.699</td>
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<td>0.579</td>
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<tr>
<td></td>
<td>2010</td>
<td>0.172</td>
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<td>0.147</td>
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<td>142,820</td>
<td>2,140</td>
<td>43,471</td>
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<td></td>
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<td>0.406</td>
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<td>0.571</td>
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<td>-0.610</td>
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<td></td>
<td>2010</td>
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<td>43,471</td>
<td>0.278</td>
<td>43,471</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>2009</td>
<td>0.307</td>
<td>0.296</td>
<td>0.092</td>
<td>0.692</td>
<td>0.133</td>
<td>0.457</td>
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<td>-</td>
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<tr>
<td></td>
<td>2010</td>
<td>0.378</td>
<td>0.391</td>
<td>0.045</td>
<td>0.756</td>
<td>0.283</td>
<td>0.482</td>
<td>0.193</td>
<td>51,137</td>
<td>0.200</td>
<td>51,137</td>
<td>-</td>
</tr>
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</table>
In 2009, the hidden intangible assets had the largest share (over 50% of the value of companies) in the following industries: pharmaceuticals, insurance, other finance. The first of them was characterized by high average shares (above 56.3%) and the last two by the highest values of the median (60%). The most diverse in terms of analysed shares are light manufacturing industry and timber industry, where the coefficients of variation exceed 100%. There are also industries (also: food industry, information technology, telecommunications) characterized by the lowest average share (below 30%). The timber industry is also characterized by the lowest value of the median and it did not exceed 20%. The pharmaceutical industry is definitely characterized by the lowest diversity of the shares of intangible assets undisclosed. In individual industries also different skewness ratios, both positive and negative, can be observed. Industries such as pharmaceuticals, building materials industry, construction industry, metal industry and telecommunications services are characterized by higher number of companies that have shares higher than the average (negative skewness coefficients).

In 2010, some changes can be observed compared to the previous year. This concerns industries with the lowest share of undisclosed intangible assets. Their number decreased and industries characterized by the lowest shares were timber industry and IT industry. The timber industry is also characterized by the lowest median value (below 20%). Also a scope of industries, characterized by more than 50% share of undisclosed intangible assets in the value of companies has changed. These include industries such as pharmaceutical, banking, insurance and media. The three of them: media, other finance and insurance were characterized by the highest median value, which means that more than 60% of the value is generated by the undisclosed intangible assets in the half of companies in these industries.
The conducted analysis of listed companies in the area of value generators, allows to draw the following conclusions:

1. In the years 2009 - 2010 there was an increase in the share of hidden intangible assets in generating value of examined companies.

2. The examined companies are characterized by diversity from a sectoral perspective in terms of the share of hidden intangible assets in generating value. The sector with the highest share of these intangible generators is services sector, while the lowest is industry.

3. The examined companies are characterized by diversity from a sectoral perspective in terms of the share of intangible assets in generating value. Industries with the highest share of these intangible generators are insurance, other services (such as hotels, restaurants, developers), media, commerce, computer science, telecommunications, banks and pharmaceutical industry, while the lowest is characteristic for the chemical and light industry in 2009, and timber industry in 2010.

4. The examined companies, despite belonging to the sector or industry are not uniform in terms of the share of hidden intangible assets in the value creation.

4. CONCLUSIONS

The economic reality in which companies operate today, and most of all the volatility and unpredictability of the environment leads naturally to the evolution of views on the main determinants of their value. For a long time the models of value generators were based on the tangible factors. Currently, apart from material factors they also present these ones which reflect the non-material sphere of the company. They focus on showing the importance of intangible assets as intangible value generators. Intangible assets through their individual and often unique characteristics determine the possibility of obtaining additional, above-average economic benefits leading to an increase in the company's value.

The increase in importance of intangible assets in the value creation is also confirmed by research results presented in the paper. The increase in the share of intangible assets in the value of the examined companies listed on the WSE can be observed. The average for the year 2010 stood at 40.4%, while in the previous year did not exceed 37.45%. Among the companies there are also those in which hidden intangible assets generate more than 90% of their value, but there are also those that are still seen through the angle of tangible assets.

The examined companies are characterized by diversity in the share of hidden intangible assets in the creation of their value, depending on belonging to the sector as well as to the industry. The highest average share was recorded in the service sector and in 2009-2010 it stood at the level 56.8% - 58.7%. While the lowest share was reported for the industry (in 2009 intangible assets generated 40.35% of the value and a year later about 44%). Also, this diversity can be observed depending which industry the company belongs to. The largest share in the generation of the market value was in these companies which belong to the industry: pharmaceuticals, insurance, other finance.

The conducted analysis of the share of intangible assets in the value creation has not only pointed to its gradual growth, but also that the companies, despite belonging to the sector or industry are not uniform in terms of the share of intangible value generators.
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THE GAMING MARKET IN ROMANIA
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University of Craiova, Romania

Abstract
The article presents the gaming market in Romania, its evolution and some tendencies that occurred on this sector. The research methodology is based on some statistics offered by the main actors in the field, in order to analyze and compare the situation in our country with the one in other countries more developed than Romania. The paper reflects also some correlations between the development of the economy, some indicators and the demand on this market.

Key words: market, gaming, development, Romania, gamer

1. INTRODUCTION
The gaming market refers not only to video games, but also to consoles and accessories for these. This sector evolved a lot during the last years, even if we still are in an economic and financial crisis. The purchasing power of population is low comparing to other states, but Romanians started to become an important target for gaming developers in the world.

In 2011, specialists estimated a turnover of 10 millions of Euros and in 2012 a turnover of 20 millions of Euros. This great increase and success of gaming developers can be explained by the progress in the field of technology and the appearance on the market of tablets, smart phones and other consoles that didn’t substitute the old ones, but became complementary.

The great companies in this sector intensified their efforts in order to fulfill the requirements of a more sophisticated consumer. Games are not for losing your spare time, but for delight of eye, year and imagination. In this way, a great market for accessories developed, in order to make the experience of gaming more interesting and fascinating real.

Online games developed a lot, this being facilitated in our country by the place that our country occupies in the top of the countries with a great internet speed. According to Akamai (figure 1), an important source measuring internet speed in the world, in 2010, Romania was on the fourth place in this top. The great internet speed was an advantage for gaming developers in our country, especially for those selling games that can be played in the online environment.

We see in figure 1 that Romania is above many other important countries like Denmark, Germany, United States of America or Canada, when it comes about speed of internet, downloads and uploads too. Asian countries occupy the first three positions and Romania is number one in Europe.

Position in our country maintained during the last three years, in 2013 dropping on the fifth position in the world, after Hong Kong, South Korea, Japan and Lithuania. Based on Akamai reports, Constanta, Iasi and Timisoara are in the top 100 cities in the world having the highest internet speed.
In Romania, computers are the main platform for gaming, representing more than 60% of the total turnover. But, there can be noticed an increase in sales for Playstation and Xbox 360 games. These consoles brought many improvements in the quality of gaming and came with games for PS Move or Kinect.

2. MAIN GAMING DEVELOPERS IN ROMANIA

The main gaming developers that opened subsidiaries in our country, making a lot of money, are Ubisoft, Gameloft and Electronic Arts. The former is the most important one, Romania bringing its contribution to games developed by the company.

The French company Ubisoft is present in Romania since 1999 and even if we faced an economic and financial crisis, the company registered increased profits and sales during 2009-2011. The same situation
is met also at the other two companies from the second and third position Electronic Arts and Gameloft (table 1).

Table 1 presents the situation of the main gaming developers in our country, function to their turnover, income, profits and employees. Ubisoft is also the company with the greatest number of employees – 807 in 2011.

Table 1 The main indicators for evolution of gaming developers in our country

<table>
<thead>
<tr>
<th>Cifră de afaceri</th>
<th>Venituri</th>
<th>Profit</th>
<th>Angajați</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ubisoft</td>
<td>17,8</td>
<td>19,4</td>
<td>20,3</td>
</tr>
<tr>
<td>EA</td>
<td>8</td>
<td>9,9</td>
<td>12</td>
</tr>
<tr>
<td>Gameloft</td>
<td>6,4</td>
<td>6,9</td>
<td>10,3</td>
</tr>
</tbody>
</table>

Source: www.economica.net, 2012
Note: turnover and income is expressed in millions of euro

Electronic Arts is present on the Romanian market of gaming since 2005, being on a second place after Ubisoft, with a turnover of 12 millions of euro in 2011 and a profit of 649000 euro. Gameloft is present in Romania since 2000 and is placed on the third position, function to sales and profits, but with an impressive number of employees – 498, compared to Electronic Arts.

Evolution of sales and profits and also employees was in a great increase since 2009, even if our country faced the crisis like other states from the world. People bought games even if their purchasing power was not so great, proving that mentality changes and piracy decreases.

This contradiction may be explained by two main factors: increase of legislative power in Romania regarding respect for intellectual property and also an increase in gaming culture, more and more people preferring to buy a game that besides the experience of gaming offers you also some additional gifts for real collectors, like books, soundtrack, covers, photos, figurines, medals, downloadable content and so on.

The most sales in gaming sector are in the last quarter of the year, because people buy them with the occasion of Black Friday when stores offers great reductions in prices and also in December – month of gifts, people buying for them or for their friends and family members as presents. More than 60% of the total sales in a year are recorded during October and 24 December.

Online shops like Emag, Domo, Altex, Flanco, Gameshop and others contribute to the increase of gaming sales, because they offer the opportunity for Romanian gamers to preorder their favorite games at promotional prices and with some bonuses. With the occasion of a game launch, they organize some events at which they offer prizes for the best gamers, in collaboration with gaming developers like Ubisoft, Electronic Arts and others.
The most important distributor on the Romanian market is Best Distribution that covers more than 65% of the market. The most important reseller of the company is Altex, followed by Emag and Flanco. Recession stimulates the sales of games because people reduced their budgets for spending their spare time outside. So, they prefer buying games and consoles and have fun in the comfort of their houses.

Specialists in the gaming industry announce an increase of sales in 2013 with 20%, given especially by free2play games through micro transactions. These are preferred by Romanians because they can spend money when they have during more months and they do not have to pay the game from the beginning.

According to national statistics, the average sum spent by a Romanian gamer in a month is 120 lei, equivalent of 27 euro. Possibilities for buying even a game in its launching day are numerous. We can give just an example Tomb Raider launched in March 2013 has a price of 20 euro.

The sum is important, if we consider that the minimum wage in Romania is 170 euro. In our country, there are almost 3 millions of players, from which a third is represented by specialists in gaming industry. Romanian gamer is mostly a man, with age between 14 and 40 years.

Because of technological evolution and globalization, Romanians have a lot of possibilities to choose his/her favorite game from the shop that offers the lowest price. So, gamers buy from Amazon, Steam or other international platforms. For example, Steam (Valve Corporation) offers great games at a very low price, comparing with others shops, but we talk about digital games, not retail and for PC or Mac.

The disadvantage for our country consists in the fact that income, profits are not collected by Romanian subsidiaries and government doesn’t collect the taxes. The advantages are for Romanian gamers that have access to cheap games and so, piracy decreases.

So, Steam became more appreciated because have a lot of promotions daily, weekly, in the weekends, with the occasion of some holidays and so on. They offer you the opportunity to pay a game in a weekend for free, for unlimited time. You can even finish game, if you persevere in playing that game.

3. ROMANIAN GAMER EVOLUTION

Romanians give more credit to buying games, piracy decreasing a lot, because only in this way, they can benefit from the advantages offered by gaming developers, such as downloadable content, patches, bonuses, challenges, medals, achievements, points and so on.

Another reason for buying the game is the development of multiplayer games, available for those that obtain the game in a legal way. These multiplayer or free2play games know a great increase in the last years, developers gaining a lot of profits through micro transactions.

Micro transactions are realized during playing the game, in order to get an avatar, an outfit, armor, some guns or other weapons. These are not very expensive, people can afford buying them and the developer gain important profits, because more and more people love playing multiplayer games.

GamesLine.ro is one of the gaming retailers in our country that considers free2play games contributed to the decrease of piracy. A lot of people play these video games because they are free and after that, vanity makes them buy the most powerful weapons, in order to win in the battle against the others players. The most played and bought games by Romanian gamer are: FIFA 2013 (football), Diablo 3 (RPG), Guild Wars 2 (online RPG), Assassin’s Creed (RPG).

We do not say that piracy is low in Romania, but there are signs that this phenomenon is decreasing and people change their mentality. There are a lot of factors contributing to this reality, such as appearance
of gaming events, competitions that reunite the fans and offer them possibility to prove their skills, knowledge and also the opportunity to gain their favorite games.

So, in 2012, DreamHack was the most important gaming event organized in Romania, at which 177 top gamers from 22 countries joined. The event focused on tournaments for games like Counter Strike, League of Legends and StarCraft 2 and was broadcasted by 20 televisions and sites from three continents. Players from Denmark, South Korea, Brazil and other countries played against 80 players from Romania, proving their competencies in the games mentioned above.

Another impressive event takes place in Romania this year for the first time – East European Comic Con, an event for comics, video games and films. At this event, John Rhys-Davies, the actor from Lord of the Rings, announced his presence, and also Finn Jones (Loras from Game of Thrones). There will be competitions for video games, in which fans will be rewarded with important prizes.

Maybe comparative with other countries, these are not much, but it is a start for our culture and mentality and perspectives are promising. But if we make a just analysis, developers don’t make great efforts to reduce piracy in some cases. For example, a lot of people in Romania and also other countries preordered the game Mass Effect 3 Collector’s Edition at a high price if we take into account crisis and purchasing power – almost 100 euro. People wanted to buy, not to pirate it.

But developers and retailers make some errors and those who preordered the game couldn’t buy it, because they didn’t receive it from stores, due to some errors and other reasons invoked by them. It was a great game, fans would have bought it for a high price, and developers and retailers didn’t respect that.

If we make a journey in the past on forums and blogs, we can found that people were so disappointed that they couldn’t buy the game in collector’s edition and they downloaded it illegally. We can offer also other examples. Playstation Store for Romania is implemented for many years but you cannot buy games with your card, you have to lie and make an account for United Kingdom or United States or other country in which they bothered to implement the system.

Gamers announced Playstation Romania to offer Romanians possibility to buy games and add-ons, but no efforts seem to be made so far. They offered as an argument that you can buy retail games, but there are also games that appear only in digital format, such as Journey, a great game with important prized that appeared on PS3 consoles.

Another niche developing also in our country is that of mobile games, more and more people preferring to play on their devices, such as smartphones or tablets. King.com is a company found in 2003 in Stockholm, Sweden. In the entire world, there are only five studios and Bucharest is one of them. The other four are Stockholm, London, Malmo and Barcelona.

The reason of opening this studio in Bucharest is that our country is recognized as one with a lot of competent developers and programmers. Other competitors in the field are EA Mobile, Gameloft present on this market for many years before King.com.

And still, opportunities are high, sales increase a lot. Games are free to play for basic levels, but if you want to unlock some levels or bonuses, you have to pay.

King.com representatives (Mihai Sfrijan) say that only 1-2% of the people playing mobile games buy additional content and even so, profits increase year after year, Romania being an important market and also an important exporter of the games developed in Bucharest studio.
According to national statistics, PC games represent 85% from the total sales on this market, mobile games 12-13% and consoles 2-3%, because they are the most expensive and Romanians have a low purchasing power, a minimum gross wage of 170 euro.

The explanation of why mobile games are preferred by Romanian gamers more and more consists in the fact that they are not very cheap and the market for smartphones and tablets developed a lot during the last years. So, every person with a smartphone tried to experience playing these games that become very addicting (Angry Birds for example).

The fact that more and more Romanian gamers prefer free2play games is not a reality known only in our country or in countries with low incomes, but also in developed countries. For example, according to a study of the German company Bitkom, 45% from German clients prefer free versions of games.

Mathias Hellmund, executive at the German gaming developer Exozet declared in 2011 that Germans prefer these games not because they are free. During the play, they invest important sums in buying additional content in the game, exceeding the price for a game that is not free2play.

Gamers call these games free2play but pay to win, because if you want to defeat your enemy, you need a stronger weapon and for that, you have to pay, if you are willing of course. Bitkom concluded that 43% from German players spend in a month just 15 euro for games that are not free2play. Comparing to them, though differences are numerous, Romanian spend almost twice -27 euro in a month and purchasing power cannot be compared.

According to CEO Bitdefender, Florin Talpes, from the perspective of piracy, Romania is similar with China. So, if ten years ago, piracy was at the level of 90% of the market, now, in 2013, this indicator decreased at the level of 63%.

This reflects a change in the mentality of Romanian clients and in the same time, we can talk about the creation of a market for passionate fans (collectibles, figurines, preorders, more and more developers and retailers and so on).

At this recognition of Romanian market in the gaming industry contributes also our programmers and testers working in the subsidiaries of the main gaming developers in Romania. So, Assassins Creed 3, one of the most important games launched in the fall of 2012, with sales of 500 millions of euro so far, was realized with the great contribution of Bucharest office, according to the CEO of Ubisoft, Sebastien Delen.

The efforts from Bucharest were valued at 1 million euro, coming from 50 programmers and 200 game testers. Bucharest subsidiary is the most important testing center of Ubisoft, having at least 800 testers, some of them being used in temporary projects.

4. CONCLUSIONS

The Romanian market of gaming is not typical, because almost each Romanian has a computer, but very few of them (150.000 units in 2011) have a console (Xbox, Wii, Playstation). But developers of consoles and games became confident that in the next period, the sales will increase.

Their expectations are based on the years of crisis, in which people gave up to spend money on vacations, preferring to play games in the comfort of their home. And consoles are more comfortable, in their opinion, because you do not need to install an operating system, drivers or make problems that the game will not be compatible with your video card.
Gamers in our country prefer especially consoles for playing at home, the new portable consoles being expensive and preferred by youngsters from family with a higher income. This market is highly dependent by the price factor.

Romanian gaming market is still dominated by computers, even if we can talk about a slight increase of consoles market. A computer is more accessible, has a longer life of functionality, games are cheaper than those on Xbox 360 or Playstation 3.

Conclusions of this article can be synthesized as following:

- Computer games represent almost 85% of total sales
- Mobile games represent 12-13% of sales
- The main gaming developers in Romania are Ubisoft, Electronic Arts and Gameloft (part of Ubisoft Group)
- Sales, profits and employments increased year after year during 2009 and 2011, years under a general economic and financial crisis
- Recession gave gamers a reason to buy more games, because the disposable income for vacations and leisure outside their houses decreased considerably
- The average sum spent by Romanians is 27-30 euro per month, a considerable sum if we take into account that minimum gross wage is 170 euro (130 euro net).
- There are 3 millions of players, more than a million being represented by specialists
- Sales for smartphones and tablets increased a lot, leading to an increase on mobile games market
- Development of free2play games attracted more and more players that pay for additional content when they want and function to the money they have in a month, for example. This market is attractive for developers in countries where piracy is still at a high level.
- Developers gain a lot of profits from free2play games, even if just 5-6 % of players buy additional content.
- Compared to other countries like Germany, for instance, Romanians pay more for games that are not free2play, but the former spends more money on micro transactions in free2play or other multiplayer games.
- Piracy decreased from 90% ten years ago to 65% in 2013, according to Bitdefender
- Online platforms like Steam (Valve Company) have a great attraction for Romanian gamers, because they offer free games for a limited time, achievements, medals, opportunity to trade games, daily and weekly offers, and some great reductions with the occasion of holidays or other important events.

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“LAW REGIME OF THE DOMAIN AT FIRST LEVEL “.BG” IN THE CONTEXT OF THE BULGARIAN LAW DOCTRINE AND LEGISLATION”

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Abstract
The presented article, includes discussions on the questions of the law nature of the domain names regarding the Bulgarian common theory of law and particularly the theory concerning the subjective. It makes analogy with the regime of regulation of trade marks and gives some suggestions about legislative initiatives in connection with the usage of the national domain.bg.

Key words: domain names, virtual area, internet, objects of law, absolute subjective rights.

1. INTRODUCTION

The topic about Internet and law is widely discussed today among the judicial society. Subject of analysis during several discussions are questions of common sense as for instance – do law norms which are connected with the regulation of internet form their separate area of law, how certain and principle are the changes in the law theory regarding the particularities of internet as a new sphere of regulation what should be understood under internet about the aims of the law regulation. Together with all these general questions the increasing number of social relations coming up in the virtual reality require to give real assessment of the reality and specification of the new objects concerning law regulation, in this matter the one of the domain names, as well as the same time, the character and dynamics of the contemporary law systems are subordinate to the mutual influence between the system of law regulation and social existence ( life ). That is why the experiment to put the law into conversation of isolation from the influence of the developing in its own rules socium, is unsubstantial. The information culture is a reality which defines the methods of functional and the basic characteristics of different social institutes, in this matter, law too.

In the contemporary world, which now is quite exactly divided into real and virtual, can be found two tendencies which influence on the methods and functioning and basic characteristics of different social institutes and particularly of law. The first tendency which is a function from the nature of the very virtual reality (area) is that the virtual society or internet society becomes more and more persistent in pushing the principles of ignoring the positive law in regulation of the relations and confirmation of self – regulation as a single source in of law, guaranteeing information and social freedom at all.  

My work on the present research paper came out together with the social debate about the acceptance of the so called Act ACTA. In January 2012 at a special ceremony in Tokyo, Japan, 22 countries members , signed this agreement . This included Bulgaria too. That act was brought to a wave of protests all over Europe. Under their pressure, on the 11th February, our country stopped the ratification of the document, until the common European position on the point wasn’t clear enough. On the 4th July the European Parliament rejected the acceptance of ACTA at the ratio of votes – 478 “ against “, 146 “ abstention” and only 39 “ for “.
On the other hand is the tendency for the national legislative systems to show extraordinary cautiousness or even if they do not show any interest to the social relations, realized in the virtual reality, justifying its abstention with the technological character of internet, determining the possibility for self – regulation which removes the interference of the national normative systems.

I think this is due to both, the insufficient realization of this reality and the usual conservativeness or isolation of law against the influence of the developing new information order.

These two tendencies contribute to an abandonment of the legal rationalization of numeral phenomena from the objective reality, realizing themselves in the virtual environment and, as a result of this, in private legal decisions which create more problems than decisions, because they are not based on a common conception method. The question has got a practical significance, as far as it is in connection with the development of internet, in the civil turnover come new, not included objects by the legislative instructions, under which some social relations and social connections are realized with a bigger and bigger material interest.

The tendency is clearly defined in the so called “ net addressing”, which is known under the name of domain or a Domain Name System – DNS, which until this moment, hasn’t got a generally accepted legal definition, not only in the legislation, but among all specialists too.

In the law doctrine, in this matter, the Bulgarian one too, still there is no common method for defining the content of the meaning “ domain name” as an object of law regulation and the character of the subjective rights on domains. At the same time the national law systems of some separate countries, in Acts of the European Council and international organizations, the public relations are regulated in details having in mind such objects as the trade marks and company names.

What is the proper attitude of domain names to these objects, having in mind the fact, that all these numerous arguments coming up in connection with the registration and usage of domain names is connected mainly with a conflict between a registered domain name and objects of intellectual property such as the trade marks and in this case it is relatively the subjective right on the domain names. Does the specification of the virtual reality influence on the possibilities for a legal regulation of the objects in this environment, and how? Will the new objects of the “ virtual property ” put some changes on the dogmatic bases of law structure, including some basic concepts and institutes, such as the institute of private property, for instance?

A correct answer to these questions cannot be given without their fluent theoretical analysis in the context of the general theory of law, of the civil and procedure law.

2. WHAT IS THE LEGAL EXISTENCE OF THIS COMPLICATED AND INTERESTING OBJECT.

In the Bulgarian law doctrine, the objects of law are discussed as a structure element of law relations. In his monographic research work “ Law relations and law connections ”45, professor T. Kolev defines the objects of law relations as “ the goods, by which, the legal subjects interact among themselves in the limits of the law relation”, as “ the character of the object of law relation depends on the demands and interests, which should be satisfactory ” As objects in the virtual

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45 Tencho Kolev, Law relations and law connections Urispress, Sofia, (2000),p.58. (Bulgarian)
reality there can be different material and non-material rights gram the usual reality, which are objects of the civil law. At the same time, there are some objects, which are characteristic only for Internet, such as the researched by us domain names.

I totally accept the thesis of prof. Kolev, that a criteria about the significance of one phenomenon and assuming the quality object of law is defined by the economic value of the wealth. Now in the century of information technologies, developing information society, information and the connected with it new objects, they are certainly part of these goods, where law should point its analysis and assessment of their nature.

As an object which is created in the technological environment of Internet the domain possesses all its characteristics, which in principle concerns all objects in the virtual reality. But on the other hand, there stands the sociality of domain, in its character as an object, under which a real mutual action is created among the subjects in the virtual reality. This double-sided nature of the real Internet environment and particularly the objects of social mutual action in it, bring to action two different methods in its definite interpretation, around which, all researchers of the domain nature are combined together.

According to one of the methods, the domain names fulfill only the function of “addressing” to a certain information resource and in this way the law regulation should be fulfilled at a technical level, in the limits of a preliminary created programme environment, which excludes the possibility of doubling of two equal domains, as the rules for their usage as well as the coming up arguments about rights on them, are created and solved on the way of self-regulation, which includes technical standards and rules, created by the organization, authorized to manage the system of domain names ICANN. 46

According to the second method for defining the nature of domain names, the addressing function shows only the technical aspect of this concept, but it isn’t the function which dominates when forming the quantitative characteristics of the object. Something more, the very domain name has no significance for the addressing. Even, if there is no domain name, or if it is named in another way, ranting in the Internet reality will be fulfilled in the same way, by using, the IP address function. This method is accepted and approved by prof. Sharlot Waelde 47. According to her, there can’t be put a mark of equality between the domain name and the addressing function. The name of the domain, she says, is not the address itself, but it is a part of this address, and it has got a symbolic meaning. "Each resource in the Internet as for instance a web page or a file has got its own address or Uniform Resource Locator /URL/. The name of the domain is a part of this address" - she comment. Apparently, Waelde makes a difference between the “addressing” function, fulfilled by the protocol and the domain name.

Practically, the addressing function is fulfilled by the protocol TCP/IP /- the protocol fulfils addressing even before the existence of domain names/ and not from the domain name, which is its only verbal marking. But, the last one possesses characteristics, which exceeds the ordinary addressing, because they fulfill an individual function regarding a certain information resource, of the contained information in it about subjects, goods and services. The existence of these functions leads to identifying the domain names with other existing in the real environment objects possessing similar functional characteristics such as the trade marks, company names and s.o. On the other hand the domain name is accepted as

46 http://www.icann.com

well as an information object, i.e. not only as a data bearer but as data itself about which we have already mentioned that will be discussed further ahead.  

The above shown two methods naturally are logical continuation or they more likely reflect to the tendency where the virtual environment can be seen as a technological environment, which doesn’t need any special law regulation. But apparently, it is a social environment, which practically puts up the discussed points (questions), and precisely those concerning the nature of the objects, created in this environment and also for the method which should follow to their law decision and law regulation.

Internet is both technical and social environment and for that reason we must point down that all law relations and actually all public relations processed in the Net are not caused by Internet, as a computer network but they are caused by the objects in it, which in one or another way are connected with this network. These objects in their bigger part are not newly created as the researched by us domain name, but their existence in the virtual, logical environment of Internet is quite different. The objects in this environment, as we have already mentioned above, design its characteristics and in this way their existence has got a technical and social side, which makes them unique by their nature. Law, as a social regulator is interested in the second side of this existence, but it cannot realize the mechanism of law regulation, without counting namely the prerequisite, technical standards of regulation, processing a part of the content of the concert known as “self-regulation”.

That is why at the formation of the concept for the domain name, the complication comes out of the task in it, i.e. to show, in balance, both technical properties of the domain and its judicial characteristics. These characteristics prerequisite the difficulty of the domain names formally to be put to the already regulation by the law objects as the trade marks, for example.

3. DOMAIN NAMES AND TRADE MARKS.

According to article 9 from the Law for Trade mark and the geographic symbols 49, “The Trade mark is a symbol which is able to distinguish the goods and services of a person from those of other persons and can be shown graphically. Such symbols can be words, including names of persons, letters, numbers, drawings, figures, the format of the goods or its package, a combination of colours, sound symbols or any combinations of such symbols”.

First, we must have it in mind that the domain names really can present symbols, which are able to differ the goods and services of people and institutions from those of such a kind. But as far as it has already been said, the domain name can consist only of a limited number of word and art means, while the trade mark can be expressed in a wider form. These can be “words, letters, numbers, drawings, figures… or any combinations of such symbols. It is also known that colour difference is not typical for the domain names. At the same time, article 11 from Law for Trade mark and the geographic symbols lays down imperative orders, regarding the possibility for registration of one or another word symbol as a trade mark. As absolute reasons for a refusal from registration of a trade mark, the law points all cases, where

48 During the research work on the point about the existence of some marks of an intellectual property object inside the domain name, such as protected by law results from an intellectual activity and the equalized to them means of individualization of institutions, goods and services, there must be marked that quite a big amount of the domains is used not only for trade. Purposes, and many of the owners of rights on domain names are ordinary people, who are not traders as per the Trade Law.

it consists of marks or symbols, that have become quite habitual in the spoken language or in the established trade practice for the Republic of Bulgaria when the marks or symbols show the type, quality, quantity, purpose, function, value, geographic origin of the goods and so on. It is not allowed to register any trade mark, which is against the public order or the good habits, which leads to fallacy regarding the nature, quality, geographical origin of the goods and services, a trade mark which consists of abbreviations or names of international inter government organizations and others. A similar limitation is also found in the General conditions for registration and maintenance of domains in the area.bg and sub-regions of Register BG, where in item 5.4, titled “Inconvenient internet names”, it is shown that as internet names (it was already marked that the register accepts this term instead of a domain name) cannot be registered obscene and/or offended words and word formations, which are against the public interest and the good habits. Also, when the desired for a registration domain name can lead to a complication, the registrar must choose another name. 50

In this way of thinking it can be pointed the fact that having in mind the ex-territorial character of Internet, the domain names cannot be classified to the trade marks, characterizing themselves with the symbol of a territorial region. The normal acts, dealing with the trade marks, allow a number of registrations for one and the same trade mark in different geographical locations, as well as for different goods and services, where there is a slight possibility for a complication.

Searching the answer on the question about the nature of the domain names and their functional characteristics, if they possess only the addressing function or they are means for individualization is not a less complicated study than defining the very concept for a domain name. The problem consists of this, that different thesis are built on the basis of a comparison between domain names and other existing objects of intellectual property and most of all with the trade marks on which, I myself must say, was tempted to pay more attention than usual. This, practically turns up not to be the most exact method, because we are standing in front of a civil law object, which hasn’t existed until Internet appeared. It is obvious that the basic theoretical question regarding the domain names is their legal nature. The existing positions vary from the discussion of the domain names only as a means for addressing up to the confirmation of the point that the domain names are a way, a method for putting into the civil turnover of different means for individualization – trade marks, company names, persons’ names and others. The last point of view is obviously mistaken, while practically the domain names can be not connected with an object, regulated by the law. The domain name, conception can be discussed as a separate part of the means for individualization, but in a wide range of this concept.

The legal definition for the domain names can be neutral and can allow comparatively wide discussion, for the legislation to be reformed, without changing any of its basic positions. Indisputably, the domain names are special information objects in the Internet which possess social and technical side, and it is quite characteristic for all the objects in Internet and they are subordinate to a complex law regulation. On the other hand, we must point out, that the domain names are prepared for an individualization of the domain and for the situated in this domain data resource. Actually, it cannot be equalized to the results from the intellectual activity, at least until no change has been done in the present legalization. This does not change our point of view because the domain name is a uniform object, which possesses

both, technical and social characteristics, but the correct understanding and definition of the method towards its law regulation, should be based on their clear differentiation. The domain makes a technical individualization on the computer, and the domain name makes the civil law individualization of the people, goods, services. The domain name is the object of the law regulation, and the domain is regulated by technical protocol rules, created on the way of self-regulation. As far as the domain name enters the social turnover, it is a subject of the law, whose nature is a subject of the law interest, and the domain is such a one, only until it fills out the functional characteristics of the domain name itself.

In this way, if we accept that the domain name does not fulfill functions which exceed the addressing of data resource at a clear technical aspect, then the subject choice will be deprived of objective criteria. The last conclusion, logically, concerns the questions about the nature and subjective rights on the domain names.

4. SUBJECTIVE RIGHTS ON THE DOMAIN NAMES

What is the nature of the domain from a judicial point of view and of course on the basic of the Bulgarian law doctrine regarding the category of the subjective law.\footnote{The discussion of the questions about nature and subjective rights on domains is based on the research study of prof. T. Kolev, devoted to the law relations and law connections, whose significance for the Bulgarian law study and general law theory is indisputable.} It is accepted for the subjective rights to be different titled between themselves on the base of the criterion by a proper correlation of one. Subjective right to the other people. According to this criterion, the subjective rights are divided into relative and absolute.\footnote{Tencho Kolev, Law relations and law connections Urispress, Sofia, (2000),p.82.(Bulgarian).} The absolute subjective rights give the opportunity for their titular to require a certain behavior from all other people or to act to all of them accordingly.

Is the law on the domain name such an absolute one?

I am provoked here again to make analogy with the rights, consisted in the law for trade marks and geographic symbols allowing the input of law on the trade mark in the mass of insolvency (article 22 from Law for Trade mark and the geographic symbols). According to the text, the right on the mark is included in the mess of insolvency at a declared legal procedure for an insolvency of its owner. This fact is registered in the State register of the marks under the application of one of the sides in the deed and is published in the official bulletin. A similar analogy is also opened in the organization for the transferring rights on trade marks. (article 21 Law for Trade mark and the geographic symbols). The owner of a right on a mark can act free with his/her right, transferring it to another person. The transfer is registered in the State Register as this registration is a judicial fact, which has got a constitutional action, i.e. the transfer has got an action regarding third persons from the moment of its registration in the Register.

According to item 8.6 from the General conditions for registrations and maintenance of domain in the area.bg and the sub-regions of Register.BG, the transfer of a domain from one registrar to another happens after signing a contract between the two sides. The contract must be notarial sealed and sent to the register by the chosen registrar or signed with electronic signatures of the representatives of both registrars and sent to the register, by the registrar’s interface. The contact for the transfer of the domain name (as well as the contract for the transfer of rights on the mark) will be in action after writing down
the details of the receiver of rights in the register. Identically the registering has got a constitutional eject. From this moment on, the right of the new owner of a domain name will be opposed to third persons.

Another analogy should be pointed as well but saying that it does not try all possible similarities between organization of the exclusive rights, partially, the rights on marks, according to the Bulgarian legislation and the organization of the rights on domain names based on the rules, created on the way of the self – regulation. The right on a certain mark can serve as a financial security of a future claim. If a claimant presents his/her claim the court can (without informing the defendant) let a secure measure such as a prohibition for using the rights on the mark from the owner or prohibition for an order with the results on the mark (article 22a, item 1 Law for Trade mark and the geographic symbols). In item 3 of Part 9 from the General conditions for registration of a domain name, in .eu, created by the register EUrid (European Office for registration of domain names, certified under Decision 2003 / 375/EO of the Commission dealing with defining a registration office in the first level domain .eu 53) is used the rule which says that in cases when the register is informed about an ADR procedure (out-of-court procedure for taking decisions on arguments for rights on domain names) or a judicial procedure. While these procedures do not finish with a decision, the register blocks the transfer of the domain name and the registered person cannot change either his contact data information nor his registrar regarding the blocked domain name.

The above shown texts confirm the conclusion which has been made i.e. a bigger part of the mistakes, which are allowed to be made when identifying the domain name as a Law object and law regulation is the discussion of the concept “domain” and “domain name” as identical and in a result of this until the discussion of the rights on domain names as relative, coming up and developing in the limits of the obligatory connection between a registrar and a registered person.

If we look at the transfer of rights on domain names from the point of view of the innovation institute, we must point out, that for the change of one side of the contract (subjective innovation) and its replacement, we need the agreement of the other side. If there is no will, the replacement of the other side will be unreal. I.e. the transfer of rights and obligations of one side from the contract is active if the other side has explicitly accepted this replacement. 54 At a transference of rights on domain names, the registered person has his/her only obligation to inform the registrar, who is obliged to proceed the correspondent information to the register about the completed change. The sides from the transferred deal have no obligation to ask for the agreement of the registrar or the register. In part 13 of Politics for registration of a domain name. eu 55 the procedure about a transference of a domain name is described in details. According to this procedure, the transferee must define the registrar and ask him to inform the Register about the transfer. At getting such a message, the register will confirm the receiving of the suggested change in front of the transferor and the transferee by a message on the electronic mail, and each message will contain a unique code, allowing both sides in a period of seven days, to confirm or reject the suggested transference by using the website of the register. If there is no confirmation during

54 The contracts can be changed, stopped, spoiled or suspended only by a mutual agreement of the sides or by some circumstances from the law, article 20a ZZD.
this period of time, the register sends a reminding message and gives another seven –day period of time needed for a confirmation. And , if the register does not get such a one, even in this case, the processing transfer is cancelled automatically and the domain name will remain registered on the first registrant.

The principle is that the registrant can transfer the domain name at any time , under the condition that the transferee has confirmed his responsibilities to the general preliminary conditions about registration and the register has received all the fees for the transference and everything corresponds to the procedure, shown in article 13 from the Politics for registration of eu. Procedure. (Part 7 from the General conditions for registration of .eu), i.e. the agreement of the registrar for the transference of rights is not required, which is a sufficient argument against the thesis about the relative character of the subjective rights on the domain names.

Though, under formal-judicial causes, we still cannot put the domain names to the objects of material property, we can only summarize, that the distinguished by us object possesses all characteristics to be regulated as this one. For that reason, defining the rights on domain names and principled at knowing new objects on behalf of law, and mainly the objects which possess technological existence, the followed procedure should not be done from the point of their categorization in a certain, established material area, but from the point of their functions and type of defense, which uses one or other relations in connection with these objects.

So, the paradigm “object – necessity of defense – law regulation “ should be added with the paradigm “function –necessity of defense- object of law regulation” too.

5. OPPORTUNITIES FOR LAW REGULATION.

Although, until this present moment there are no normative instructions and a full conception about the nature of the domain names and settling the arguments about domains in the limits of the Bulgarian legalization, there are some opportunities for regulation in the limits of certain law institutions.

First, we must mark down the opportunity for making a change in the Law for trade marks and geographic symbols, where it could be foreseen that using a trade mark as a domain name without the agreement of the possessor who has got the exclusive right on the mark is an infringement of the last ones and such a registration can be cancelled. Another opportunity is to use the legalization for defense of the competitive. In the law for defense of the competitive, there are some established rules concerning unscrupulous competence, which can be used for the proof of the illegal character of registration and usage of a domain name. As a next opportunity, we can point out the application of the institute” breach of law”. Theoretically, the activities of an unscrupulous registration of domain names can be found under this hypothesis, but the institute for breach of law is applied only at exclusive cases when the breach of law is obvious and the opportunity for other applied norms is missing. But putting the domain names to any object of law or the regulation in the limits of a certain institute could be a temporary position, because there can be established quite many differences between these objects of the civil law and the domain names, and here comes the conclusion that the last ones must be recognized for independent objects over which , some exclusive rights can turn up.

That is why, I think that making any corrections at the present legalization is not the best method for regulation the relations for distributing the address area in the zone. bg., and also the relations in the virtual environment as a whole.

Having in mind all this, in Bulgaria, similar to the applied by the Community method for regulation of the domain.eu, there must be created a uniform policy for registration and functioning of the domain
from a national level.bg, as well as putting into rules its authorization of a certain register. On the other hand, we must point out, that the lack of a uniform normative act and making some changes in the present law acts, will force the contradictions, because it will not allow to admit the specific character of the domain names.

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THE EVALUATION OF SOCIO-ECONOMIC DEVELOPMENT OF POLAND AGAINST THE BACKGROUND OF OTHER EU ECONOMIES

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Abstract

Regional economic integration is considered one of the most characteristic processes in contemporary world economy. The European Union - with its 27 member states - is the largest integration block in the world today. What’s more the depth of the EU integration is also outstanding; it includes economic and monetary union as well as some elements of political union. As a result of eastern enlargement of the EU the disparities in economic and social development of its member states have increased considerably. Since 2009 EU member economies have been struck by financial and economic crisis. The time of economic instability has resulted in quite significant changes in their socio-economic development. Poland has been a member of the EU since May 2004. Integration with the EU means both new opportunities and new challenges for Poland. An attempt has been made to evaluate the socio-economic development of Poland against the background of other EU economies. Z.Hellwig’s taxonomic measure of development has been adopted for the analysis. The research has been undertaken for the years 2009 and 2011. The achieved results were compared with competitive position of EU member economies in the World Competitiveness Yearbooks 2007-2012 and the Global Competitiveness Reports 2007/2008-2012/2013.

Key words: European Union, socio-economic development, multivariate comparative analysis

1. INTRODUCTION

Processes of globalization and internationalization get more and more intense in contemporary world economy. Therefore it is necessary to stimulate competitive growth of an economy in order to meet global challenges. Regional economic integration is another process characteristic for the world in the 21st century.

Poland joined the European Union in May 2004. Membership in the EU creates both opportunities for growth and development and challenges for the future. Free movement of goods, services, people and capital and participation in common policies should be used to improve competitive position of the Polish economy.

An attempt has been made to examine socio-economic development of Poland against the background of other member states of the European Union. A chosen method of multivariate comparative analysis has been applied. Central Statistical Office served as sources of statistical data. Research has been done for the years 2009 and 2011.
2. METHODOLOGY OF RESEARCH

Multivariate methods of comparative analysis seem to be quite useful due to the fact that as many as 27 economies are subject to comparisons and in addition to that one has to apply a great number of diagnostic variables. The research has been based on Z.Hellwig’s taxonomic measure of development (Nowak 1990, Pluta 1986, Pluta 1977).

The research included the following operations:

- Determining the set of diagnostic variables: \{x_1, x_2, ..., x_m\};
- Determining the character of each of the variables (stimulus, destimulus);
- Standardizing the \( j \) variable in \( i \) unit:
  \[
  z_j = \frac{x_{ij} - \bar{x}_j}{S_{x_j}}, \quad i=1,2,\ldots,n; \quad j=1,2,\ldots,m,
  \]
  where:
  - \( x_{ij} \) - empirical value of \( j \) variable in \( i \) unit,
  - \( \bar{x}_j \) - arithmetic mean of \( x_j \) diagnostic variable,
  - \( S_{x_j} \) - standard deviation in \( x_j \) diagnostic variable distribution;
- Constructing development model - a model unit, where values of diagnostic variables are determined according to the rule:
  \[
  z_{0j} = \max_i (z_{ij}) \text{ for stimuli},
  \]
  or
  \[
  z_{0j} = \min_i (z_{ij}) \text{ for destimuli};
  \]
- Using Euclid’s measure to calculate the distance of \( i \)-unit from the development model:
  \[
  d_{oi} = \sqrt{\sum_{j=1}^{m} (z_{ij} - z_{0j})^2}.
  \]
- Calculating taxonomic measure of development (TMD) according to the formula:
  \[
  \text{TMD}_i = 1 - \frac{d_{oi}}{d_o}, \quad i=1,2,\ldots,n,
  \]
  where:
  \[
  d_o = \bar{d}_o + 2S_0,
  \]
  and:
Arranging the analyzed subjects in order according to the level of development expressed by taxonomic measure of development (TMD).

The achieved results were compared with competitive position of EU member economies in the World Competitiveness Yearbooks 2007-2012 and the Global Competitiveness Reports 2007/2008-2012/2013.

3. RESULTS OF THE RESEARCH

The socio-economic development is a very broad category, therefore the analysis conducted for the paper needed to cover a number of elements. A set of thirteen variables was used for the analysis. The socio-economic development of twenty seven EU member economies was analyzed taking into account the following variables:

X1 – infant mortality (infant deaths per 1000 live births),
X2 – natural increase per 1000 population,
X3 – employment rate in %,
X4 – unemployment rate in %,
X5 – population aged 30-34 with tertiary education in % of the population of the same age group,
X6 – share of service sector in employment in %,
X7 – inflation rate in %,
X8 – GDP per capita in PPP,
X9 – share of service sector in gross value added creation in %,
X10 – general government sector debt as % of GDP,
X11 – budget deficit or budget surplus in relation to GDP,
X12 – GDP growth (constant prices, previous year=100),
X13 – exports per capita in EUR.

The data used for the analysis are relative. The majority of variables are considered to be stimuli, while four of them, namely: infant mortality, rate of inflation, unemployment rate and general government sector debt in relation to GDP are treated as destimuli. Budget surplus is treated as a stimulus.
Table 1. Input data – EU economies in 2009

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<th>Country</th>
<th>X1</th>
<th>X2</th>
<th>X3</th>
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<th>X7</th>
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<th>X11</th>
<th>X12</th>
<th>X13</th>
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<td>68.0</td>
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Data used for the analysis are presented in tables 1 and 2.
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The initial analysis of the data has led to the following conclusions:

- There are huge disparities regarding per capita GDP (PPP) among 27 EU economies. Luxembourg is the richest country with per capita GDP over US$81,100 in 2011 and US$80,900 in 2009, while Romania and Bulgaria are the poorest ones – per capita GDP around US$12,500-12,600 and US$13,300-13,800 respectively. Per capita GDP (PPP) in Poland rose from US$18,900 in 2009 to US$20,550 in 2011;

- In 2009 the average dynamics of GDP for EU-27 amounted to minus 5.5%. Poland was the only economy which experienced economic growth of some 1.8%. In the case of Lithuania, Latvia, and Estonia one observed a huge reduction of GDP of 14 to 18%. In 2011 the EU-27 GDP increased by 1.5%. The Greek economy was the one with the worst situation regarding GDP dynamics – the Greek GDP shrank by 6.9% while in the case of Lithuania a 5.9% increase of GDP was observed. In Poland GDP rose by 4.3% in 2011;

- The crisis has been reflected in the situation on the labour market in EU economies. In 2009 unemployment rate grew to 17% in Latvia and 18% in Spain. The best situation on the market of labour was noted in the Netherlands (3.4%) and Austria (4.8%). In 2011 the problem of unemployment in Spain was even more severe than two years earlier (21.7%). In the case of Latvia unemployment fell to 16.2%. In addition to that a much worse situation on the market of labour was observed in Greece (17.7% in 2011 while in 2009 it was only 9.5%), Lithuania (15.4% and 13.7% in 2009), Ireland (14.4% in 2011, and just 11.9% two years earlier), Slovakia (13.5% in 2011, while in 2009 it was only 12%) and Portugal (12.9% in 2011, i.e. a 2% increase over the year 2009). Austria was the country with the lowest unemployment rate in 2011 (4.2%). In the Netherlands unemployment was also quite low – 4.4%. Unemployment rate in Poland amounted to 8.2% in 2009 and 9.7% in 2011;

- In 2009 many EU member states tried to stimulate the economy with increased budget spending hoping for an investment multiplier effect. That’s why there was no EU state with a budget surplus. The worst situation was observed in: Ireland (budget deficit of 14.3% GDP), Greece (budget deficit of 12.9% GDP), Spain (budget deficit amounting to 11.2% GDP) and the United Kingdom (budget deficit of 11.4% GDP). In Sweden and Luxembourg budget deficit was below 1% GDP. In 2011 budget deficit amounted to 13.1% GDP in Ireland, 10.1% GDP in the UK, 9.1% GDP in Greece and 8.5% GDP in Spain while in Hungary, Estonia and Sweden budget surplus was noted (4.3% GDP, 1% GDP and 0.3% GDP respectively). Budget deficit in Poland was quite high – 7.2% GDP in 2009 and 5.1% GDP in 2011;

- In 2011 a truly dramatic situation with respect to general government sector debt was observed in four EU member states: Greece (161.7% of GDP), Italy (120% GDP), Portugal (112.8% GDP) and Ireland (105.4% GDP). At the same time general government sector debt in Estonia was only 5.9% GDP, in Luxembourg – 16.9% GDP and in Bulgaria – 17.5% GDP. In Poland public debt in relation to GDP rose to 54.7% in 2011;

- In 2011 infant mortality rate in 27 EU member states ranged from 2.1 per 1000 live births in Sweden to 9.5 per 1000 live births in Romania (In 2009 disparities regarding infant mortality were even bigger: as much as 11 per 1000 live births in Romania and just 1.8 per 1000 live births in Luxembourg). In Poland infant deaths per 1000 live births fell from 5.6 in 2009 to 4.7 in 2011;

- There are also considerable disparities among 27 EU member states with respect to natural increase. In 2011 natural increase in 27 EU member states ranged from -5.1‰ in Bulgaria to
10.3‰ in Ireland (in 2009 it ranged from -3.6‰ in Bulgaria and Latvia to 10.2‰ in Ireland). In Poland natural increase was rather low; it amounted to 0.9‰ in 2009 and 0.3‰ in 2011.

- The higher the economic development of a country the more important services sector becomes. The biggest share of services sector in employment was noted in Luxembourg (85%). In Romania the share of services sector in employment was only 43%. The disparities are also huge in share of services sector in gross value added creation (90% in Luxembourg and 59% in Romania). In Poland the share of service sector in employment was 56% and in gross value added creation 63–65%.

- In 2011 exports per capita ranged from EUR2100 in Romania to EUR31100 in Belgium. In Poland it was around EUR3500.

The application of the chosen method of multivariate comparative analysis let me find the best and worst economies as well as determine Poland’s position among the twenty seven EU member economies both in 2009 (the year when most EU economies shrank due to the crisis) and in 2011 (the latest data available). The results of research have been presented in tables 3 and 4 and on figures 1 and 2.

Luxembourg, the Netherlands and Sweden constitute a triangle of EU member states with the highest level of socio-economic development (the highest TMD) both in 2009 and 2011. Another three economies with a really high socio-economic development in 2009 and 2011 (really high TMD value) are Denmark, Finland and Belgium. Romania took the very last position in both 2009 and 2011. Romania, Latvia, Lithuania, Hungary and Bulgaria formed a group of five EU member states with the lowest TMD (the lowest level of socio-economic development) in 2009.

<table>
<thead>
<tr>
<th>Position</th>
<th>Country</th>
<th>TMD value</th>
<th>Position</th>
<th>Country</th>
<th>TMD value</th>
</tr>
</thead>
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<tr>
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<td>Italy</td>
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<tr>
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<tr>
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<td>Portugal</td>
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</tr>
</tbody>
</table>

Source: Own calculations.
Figure 1. Ranking of 27 EU economies in 2009 according to TMD

Source: Own presentation based on table 3.

Table 4. Ranking of EU economies according to TMD - 2011

<table>
<thead>
<tr>
<th>Position</th>
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<th>TMD value</th>
<th>Position</th>
<th>Country</th>
<th>TMD value</th>
</tr>
</thead>
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<td>Slovakia</td>
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<tr>
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<td>Finland</td>
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<td>19</td>
<td>Italy</td>
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<td>Spain</td>
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<td>POLAND</td>
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<td>0.415</td>
<td>22</td>
<td>Portugal</td>
<td>0.221</td>
</tr>
</tbody>
</table>
Figure 2. Ranking of 27 EU economies in 2011 according to TMD

Source: Own presentation based on table 4.
In 2011 the group of five EU economies with the lowest TMD value embraced: Romania, Greece, Bulgaria, Latvia and Hungary. One should note a considerable improvement of the position of Lithuania and a dramatic fall of the Greek economy. Poland was classified on the 22nd position in 2009 and on the 21st place in 2011. That means a considerable change when compared to 2004-2007 when Poland was considered one of the poorest EU member states and occupied the 24th-26th positions in a similar classifications (Pawlas 200a, Pawlas 2009b).

The last stage of research included the analysis of changes in the positions of EU-27 member economies in competitiveness rankings. Tables 5 and 6 present international competitiveness of 27 EU economies according to World Economic Forum and Institute for Management Development (the Global Competitiveness Reports and the World Competitiveness Yearbooks).

It is hard to talk of competitiveness of the EU as a block due to considerable differences between the member states. Having in mind the World Competitiveness Scoreboard prepared by the Institute for Management Development, Lausanne, both in 2007, 2009 and 2011, 2012 one can find some EU member states among the leading, most competitive economies in the world (in the first ten) and some other among the least competitive economies in the world (in the sixth ten). The competitive position of all the analysed EU economies changes over time. Sweden is the only EU economy classified among the 10 leading economies in the world in every single year from 2007 to 2012 (the 9th position in 2007 and 5th in 2012). Greece is an example of an economy the competitive position of which worsened to the greatest extent – a reduction of 22 positions from the 36th position in 2007 to the 58th position in 2012. Poland is the country which improved its competitive position by 18 positions (from the 52nd place in 2007 to the 34th position in 2012).

Table 5. Ranking of EU economies according to World Competitiveness Scoreboard 2007-2012

<table>
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<tr>
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<td>91.393</td>
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<td>6</td>
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<td>16</td>
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<tr>
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<td>87.158</td>
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<td>86.052</td>
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<td>84.876</td>
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<td>-8</td>
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<tr>
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<td>17</td>
<td>82.467</td>
<td>15</td>
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<td>9</td>
<td>15</td>
<td>17</td>
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</tr>
<tr>
<td>United Kingdom</td>
<td>18</td>
<td>80.142</td>
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<td>21</td>
<td>21</td>
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<tr>
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<td>78.465</td>
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<td>19</td>
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</tr>
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<td>14</td>
<td>11</td>
<td>-10</td>
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<td>25</td>
<td>73.484</td>
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<td>22</td>
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</tr>
<tr>
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<td>29</td>
<td>70.003</td>
<td>29</td>
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<td>28</td>
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<td>28</td>
<td>-1</td>
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<tr>
<td>Estonia</td>
<td>31</td>
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<td>34</td>
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</tr>
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<tr>
<td>POLAND</td>
<td>34</td>
<td>64.179</td>
<td>34</td>
<td>32</td>
<td>44</td>
<td>44</td>
<td>52</td>
<td>+18</td>
</tr>
</tbody>
</table>
According to Global Competitiveness Index four EU member economies, namely Finland, Sweden, the Netherlands and Germany are considered world competitive leaders. They can be found in the first ten of the most competitive countries in the world between 2007/2008 and 2012/2013. Finland improved its position by three places (from the 6th to the 3rd) and the Netherlands by as many as five positions (from the 10th to the 5th). Sweden stayed on the 4th position. The Greek economy is considered the least competitive EU economy in 2012/2013. The problems of the Greek economy have been reflected in its weakening competitive position (the 65th position in 2007/2008 and the 96th place in 2012/2013). Poland was classified on the 39th - 41st positions between 2010/2011 and 2012/2013, while in 2007/2008 it took the 51st place only.

Table 6. Ranking of EU economies according to Global Competitiveness Index 2007/2008 - 2012/2013

<table>
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<tbody>
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<td>7</td>
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<td>5.53</td>
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<td>2</td>
<td>4</td>
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</tr>
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</tr>
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<tr>
<td>Austria</td>
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</table>
CONCLUSION

Poland has been an open economy since late 1980s. The process of transition of the Polish economy as well as its integration with the world economy have resulted in both quantitative and qualitative changes. Accession to the European Union must be seen as one of crucial moments in post-war history of Poland. Integration with the EU structures created new conditions and new opportunities for growth and development of the Polish economy. One should mention here free movement of goods, services, people and capital as well as participation in common policies (common agricultural policy, common regional policy/new cohesion policy, common transportation policy, common environmental policy, common competition rules, EU educational policy being the most important ones). As a member of the EU Poland is entitled to participate in taking decisions regarding the present and the future of the European Union. This political dimension of integration seems to be really important, too. On the other hand Poland’s accession to the EU has resulted in new challenges for the Polish economy.

The analysis of the socio-economic development of the Polish economy against the background of other EU member economies with the application of Z.Hellwig’s taxonomic measure of development (TMD) has proved the existence of considerable disparities among the analysed subjects. In 2009 Poland took...
the 22nd position. Luxembourg was the number one and Romania the very last. In 2011 Poland was classified on the 21st place. There were no changes on the first and last positions. The group of six strongest EU economies in 2009 and 2011 embraced: Luxembourg, the Netherlands, Sweden, Denmark, Belgium and Finland. Five most problematic EU member states in 2009 were: Romania, Latvia, Lithuania, Hungary and Bulgaria. In 2011 the list of five EU economies with the lowest socio-economic development measured with TMD included: Romania, Greece, Bulgaria, Latvia and Hungary.

The following elements should be seen as crucial trumps of the Polish economy in 2009 -2011: GDP growth, tertiary education. The list of the most important barriers for the socio-economic development of the Polish economy includes: low natural increase, low GDP per capita, low employment rate, low exports per capita, high budget deficit.

The analysis of rankings of international competitiveness of national economies between 2007 and 2012 showed considerable improvement of Poland’s competitive position (by eighteen positions in the World Competitiveness Yearbook and by ten positions in the Global Competitiveness Report).

REFERENCES

EFFECTIVE DESTINATION MANAGEMENT AND ITS INFLUENCE ON THE IMAGE OF TOURIST DESTINATION

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Abstract
The increasing extent of competition in global tourist markets implies the fact that contemporary destinations and their managers have an important task in developing adequate tools and strategies that will help them differentiate from other competitors in the market. Travel and tourism research in the past has demonstrated that, among tourists, destination image is the key factor of the destination selection process. Thus, effective destination management is the conditio sine qua non in destination development and creating sustainable competitive advantages. On the global map, Croatia has become a well recognized tourist destination and a very important player in the tourist market. This research aims to test a conceptual model of tourist destination competitiveness, and the hypothesis according to which the implementation of destination management factors affects the image of the Kvarner region as one of the most successful tourist regions in Croatia.

Key words: destination image, destination management, Kvarner region, tourism

1 INTRODUCTION

The ever-increasing competition in the global tourism market forces destinations to develop adequate strategies and effective marketing plans that will clearly differentiate them from competitors in the marketplace. Research in the field of travel and tourism has, over the past three decades, shown that a destination image is an irreplaceable concept in understanding the destination selection process. Typical destination characteristics, such as attractions, infrastructure, educated and cordial hosts, are no longer sufficient for the positioning in touristic market and creating a sustainable competitive advantage. Thus, the idea of destination image is used to differentiate destination from competition and create a unique positioning in consumers’ mindset in order to generate visits and destination loyalty. Croatian tourist destinations are present and well recognized in the international tourist market and should therefore improve the competitiveness of their own tourist offer. An important prerequisite for that is an efficient system of tourist destination management. In this context it is particularly important to take a look at partial interests of destination’s multiple stakeholders, and to develop uniting strategies in order to create an integral tourist product for of the destination. Implementation of the destination management principles in Croatia is at an insufficient level of development. Thus, this paper aims to test a conceptual model of tourist destination competitiveness, and the hypothesis according to which the implementation of destination management factors affects the image of the Kvarner region as one of the most successful tourist regions in Croatia.
2 LITERATURE REVIEW

Destination image has been a subject of scientific and professional research for over 40 years, and one of the first studies that dealt with the perception of destination image has been conducted by Nagashima in 1970. In this study Nagashima defines the country's image as an "image, reputation, the stereotype that businessmen and consumers attach to products of certain countries". That image consists of a number of variables, such as a representative products, national characteristics, economic and political conditions, and the history and tradition of the nation state. According to Kesic, the history of the destination image definition cannot be clearly monitored because of the technology development, but also due to the wide meaning of the tourist destination concept, which includes more concepts and levels, such as tourist places, cities, states, etc. Although the literature offers numerous definitions, destination image is most commonly defined as a set of beliefs, ideas and impressions that an individual has about a particular destination. Lawson and Baud-Bovy state that destination image is „the expression of all objective knowledge, impressions, prejudice, imaginations, and emotional thoughts an individual or group might have of a particular place“ Echtner and Ritchie note that many of the definitions of destination image are quite vague. They talk about a definitional dilemma, which is present in the understanding of the term 'image'. Image is a term that is used differently in a large number of contexts and disciplines, thus creating different meanings. In psychology, 'image' tends to refer to a visual representation, whereas in behavioral geography the concept of 'image' is more holistic and it includes all of the associated impressions, knowledge, emotions, values and beliefs. Marketing definitions, however, point to the attributes that underlie image and relate image to consumer behavior.

Market subjects and marketing experts are interested in the concept of tourist destination image mostly because it relates to decision-making and sales of tourist products and services. MacInnis and Price state that the imagery pervades the whole consumption experience. Marketers can also use imagery to increase remembered satisfaction and to encourage repeat purchases of holidays. The central postulates of the destination image studies are that a destination image has a key role in an individual's travel purchase related decision making and that the individual traveler's satisfaction/dissatisfaction with a travel purchase largely depends on a comparison of his expectation about the destination, or a previously

held destination image, and his perceived performance of the destination. Despite the fact that the authors are not entirely unique in defining the notion of tourist destination image, the importance of the concept is not a matter of question. Dealing with today's global recession, many tourist destinations are struggling with limited purchasing power of the potential customer as well as with limited time. Their success is based primarily on the perceived image. It is therefore important to develop a positive image of tourist destinations in the target market in order to achieve the so needed competitive advantage. The development of tourism in a destination cannot be random, but has to be systematically targeted. A destination needs to be able to meet the challenges of the modern tourist market, which involves the construction of destination management system that will meet the needs of destinations depending on factors associated with the development of tourism. The literature contains a number of scientific studies which cover the field of destination management. Research methods mainly address the case study method of interviewing and testing (testing polls) aimed at carefully selected groups. Selected group comprised residents, interested economic operators, managers, tourism offices and destination management organizations, members of international tourism associations and local government representatives. In short, the review of these studies shows that during the most of the research was aimed at the shareholders of a destination. Donnelly and Vaske showed that tourist organizations have to demonstrate the value they offer to their members and the benefits that the latter receive in order for the members to voluntarily pay required fees. Ritchie investigated approaches in reaching consensus on a long-term vision (15-20 years) of socio-economic development of tourist destinations. He defined nine elements that can be divided into two basic categories: the first are general values that the destination should develop, and the second category explicitly describes critical dimensions that should be developed in the tourist system. Buhalis explains the concept of a tourist destination (through sustainable resources) and emphasizes the fact that destination marketing should be a strategic objective of all stakeholders. He also states that destinations need to differentiate their products and develop a partnership between the public and private sector at the local level. Destinations and their managers should also take advantage of new technologies and the Internet in order to increase competitiveness. In other words destination marketing must lead to the optimization of the impact that tourism has on the achievement of the strategic objectives of its stakeholders. Augustyn and Knowles dealt with the identification of factors essential for a successful partnership between the public and private sector of a tourist destination. The analysis identified six factors that affect strategy. Sheehan and Ritchie conducted a theoretical analysis of empirical studies that aimed to determine the identity and influence of different DMO (destination management organization) stakeholders, and the results showed great variability of stakeholder importance. The assessment of potential stakeholders as a threat and/or possible DMO collaborator helps in identifying appropriate strategies and objectives.

To sum up, it can be concluded that the main research areas in the field of destination management can be categorized into the following groups: destination branding and image management, the role of stakeholders and public-private partnerships, methods and techniques of destination management and DMO funding.

3 EFFECTIVE TOURISM DESTINATION MANAGEMENT – CONCEPT AND CHALLENGES

Tourism destination management at a local, regional or a wider geographical level implies a focus on several factors, with the aim of determining the appropriate strategies and policies that will contribute to achieving the settled goals. Management of tourism organizations and destinations is defined as the process of forming, management and development of tourism, public supply and public interest in the destination. Destination management should be seen as tourist activity that engages local interests within a meaningful business relationship with different suppliers, in order to create the destination product. Therefore, destination management involves business activity that combines and coordinates the activities of various entities in creating and implementing the tourism product. The contemporary destination management model includes the following tasks and objectives:

- research and monitoring changes
- building and maintaining reputation of destinations
- development of products and their marketing (sales)
- creating a holistic environment for the development of new tourism products
- event management
- creating and maintaining partnerships (lobbying and coordination)
- designing global and partial development of the destination

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70 Sheehan, L. R., Ritchie, J. R. B., Hudson, S. (2007). The destination promotion triad: understanding the asymmetric stakeholder interdependencies between the city, the hotels and the DMO. *Journal of Travel Research, 46*(1), (p. 64–74).


measurement of competitiveness (benchmarking)
• measuring and monitoring the success of the destination brand.

Destination management, therefore, directs the activities of the entities on the side of tourism supply (public and private sector) towards a common set goal, and integrates a full range of elements in a product that will appeal to its target segment attractiveness on the side of tourist demand. Analysis of the micro environment (products, shareholders), and the analysis of macro environment (market, competition), knowledge on the internal strengths and weaknesses are prerequisites for effective management of the entire system of tourist destinations. To accomplish this goal, different types of destination management are being introduced. Destination management assumes coordination of many elements which are directly and indirectly involved in the formation of a tourist destination. Integration and coordination of interests of various entities, in the function of holistic destination development, is aimed at maximizing the benefits of each entity. The common interest of all parties is that their individual interests are represented in a joint governing body of a destination. One of the leading authorities in the field of destination branding Simon Anholt is the creator of the "competitive identity" concept, which represents a kind of upgrade on destination branding. Unlike other authors who have written about destination branding, Anholt introduces a new concept of "competitive identity" in which the emphasis is placed on the national, regional and local identities and their power, thus they represent added value in the global market. For Anholt, the essence of destination branding lies in its identity, life and behavior, not just in the product design and communication. While other authors write about national identity as an obsolete category, Anholt perceives it and promotes it as a necessary prerequisite for success and driver of change in the modern tourist market. He finds the source of comparative advantage in the culture, tradition, natural advantages and lifestyle of the destination.74

One of the most researched topics about the power of country's image is called „the country of origin“ concept. It has been proved that consumers develop stereotypical images that sometimes come down to prejudices on the countries and their products, which greatly influence the purchasing decision. Country of origin becomes a symbol, or an indicator of quality, and consumers look favorably on products from countries with a distinctive image and are willing to pay a higher price, regardless of the actual product quality. Due to major changes in the social and political life of modern society, bigger emphasis should be placed on competitive identity. There is the ubiquitous view that in the present time of globalization only the "big players" can survive on the world tourism market, due to the fact that they have significant financial resources at their disposal. Anholt, however, argues that the competitive identity is not built as well as the identity of the commercial brands. He argues that a strong and imaginative strategy of developing a competitive identity is the result of intellectual rather than financial capital and it can generate greater benefits than the enormous sums of money used for media campaigns aimed towards the uninspired public.75

The basis of the theory of competitive identity rests on the contention that when governments have a good, clear, convincing and positive idea of what actually their country is, what is stands for and where it is going, and when they manage to coordinate activities, investments, policy and communication, then they have good opportunities to develop and maintain a competitive national identity. Internally and externally – in the long term such approach generates benefits for exporters, importers, government, cultural sector, tourism, immigration, and virtually every form of international

The research was conducted through an integrated model of destination competitiveness, the commonly used Conceptual Model of Destination Competitiveness. Limitations that occur in this type of research are reflected in the use of non-standardized indicators to assess competitiveness. When defining indicators it is difficult to find the right balance, because one can always add an indicator more. Considering the fact that in estimating competitiveness it is important to enable comparability, the authors decided to use indicators that were already used in the research of renowned scientists.

4 METHODOLOGY AND RESEARCH RESULTS

Empirical research explores which factors within the process of destination management have to be implemented in order to impact the image, and consequently the brand, of the Kvarner tourist destination, as one of the most important tourist regions in Croatia. The research was conducted using a questionnaire, dissemination of e-mails and personal interviews with shareholders (local and regional governments, tourism organizations, development agencies) involved in the development of tourism in the Kvarner area. The research was conducted from February to September 2010. Out of 380 questionnaires that were sent, and 107 were obtained back. The sample was considered relevant, due to the response rate of 27%. Questionnaires were mostly submitted via e-mail, and a smaller part was personally handed in. The average age of respondents was 38.7 years. Considering the employment, the sample included 27.9% of managers employed in tourist associations, 23.1% of the participants were hotel managers, 18.3% were employed in travel agencies, 10.6% of respondents belonged to the local governments, 7.7% of them attended postgraduate studies in the field of tourism, 4.8% of the participants were employees of educational institutions in the field, 4.8% were civil servants, and there were 2.8% of other respondents. The research was conducted through an integrated model of destination competitiveness.


competitiveness - commonly used Conceptual Model of Destination Competitiveness, which is a combination of the basic Crouch-Ritchie model from 1999 and the Kim Dwyer model from 2003. The research entailed the assessment of 85 indicators evaluated on the Likert scale of 1 to 5, and the indicators included various segments of destination offerings. The indicators were divided into six groups that served as determinants of competitiveness. The groups were: inherited resources, created resources, supporting resources, situational conditions, destination management and demand conditions. Inherited resources include indicators are represented through the survey questions from 1 to 9, such as cultural and artistic heritage, historical sites, climate attractiveness, etc. Created resources include indicators represented through the survey questions 10 to 33 and comprise offer of sports, adventure and recreational facilities, accommodation, transport infrastructure, etc. Supporting resources include indicators that are presented in the questionnaire from question 34 to 45, for example: telecommunication system, customs and immigration offices, etc. Situational conditions include indicators that are represented in the survey questions 46 to 70, and comprise of factors such as political stability, cooperation between the public and private sector, the development and promotion of new tourism products, etc. Destination management envelops indicators that are represented in the survey questions 71-81, such as: cooperation between the public and private sectors in the field of hospitality and tourism education, the growth of foreign investment in development activities, recognizable brand, etc. Demand conditions include indicators that are represented in the survey questions 82-85, encompassing the entire image of the destination, international awards for product destination, destination products and compliance needs of tourists and international awards for the destination. 

Supporting, created and inherited resources comprise various destination features that make the destination attractive to visitors. Destination management implies the elements that increase the attractiveness of resources, enhancing the quality of supporting factors, and it includes the organization's destination management, marketing management, development guidelines, planning, human resource development and environmental management. Demand conditions consist of three main elements of tourism demand: awareness, perceptions and preferences. Respondents rated the aforementioned indicators from 1 to 5, where: 1 - below average, 2 - slightly below the average, 3 - average, 4 - slightly above the average, 5 - well above average. Indicators whose scores showed statistically significant association with defined categories accounted for variables in the logistic regression. Given that indicators are ordinal variables, the Kruskal-Wallis test was used to determine the significance of individual indicators. Significance of Kruskal-Wallis test indicates the existence of differences in the distribution of indicator values between the observed two categories. The impact of destination management on creating the brand and the image of the Kvarner tourist destination was estimated using logistic regression. When assessing the impact of destination management and brand image, indicators of the observed competitiveness group were used in choosing independent variables, in order to gain a deeper insight into the impact of destination management on destination brand and image.

Empirical research begins by testing the hypothesis:

**H1: Implementation of destination management indicators affects the image of the Kvarner tourist destination.**

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Kruskal-Wallis test was used to examine the differences in the distribution of individual indicator scores between the two image categories that were defined with a below average and above average score, and the analysis of differences in the distribution of grades is shown in Table 1.

**Table 2.** Analysis of differences in the distribution of destination management indicator grades between the two categories of image

<table>
<thead>
<tr>
<th>Variable</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>p51</td>
<td>0.628</td>
</tr>
<tr>
<td>p52</td>
<td>0.227</td>
</tr>
<tr>
<td>p57</td>
<td>0.296</td>
</tr>
<tr>
<td>p60</td>
<td>0.572</td>
</tr>
<tr>
<td>p61</td>
<td>0.519</td>
</tr>
<tr>
<td>p62</td>
<td>0.818</td>
</tr>
<tr>
<td>p63</td>
<td>0.433</td>
</tr>
<tr>
<td>p64</td>
<td>0.069</td>
</tr>
<tr>
<td>p65</td>
<td>0.390</td>
</tr>
<tr>
<td>p66</td>
<td>0.807</td>
</tr>
<tr>
<td>p67</td>
<td>0.132</td>
</tr>
<tr>
<td>p68</td>
<td>0.728</td>
</tr>
<tr>
<td>p69</td>
<td>0.275</td>
</tr>
<tr>
<td>p70</td>
<td>0.411</td>
</tr>
<tr>
<td>p71</td>
<td>0.147</td>
</tr>
<tr>
<td>p72</td>
<td>0.208</td>
</tr>
<tr>
<td>p73</td>
<td>0.845</td>
</tr>
<tr>
<td>p74</td>
<td>0.587</td>
</tr>
<tr>
<td>p75</td>
<td>0.624</td>
</tr>
<tr>
<td>p76</td>
<td>0.019</td>
</tr>
<tr>
<td>p77</td>
<td>0.017</td>
</tr>
<tr>
<td>p78</td>
<td>0.044</td>
</tr>
<tr>
<td>p79</td>
<td>0.316</td>
</tr>
<tr>
<td>p80</td>
<td>0.782</td>
</tr>
<tr>
<td>p81</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>

Source: Author's research
A statistically significant difference, at a significance level of 10%, in the distribution of grades for certain indicators of destination management between the observed image categories (below average / (above) average grade) was detected in the following indicators:

1) p64 – the vision of a destination is the reflection of reverence towards the local population
2) p76 - developing distinctive destination brand
3) p77 - growth of foreign investment in tourism
4) p78 - level of cooperation among firms (strategic alliances)
5) p81 - reputation of tourist boards.

These variables, that exhibited a univariate association with the image, make the initial input for the logistic regression. After including other variables in the model, as described in the specification, a model is obtained where the probability is modeled \( IMAGE = 1 \), i.e. that it is evaluated as (above) average when compared to the competition. This model that presents the impact of (other) indicators of destination management on the (above) average rating of the image shows means that most influential variable is p81 - reputation of tourist boards. If their reputation score increases by a unit, the odds that the score of destination image will be (above) the average, relative to its main competitors, increases four and a half (4,5) times. Table 2 shows the results of the logistic regression of destination management factors that influence the destination image.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Estimate</th>
<th>Standard error</th>
<th>( \chi^2 )</th>
<th>Odds ratio Estimate</th>
<th>95% confidence interval (Waldo)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-4.283</td>
<td>1.461</td>
<td>8.594</td>
<td></td>
<td></td>
<td>0.003</td>
</tr>
<tr>
<td>p77</td>
<td>0.741</td>
<td>0.421</td>
<td>3.099</td>
<td>2.098</td>
<td>0.919</td>
<td>4.785</td>
</tr>
<tr>
<td>p81</td>
<td>1.511</td>
<td>0.496</td>
<td>9.285</td>
<td>4.533</td>
<td>1.715</td>
<td>11.983</td>
</tr>
<tr>
<td>Coefficient of determination ( R^2 )</td>
<td>Likelihood ratio</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.2364</td>
<td>&lt; 0.001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Author’s research

At the level of significance of 10% the following indicator has a statistically significant impact on destination image: p77 - growth of foreign investment in tourism. The growth of foreign investment in tourism has a positive effect on destination image. If its score increases by a unit, the odds that the score of destination image will be (above) the average, relative to its main competitors, increases two (2) times. Results of the research indicate the acceptance of the developed hypothesis (H1) according to
which the implementation of destination management factors affects the image of the Kvarner region as one of the most successful tourist regions in Croatia.

5 CONCLUSION

Brand management is a process that should provide positive associations, expectations and beliefs about the tourist destination, and the final goal is to create trust and long-term visitor loyalty by satisfying functional and emotional aspects of the visitor. Strength of the brand and previous perceptions of potential visitors have an increasingly important role in choosing a destination to visit. It can be said that the sale has become new dimension, where the focus is on the customer/visitor and his perception so the result of the sale, or choosing a destination is pre-destined. Brand management is an integral part of the destination management because every business decision regarding the destination management and its success or failure will be reflected on the overall destination brand. Accordingly, destination management is also brand management, whether one wants to accept it as such or not. Good or bad decisions affect the image of the destination, either in the eyes of the population, or in the eyes of visitors and the image is created even disregarding the wishes and plans. If destination managers do not accept the role of brand managers and manage the brand, the brand will be developed into a probably unwanted direction. Therefore, destination managers have to indeed take care of the destination image in order to send to the world the desired image and influence public awareness in order to create a strong brand. Tourism destination management should be perceived as a management system that contains multiple segments (economic, political, environmental, technological, demographic and social). To accomplish this objective, different types of destination management are introduced. In this paper, the following hypothesis was tested: Implementation of destination management indicators affects the image of the Kvarner tourist destination. At the level of significance of 10% the growth of foreign investment in tourism has a statistically significant impact on destination image. If its score increases by a unit, the odds that the score of destination image will be (above) the average, relative to its main competitors, increases two (2) times. Results of the research indicate the acceptance of the developed hypothesis according to which the implementation of destination management factors affects the image of the Kvarner region as one of the most successful tourist regions in Croatia. To sum up, only creative and branded destinations that encourage and develop their uniqueness and local identity, will ensure success. Destinations and their leaders need to be aware of the environment dynamics and they must be prepared for rapid adaptation to modern trends. Pressure of the competitive environment is emphasized and only unified entities can adequately meet these challenges and respond to them.

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PERFORMANCE EVALUATION OF TURKISH BANKS USING ANALYTICAL HIERARCHY PROCESS AND TOPSIS METHODS

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Abstract

Financial performance evaluation of banks is a kind of multi-criteria decision making (MCDM) problem which has developed rapidly. It is very important for a firm to monitor a wide range of performance indicators in order to ensure that appropriate and timely decisions and plans can be made. Suitable performance measures can ensure that managers adopt a long-term perspective and allocate the company’s resources to the most effective activities. The aim of this study is to evaluate the financial performance model of Turkish Banks during 2002-2011 periods. Both Analytical Hierarchy Process (AHP) and Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) methodologies are used for the outranking of banks. In this study, subjective and objective opinions of financial actors turn into quantitative form with AHP.

Key words: Financial Performance Evaluation, Analytical Hierarchy Process (AHP), TOPSIS Method, Turkish Banking Sector

1. INTRODUCTION

A bank is a financial institution and a financial intermediary that accepts deposits and channels those deposits into lending activities, either directly by loaning or indirectly through capital markets. A bank is the connection between customers that have capital deficits and customers with capital surpluses. Due to their influence within a financial system and the economy, banks are highly regulated in most countries. Most banks operate under a system known as fractional reserve banking where they hold only a small reserve of the funds deposited and lend out the rest for profit. They are generally subject to minimum capital requirements which are based on an international set of capital standards, known as the Basel Accords. Banks are the backbone of the global economy, providing capital for innovation, infrastructure, job creation and overall prosperity. Banks also play an integral role in society, affecting not only spending by individual consumers, but also the growth of entire industries. The efficiency of banks and the banking system is one of the most important issues in the financial market because the efficiency of banks can affect the stability of the banking industry and thus the effectiveness of the
whole monetary system. Turkish Banking Sector has changed drastically after the financial crisis. The impact of 2000 and 2001 crises on financial system especially on the Turkish Banking sector was extensive. Social and economic reforms have been introduced in many areas after the crises that includes restructuring of the state banks, restructuring of private banks, enhancement of supervision and audit of banking system and new legal arrangements and resolution of non-performing loans. The merger and acquisitions in the sector accelerated the change in the banking sector (Yılmaz, 2013). Below tables display Turkey’s financial system structure and structural indicators of Turkish banking sector.

Source: Banking Regulation and Supervision Agency

<table>
<thead>
<tr>
<th>Asset Size of the Financial Sector</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
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<tbody>
<tr>
<td>Central Bank of Turkey</td>
<td>77</td>
<td>75</td>
<td>90</td>
<td>104</td>
<td>107</td>
<td>114</td>
<td>110</td>
<td>128</td>
</tr>
<tr>
<td>Banks</td>
<td>250</td>
<td>306</td>
<td>407</td>
<td>500</td>
<td>582</td>
<td>733</td>
<td>834</td>
<td>1007</td>
</tr>
<tr>
<td>Financial Leasing Companies</td>
<td>5</td>
<td>7</td>
<td>6</td>
<td>10</td>
<td>14</td>
<td>17</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>Factoring Companies</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Consumer Finance Companies</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>5</td>
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<td>Asset Management Companies</td>
<td>na</td>
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<td>na</td>
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<td>0</td>
<td>0</td>
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<td>1</td>
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<tr>
<td>Pension and Insurance and Reinsurance Companies</td>
<td>8</td>
<td>10</td>
<td>15</td>
<td>19</td>
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<td>28</td>
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<td>37</td>
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<td>of which Life and Pension Companies</td>
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<td>4</td>
<td>6</td>
<td>7</td>
<td>10</td>
<td>12</td>
<td>16</td>
<td>18</td>
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<td>of which Pension Investment Funds</td>
<td>0</td>
<td>1</td>
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<td>5</td>
<td>6</td>
<td>9</td>
<td>12</td>
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<td>Securities Investment Trusts</td>
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<td>Securities Mutual Funds</td>
<td>20</td>
<td>24</td>
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<td>22</td>
<td>26</td>
<td>24</td>
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<td>33</td>
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<td>Real Estate Investment Trusts</td>
<td>1</td>
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<td>2</td>
<td>3</td>
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<td>Venture Capital Investment Trusts</td>
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<td>Portfolio Management Companies</td>
<td>18</td>
<td>25</td>
<td>30</td>
<td>26</td>
<td>31</td>
<td>31</td>
<td>40</td>
<td>45</td>
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<tr>
<td>Total</td>
<td>383</td>
<td>455</td>
<td>591</td>
<td>697</td>
<td>803</td>
<td>967</td>
<td>1088</td>
<td>1313</td>
</tr>
</tbody>
</table>

Table 1. Turkey’s Financial System Structure (TRY Billion)

Source: Banking Regulation and Supervision Agency
On the other hand, financial performance evaluation of banks is a kind of multi-criteria decision making problem. The aim of this study is to evaluate the financial performances of Turkish Banks during 2002-2011 periods. Both AHP and TOPSIS methodologies are used for the outranking of banks. Benchmarking is a successful tool for providing competitive advantage for companies. There are many studies that examined the method about financial performance evaluation. In these studies different quantitative and qualitative financial performance parameters were used. The importance levels of these indicators were equal in some researches. But in real world precedence of financial ratios are different. We take the 17 banks (3 state banks, 9 private banks and 5 foreign banks) for pursuing our case purposes. This research invites financial expert that evaluate the performance of banks using the proposed AHP and TOPSIS techniques with MCDM.

### 2. LITERATURE REVIEW

In the literature, there are a large number of performance evaluation methods and researches. Stankeviciene and Mencaite (2012) used a multi-criteria decision making approach, particularly the AHP model to evaluate the performance of Lithuanian commercial banks. They created and described a system of indicators and assigned each indicator a different degree of significance taking into account

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79 Deposit Bank: The institutions operating primarily for the purposes of accepting deposit and granting loan in their own names and for their own accounts; Participation Bank: The institutions operating primarily for the purpose of collecting fund through participation accounts and granting loan; Development and Investment Bank: The institutions operating primarily for the purposes of granting loan and/or fulfill the duties assigned there to by their special Laws.
the needs and priorities of both internal and external evaluators. They have concluded that the AHP model is appropriate for using it in the process valuating bank performance.

Ayadi et al. (1998) applied data envelopment analysis to 1991-1994 data on ten Nigerian banks to assess their relative efficiency. They discussed the consistency of the findings with other research and concluded on the root causes of Nigeria’s banking problem like government interface, poor management, unprofessional practices etc.

Al-Nimer et al. (2012) provided a view of the present role of performance evaluation measures to identify the extent of usage of performance evaluation measures and examined the contingent variables in order to find out their effect upon the extent of usage in the Jordanian banks. Their results revealed that there is a lack of use of non-financial measures that are considered as contemporary management accounting practices and financial measures were considered as the highest practice being utilized.

Sayed and Sayed (2013) chose CAMELS (C - Capital Adequacy, A - Assets Quality, M - Management Efficiency, E - Earning Quality, L - Liquidity and S - Sensitivity to Market Risk) model which rates the performance of banks on five points scale for evaluating the performance and quality of Indian banks. Their analysis result shows that on an average Kotak Mahindra Bank stands at the top position.

Mamo Bekana and Abitie (2012) evaluated the financial performance of Construction and Business Bank (CBB) of Ethiopia. Their study emphasized on financial performance measurement ratios to evaluate the bank's financial performance. They concluded that some important financial ratios computed for analysis of the financial performance of the company are in a going up pattern excluding loan deposit ratio, assets turnover ratio and the long term debt to equity ratios.

Abbott et al. (2013) presented some measures of the performance of banks operating in Australia since the deregulation of the Australian financial system in early 1980s including the periods of financial market instability. They used standard financial indicators and applied Data Envelopment Analysis (DEA) to determine Malmquist indices of the levels of the changes in the efficiency and productivity of Australian banks. Obtained empirical results demonstrate the effect of deregulation and periodic financial crisis's on the performance of individual banks, and the major part of the Australian banking sector.

Almazari (2011) measured the financial performance of seven selected Jordanian commercial banks for the period 2005-2009. The financial performance of banks was studied on the basis of financial variables and ratios. The research shown that banks with higher total deposits, credits, assets, and shareholders' equity do not always mean that has better profitability performance. It was also found that there exists a positive correlation between financial performance and asset size, asset utilization and operational efficiency.

Minh et al. (2013) estimated and compared efficiency performance of 32 commercial banks in Vietnam during 2001-2005 and identified possible factors determining such efficiency performance. Efficiency was measured by a DEA model and super-efficiency measure through a slacks-based model (SBM) under the assumption of variable returns to scale (VRS). They found that there were a small number of efficient banks and large banks do not guarantee high super efficiency scores in comparison with small banks.

Grigoroudis et al. (2013) presented a real-world study for measuring the relative efficiency of a set of bank branches using a DEA approach. They proposed a multistage DEA network model using a set of performance indicators that combine customer satisfaction, employee evaluation, and business
performance indices. The found results estimate the contribution of the assessed performance indicators to the branch's overall efficiency, and determine potential improvement actions.

Bao et al. (2012) studied an improved hierarchical fuzzy TOPSIS model to combine the multilayer safety performance indicators into one overall index by incorporating experts’ knowledge for a case study of a given set of European countries.

Pinter and Psunter (2013) discussed the overall success of a construction project as a multi-criterion problem and presented a new approach to it based on the multi-criteria decision method M-TOPSIS.

Sooreh et al. (2011) did a measurement and investigation using Importance-Performance Analysis (IPA) and TOPSIS methods to define and measure entrepreneurial universities in Iranian context. The result of the study is a set of building blocks of entrepreneurial universities, which include a number of prioritized variables.

Zavadskas et al. (2010) proposed an assessment model which covers method of TOPSIS, method with attributes values determined at intervals (TOPSIS-grey) and a new method of Simple Additive Weighting with Grey relations (SAW-G). A case study of the assessment of contractors' competitive ability was used to demonstrate the applicability and the effectiveness of the proposed approach. The results show that the methods of grey relations methodology can be implemented as an effective decision aid for tasks with uncertain data.

Yu and Hu (2010) developed an integrated multi criteria decision making approach that combines the voting method and the fuzzy TOPSIS method to evaluate the performance of multiple manufacturing plants in a fuzzy environment. They used voting to determine the appropriate criteria weights and used proposed approach to evaluate the performance of five chosen manufacturing plants.

Jajimoggala et al. (2011) considered supplier selection as a multi criteria decision problem and suggested a comprehensive decision method for identifying top suppliers. They proposed a hybrid model which incorporates the technique of Analytic Network Process (ANP) and TOPSIS. They illustrated the effectiveness and feasibility of the suggested model and identified the most potential supplier.

Nili et al. (2012) offered a new method for evaluating performance in production industries. Five large plants were selected as a sample and a method based on the Balance Score Card (BSC) system and TOPSIS technique was implemented in them. They found which indexes should be considered when evaluating performance in the chosen plants.

Pal and Choudhury (2009) suggested that customers distinguish four dimensions of service quality in the case of the retail banking industry in India, namely, customer-orientedness, competence, tangibles and convenience. They used TOPSIS to evaluate and ranking the relative performance of the banks across the service quality dimensions.

Manian et al. (2011) constructed an approach based on the modified fuzzy TOPSIS and balanced scorecard (BSC) for evaluating an IT department in Tehran Province Gas Company. The BSC concept is applied to define the hierarchy with financial, customer, internal business process, and learning and growth perspectives and for each perspective, performance indicators are selected. By using a fuzzy TOPSIS approach, obtained results provided guidance to IT departments regarding strategies for improving department performance.

Marie et al. (2013) applied a parallel DEA model of operational-profitability and operational-quality indicators to the banking sector in Dubai. They made comparisons between the Islamic and the
commercial banks within both models. They found that there are no statistical differences between the Islamic and the commercial banks in the operational-profitability model.

3. THE BANKING SYSTEM IN TURKEY AND SELECTED RATIOS

Performance evaluation plays a major role in planning and it is an essential analytical tool in banks’ financial strategies. In this content, the primary purpose of this research is to evaluate the financial performances of Turkish Banks. Annual time series data are used for the period 2002 to 2011. The sample period is dependent on annual data availability. The data was gathered from the publications of the Banks Association of Turkey. The sample includes 3 state banks (Ziraat Bank, Halk Bank and Vakıflar Bank); 9 private banks (Akbank; AnadoluBank; Sekerbank; Tekstil Bank; Turkish Bank; Türk Ekonomi Bank; Garanti Bank; Is Bank and Yapı Kredi Bank) and 5 foreign banks (Denizbank; Eurobank Tekfen; Finans Bank; HSBC Bank and ING Bank). Financial ratios have been grouped as Capital Ratios, Balance Sheet Ratios, Assets Quality, Liquidity, Profitability, Income-Expenditure Structure, Share in Sector, Share in Group, Branch Ratios and Activity Ratios as described by the Banks Association of Turkey. Table 3 shows the hierarchical structure of model for financial performance:

<table>
<thead>
<tr>
<th>Performance Evaluation of Turkish Banks</th>
<th>CAPITAL RATIOS, %</th>
<th>BALANCE SHEET RATIOS, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shareholders' Equity / (Amount Subject to Credit Risk + Market Risk + Operational Risk)</td>
<td>TC Assets / Total Assets</td>
<td></td>
</tr>
<tr>
<td>Shareholders' Equity / Total Assets</td>
<td>FC Assets / Total Assets</td>
<td></td>
</tr>
<tr>
<td>(Shareholders' Equity-Permanent Assets) / Total Assets</td>
<td>TC Liabilities / Total Liabilities</td>
<td></td>
</tr>
<tr>
<td>Shareholders' Equity / (Deposits + Non-Deposit Funds)</td>
<td>FC Liabilities / Total Liabilities</td>
<td></td>
</tr>
<tr>
<td>On Balance-sheet FC Position / Shareholders' Equity</td>
<td>FC Assets / FC Liabilities</td>
<td></td>
</tr>
<tr>
<td>Net on Balance-sheet Position / Total Shareholders' Equity</td>
<td>N(on+off) Balance-sheet Position / Total Shareholders' Equity</td>
<td></td>
</tr>
<tr>
<td>ASSETS QUALITY, %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>-----------------------</td>
<td></td>
</tr>
<tr>
<td>TC Deposits / Total Deposits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TC Loans and Receivables / Total Loans and Receivables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Deposits / Total Assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Funds Borrowed / Total Assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial Assets (Net) / Total Assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Loans and Receivables / Total Assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Loans and Receivables / Total Deposits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumer Loans / Total Loans and Reciv.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid Assets / Total Assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid Assets / Short-term Liabilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TC Liquid Assets / Total Assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid Assets / (Deposits + Non-Deposit Funds)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FC Liquid Assets / FC Liabilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Profit (Losses) / Total Assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Profit (Losses) / Total Shareholders' Equity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income Before Taxes / Total Assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Profit (Losses) / Paid-in Capital</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Interest Income After Specific Provisions / Total Assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Interest Income After Specific Provisions / Total Operating Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Interest Income (Net) / Total Assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Interest Income (Net) / Other Operating Expenses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SHARE IN SECTOR, %</td>
<td>Total Assets</td>
<td></td>
</tr>
<tr>
<td>SHARE IN GROUP, %</td>
<td>Total Loans and Receivables</td>
<td></td>
</tr>
<tr>
<td>SHARE IN GROUP, %</td>
<td>Total Deposits</td>
<td></td>
</tr>
<tr>
<td>BRANCH RATIOS, TRY MILLION</td>
<td>Total Assets / No. of Branches</td>
<td></td>
</tr>
<tr>
<td>BRANCH RATIOS, TRY MILLION</td>
<td>Total Deposits / No. of Branches</td>
<td></td>
</tr>
<tr>
<td>BRANCH RATIOS, TRY MILLION</td>
<td>TRY Deposits / No. of Branches</td>
<td></td>
</tr>
<tr>
<td>BRANCH RATIOS, TRY MILLION</td>
<td>FX Deposits / No. of Branches</td>
<td></td>
</tr>
<tr>
<td>BRANCH RATIOS, TRY MILLION</td>
<td>Total Loans and Receivables / No. of Branches</td>
<td></td>
</tr>
<tr>
<td>BRANCH RATIOS, TRY MILLION</td>
<td>Total Employees / No. of Branches (person)</td>
<td></td>
</tr>
<tr>
<td>BRANCH RATIOS, TRY MILLION</td>
<td>Net Income / No. of Branches</td>
<td></td>
</tr>
<tr>
<td>ACTIVITY RATIOS</td>
<td>(Personnel Expenses + Reserve for Employee Termination Benefit) / Total Assets</td>
<td></td>
</tr>
<tr>
<td>ACTIVITY RATIOS</td>
<td>(Personnel Expenses + Reserve for Employee Termination Benefit) / Number of Personnel (Thousand TRY)</td>
<td></td>
</tr>
<tr>
<td>ACTIVITY RATIOS</td>
<td>Reserve for Employee Termination Benefit / Number of Personnel (Thousand TRY)</td>
<td></td>
</tr>
</tbody>
</table>
4. PROPOSED METHODOLOGY

AHP is an effective decision making method especially when subjectivity exists and it is very suitable to solve problems where the decision criteria can be organized in a hierarchical way into sub-criteria. The findings of previous studies about factors influencing performance of banks were first identified by literature review. Experts expressed or defined a ranking for the attributes in terms of importance/weights. Each experts is asked to fill ‘checked mark’ in the 9-point scale evaluation table. The AHP allows group decision making. One of the main advantages of the AHP method is the simple structure.

The questionnaire is answered by financial expert. Financial expert is asked to compare the criteria at a given level on a pair-wise basis to identify their relative precedence.

4.1. Analytical Hierarchy Process

AHP was developed in the 1970s by Thomas Saaty is a multi-criteria decision making (MCDM) methodology. It has been used extensively for analyzing complex decisions. The approach can be used to help decision-makers for prioritizing alternatives and determining the optimal alternative using pair-wise comparison judgments (Liberatore and Nydick, 1997, s. 595; Yoo and Choi s. 137, 2006). Weighting the criteria by multiple experts avoids the bias decision making and provides impartiality (Dagdeviren, 2009).

The AHP is a selection process that consists of following steps (Saaty, 1990, 2008; Saaty and Vargas, 2001):

1. Define the problem and determine the criteria. Factors and related sub factors must be correlated (Lee, 2012).
2. Structure the decision hierarchy taking into account the goal of the decision.
3. Construct a set of all judgments in a square comparison matrix in which the set of elements is compared with itself (size nxn) by using the fundamental scale of pair-wise comparison shown in Table 4. Assign the reciprocal value in the corresponding position in the matrix. Total number of comparison is \( n(n-1)/2 \) (Lee, 2012).

| Personnel Expenses / Other Operating Expenses | Other Operating Expenses / Total Asset | Total Operating Income / Total Assets |

Table 3. Hierarchical Structure of Model for Financial Performance
### Table 4. The fundamental scale of pair-wise comparison for AHP

<table>
<thead>
<tr>
<th>Intensity of Importance</th>
<th>Definition</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Equal importance</td>
<td>Two activities have equal contribute to the objective</td>
</tr>
<tr>
<td>3</td>
<td>Moderate importance</td>
<td>Experience and judgment slightly favor one activity over another.</td>
</tr>
<tr>
<td>5</td>
<td>Strong importance</td>
<td>Experience and judgment strongly favor one activity over another.</td>
</tr>
<tr>
<td>7</td>
<td>Very strong on demonstrated importance</td>
<td>An activity is favored very strongly over another.</td>
</tr>
<tr>
<td>9</td>
<td>Extreme importance</td>
<td>The evidence favoring one activity over another is of the highest possible order of affirmation</td>
</tr>
<tr>
<td>2, 4, 6, 8</td>
<td>For compromise between the above values</td>
<td>Sometimes one needs to interpolate a compromise judgment numerically</td>
</tr>
</tbody>
</table>

4. Use overall or global priorities obtained from weighted values for weighting process. For synthesis of priorities obtain the principal right eigenvector and largest eigenvalue.

Matrix $A = (a_{ij})$ is said to be consistent if $a_{ij}a_{jk} = a_{ik}$ and its principal eigenvalue ($\lambda_{\text{max}}$) is equal to $n$.

The general eigenvalue formulation is:

$$Aw = \begin{bmatrix} 1 & \frac{w_2}{w_1} & \frac{w_3}{w_1} \\ \frac{w_2}{w_1} & 1 & \frac{w_3}{w_2} \\ \frac{w_3}{w_1} & \frac{w_3}{w_2} & 1 \end{bmatrix} = nw$$

$$a_{ij} = \frac{w_i}{w_j}, \quad i, j = 1, 2, \ldots, n$$

$$Aw = \lambda_{\text{max}}w$$

For measure consistency index (CI) adopt the value:

$$CI = \left(\frac{\lambda_{\text{max}} - n}{n - 1}\right)$$

Accept the estimate of $w$ if the consistency ratio (CR) of CI that random matrix is significant small. If CR value is too high, then it means that experts’ answers are not consistent (Lee, 2012; Saaty, 1980). When CR value is less than 0.10 consistency of the comparisons is appropriate (Millet and Saaty, 2000; Lee, 2012). The CR is obtained by comparing the CI with an average random consistency index (RI).
The following gives the average RI:

<table>
<thead>
<tr>
<th>n</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>RI</td>
<td>0</td>
<td>0.52</td>
<td>0.89</td>
<td>1.11</td>
<td>1.25</td>
<td>1.35</td>
<td>1.40</td>
<td>1.45</td>
<td>1.49</td>
<td></td>
</tr>
</tbody>
</table>

Table 5. Average RI values

Briefly, maximized eigenvalue, CI and CR are found to obtain the weights of each criterion (Lee, 2012). Experts are asked to compare the criteria on a pair-wise basis to determine their relative importance. AHP was used in order to determine which supplier selection attributes are important and precedence order of eight criteria, i.e., origin of raw material, quality, availability, cost, delivery requirements, cost of conveyance, quality certificates and reliability of the suppliers.

4.2. Technique for Order Preference by Similarity to Ideal Solution (TOPSIS)

Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) was first presented by Yoon (1980) and Hwang and Yoon (1981), for solving multiple criteria decision making (MCDM) problems based upon the concept that the chosen alternative should have the shortest Euclidian distance from the positive ideal solution (PIS) and the farthest from the negative ideal solution (NIS). For instance, PIS maximizes the benefit and minimizes the cost, whereas the NIS maximizes the cost and minimizes the benefit. It assumes that each criterion require to be maximized or minimized. TOPSIS is a simple and useful technique for ranking a number of possible alternatives according to closeness to the ideal solution. Expanded developments of TOPSIS were done by Chen and Hwang in 1992, Lai, Liu and Hwang (1994). This MCDM technique is widely used in many fields, including financial performance evaluation, supplier selection, tourism destination evaluation, location selection, company evaluation, selecting the most suitable machine, ranking the carrier alternatives (Behzadian, 2012). One of the advantages of TOPSIS is that pair-wise comparisons are avoided. TOPSIS is conducted as follows (Tsaur, 2011).

**Step 1.** Establish a decision matrix for the ranking. TOPSIS uses all outcomes \( (x_{ij}) \) in a decision matrix to develop a compromise rank. The viable alternatives of the decision process are \( A_1, A_2, ..., A_n \). The structure of the decision matrix denoted by \( X = (x_{ij})_{n \times m} \) can be expressed as follows:
$x_{ij}$ is the outcome of $i^{th}$ alternative with respect to $j^{th}$ criteria. $W = (w_1, w_2, \ldots, w_j, \ldots, w_m)$ is the relative weight vector about the criteria, and $w_j$ represents the weight of the $j^{th}$ attribute and $\sum_{j=1}^{m} w_j = 1$.

**Step 2.** Normalize the decision matrix using the following equation:

$$r_{ij} = \frac{w_{ij}}{\sqrt{\sum_{i=1}^{n} w_{ij}^2}} \quad i=1,2,3,\ldots,n \quad j=1,2,3,\ldots,m$$

(7)

**Step 3.** Weighted normalized decision matrix is calculated by multiplying the normalized decision matrix by its associated weights as:

$$v_{ij} = w_j r_{ij} \quad i=1,2,3,\ldots,n \quad j=1,2,3,\ldots,m$$

(8)

**Step 4.** Identify the positive ideal solution (PIS) and negative ideal solution (NIS), respectively, as follows:

$$PIS = A^+ = \left\{ v_{1}^+, v_{2}^+, \ldots, v_{m}^+ \right\} = \left\{ \max_{i} v_{ij} \mid j \in \Omega_b \right\}, \left\{ \min_{i} v_{ij} \mid j \in \Omega_c \right\}$$

(9)

$$NIS = A^- = \left\{ v_{1}^-, v_{2}^-, \ldots, v_{m}^- \right\} = \left\{ \min_{i} v_{ij} \mid j \in \Omega_b \right\}, \left\{ \max_{i} v_{ij} \mid j \in \Omega_c \right\}$$

(10)

$\Omega_b$ is associated with benefit criteria, and $\Omega_c$ is associated with cost criteria.

**Step 5.** Determine the Euclidean distance (separation measures) of each alternative from the ideal and negative-ideal solution as below respectively:

$$d_i^* = \sqrt{\sum_{j=1}^{m} (v_{ij}^* - v_{ij}^-)^2}, \quad i=1,2,3,\ldots,n$$

(11)
Step 6 Calculate the relative closeness of the ith alternative to ideal solution using the following equation:

\[
RC_i = \frac{d^{-}_i}{d^{+}_i + d^{-}_i}, \quad i=1,2,3,...,n \quad RC_i \in [0,1]
\]

Step 7. By comparing RCi values, the ranking of alternatives are determined. The higher the closeness means the better the rank. Ranked the alternatives starting from the value that closest to 1 and in decreasing order.

Figure 1. Steps of proposed method
4.3. Combining AHP and TOPSIS to Determine The Rank of Alternatives

In analyzing the data, Analytical Hierarchy Process (AHP) and Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) methodologies are used for the outranking of supplier alternatives. Fig. 1 shows the steps of the proposed method.

5. SOLVING ILLUSTRATIVE PROBLEM

To apply proposed method financial performance evaluation problem was solved. In this financial performance evaluation there are 10 main criteria, 57 sub-criteria and 17 alternatives. The hierarchical structure to select the best performing bank is shown in Table 3. An interview was performed with the financial expert in order to identify weight coefficients. Past experience and the back-ground of the financial expert are utilized in the determination of the criteria and 10 main, 57 sub-criteria to be used for bank evaluation are established. The outputs of the AHP are determined as the input of TOPSIS method. Performance evaluation plays a major role in planning and it is an essential analytical tool in banks’ financial strategies. In this content, the primary purpose of this research is to evaluate the financial performances of Turkish Banks. Annual time series data are used for the period 2002 to 2011. The sample period is dependent on annual data availability. The data was gathered from the publications of the Banks Association of Turkey. The sample includes 3 state banks (Ziraat Bank, Halk Bank and Vakıflar Bank); 9 private banks (Akbank; Anadolubank; Sekerbank; Tekstil Bank; Turkish Bank; Turk Ekonomi Bank; Garanti Bank; Is Bank and Yapı Kredi Bank) and 5 foreign banks (Denizbank; Eurobank Tekfen; Finans Bank; HSBC Bank and ING Bank). Financial ratios have been grouped as Capital Ratios, Balance Sheet Ratios, Assets Quality, Liquidity, Profitability, Income-Expenditure Structure, Share in Sector, Share in Group, Branch Ratios and Activity Ratios as described by the Banks Association of Turkey.

As a result, 10 main criteria were used in evaluation and decision hierarchy is established accordingly. Decision hierarchy structured with the determined banks and criteria is provided in Table 3. There are four levels in the decision hierarchy structured for bank performance evaluation problem. The overall goal of the decision process is “performance evaluation of selected banks in Turkey” in the first level of the hierarchy. The main financial ratios are on the second level, sub-ratios are on the third level and alternative banks are on the fourth level of the hierarchy. After forming the decision hierarchy for the problem, the weights of the criteria to be used in evaluation process are calculated by using AHP method. In this phase, the financial expert is given the task of forming individual pairwise comparison matrix by using the Saaty’s 1-9 scale.

<table>
<thead>
<tr>
<th></th>
<th>C1</th>
<th>C2</th>
<th>C3</th>
<th>C4</th>
<th>C5</th>
<th>C6</th>
<th>C7</th>
<th>C8</th>
<th>C9</th>
<th>C10</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>1.00</td>
<td>6.00</td>
<td>3.00</td>
<td>4.00</td>
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<td>7.00</td>
<td>6.00</td>
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<tr>
<td>C2</td>
<td>0.17</td>
<td>1.00</td>
<td>0.25</td>
<td>0.33</td>
<td>0.20</td>
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<td>3.00</td>
<td>2.00</td>
</tr>
<tr>
<td>C3</td>
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<td>4.00</td>
<td>1.00</td>
<td>2.00</td>
<td>0.50</td>
<td>3.00</td>
<td>6.00</td>
<td>7.00</td>
<td>5.00</td>
<td>4.00</td>
</tr>
<tr>
<td>C4</td>
<td>0.25</td>
<td>3.00</td>
<td>0.50</td>
<td>1.00</td>
<td>0.50</td>
<td>2.00</td>
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<td>7.00</td>
<td>5.00</td>
<td>4.00</td>
</tr>
<tr>
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<td>0.50</td>
<td>5.00</td>
<td>2.00</td>
<td>2.00</td>
<td>1.00</td>
<td>4.00</td>
<td>7.00</td>
<td>9.00</td>
<td>7.00</td>
<td>6.00</td>
</tr>
<tr>
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<td>2.00</td>
<td>0.33</td>
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<td>6.00</td>
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<td>0.20</td>
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<td>2.00</td>
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</tbody>
</table>
Financial expert’s choice values (Table 6) are calculated to form the pairwise comparison matrix (Table 7). The results obtained from the calculations based on the pairwise comparison matrix provided in Table 6, are presented in Table 7.

Net Profit (Losses) / Total Assets (Profitability) (0.1057), Shareholders’ Equity / Total Assets (Capital Ratios) (0.1020), Consumer Loans / Total Loans and Reciv. (Assets Quality) (0.0763), Shareholders’ Equity / (Amount Subject to Credit Risk + Market Risk + Operational Risk) (Capital Ratios) (0.0736) and Net Profit (Losses) / Total Shareholders’ Equity (Profitability) (0.0583) are determined as the five most important financial ratios for the performance of the banks by AHP.

FX Deposits / No. of Branches (Branch Ratios) (0.0010), FC Assets / FC Liabilities (Balance Sheet Ratios) (0.0011), TRY Deposits / No. of Branches (Branch Ratios) (0.0014), FC Liabilities / Total Liabilities (Balance Sheet Ratios) (0.0014) and Non-Interest Income (Net) / Other Operating Expenses (Income-Expenditure Structure) (0.0016) are determined as the five least important financial ratios for the performance of the banks by AHP.
Consistency ratios of the expert’s pairwise comparison matrixes are calculated as 0.044 (Main Financial Ratios), 0.027 (Capital Ratios), 0.038 (Balance Sheet Ratios), 0.045 (ASSETS QUALITY), 0.042 (Liquidity), 0.064 (Profitability), 0.037 (Income-Expenditure Structure), 0.008 (Share In Sector), 0.008 (Share In Group), 0.025 (Branch Ratios) and 0.020 (Activity Ratios). They all are less than 0.1. So the weights are shown to be consistent and they are used in the financial performance evaluation. The most important criterion is “Net Profit (Losses) / Total Assets” (0.1057) and the least important criterion is “FX Deposits / No. of Branches” (0.0010).

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Weights</th>
<th>$\lambda_{max}$, CI, RI</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPITAL RATIOS, %</td>
<td>0.285</td>
<td>0.044</td>
<td></td>
</tr>
<tr>
<td>BALANCE SHEET RATIOS, %</td>
<td>0.058</td>
<td>0.027</td>
<td></td>
</tr>
<tr>
<td>ASSETS QUALITY, %</td>
<td>0.145</td>
<td>0.038</td>
<td></td>
</tr>
<tr>
<td>LIQUIDITY, %</td>
<td>0.116</td>
<td>$\lambda_{max} = 10.59$</td>
<td></td>
</tr>
<tr>
<td>PROFITABILITY, %</td>
<td>0.203</td>
<td>CI = 0.0652</td>
<td>0.044</td>
</tr>
<tr>
<td>INCOME-EXPENDITURE STRUCTURE, %</td>
<td>0.081</td>
<td>RI = 1.49</td>
<td></td>
</tr>
<tr>
<td>SHARE IN SECTOR, %</td>
<td>0.022</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SHARE IN GROUP, %</td>
<td>0.016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BRANCH RATIOS, TRY MILLION</td>
<td>0.030</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACTIVITY RATIOS</td>
<td>0.043</td>
<td></td>
<td></td>
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Table 7. Results of main criteria obtained by AHP

<table>
<thead>
<tr>
<th>Rank</th>
<th>Financial Ratios</th>
<th>Sub Ratios</th>
<th>Global Weights</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PROFITABILITY, %</td>
<td>Net Profit (Losses) / Total Assets</td>
<td>0.1057</td>
</tr>
<tr>
<td>2</td>
<td>CAPITAL RATIOS, %</td>
<td>Shareholders’ Equity / Total Assets</td>
<td>0.1020</td>
</tr>
<tr>
<td>3</td>
<td>ASSETS QUALITY, %</td>
<td>Consumer Loans / Total Loans and Reciv.</td>
<td>0.0763</td>
</tr>
<tr>
<td>4</td>
<td>CAPITAL RATIOS, %</td>
<td>Shareholders’ Equity / (Amount Subject to Credit Risk + Market Risk + Operational Risk)</td>
<td>0.0736</td>
</tr>
<tr>
<td>5</td>
<td>PROFITABILITY, %</td>
<td>Net Profit (Losses) / Total Shareholders’ Equity</td>
<td>0.0583</td>
</tr>
<tr>
<td>6</td>
<td>LIQUIDITY, %</td>
<td>Liquid Assets / Total Assets</td>
<td>0.0494</td>
</tr>
<tr>
<td></td>
<td>Description</td>
<td>Formula</td>
<td>Value</td>
</tr>
<tr>
<td>---</td>
<td>-----------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>7</td>
<td>CAPITAL RATIOS, %</td>
<td>(Shareholders' Equity-Permanent Assets) / Total Assets</td>
<td>0.0449</td>
</tr>
<tr>
<td>8</td>
<td>ASSETS QUALITY, %</td>
<td>Total Loans and Receivables / Total Deposits</td>
<td>0.0448</td>
</tr>
<tr>
<td>9</td>
<td>PROFITABILITY, %</td>
<td>Net Profit (Losses) / Paid-in Capital</td>
<td>0.0293</td>
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<tr>
<td>10</td>
<td>CAPITAL RATIOS, %</td>
<td>Net on Balance-sheet Position / Total Shareholders' Equity</td>
<td>0.0289</td>
</tr>
<tr>
<td>11</td>
<td>LIQUIDITY, %</td>
<td>Liquid Assets / Short-term Liabilities</td>
<td>0.0286</td>
</tr>
<tr>
<td>12</td>
<td>INCOME-EXPENDITURE STRUCTURE, %</td>
<td>Interest Income / Total Assets</td>
<td>0.0248</td>
</tr>
<tr>
<td>13</td>
<td>LIQUIDITY, %</td>
<td>Liquid Assets / (Deposits + Non-Deposit Funds)</td>
<td>0.0217</td>
</tr>
<tr>
<td>14</td>
<td>CAPITAL RATIOS, %</td>
<td>Shareholders' Equity / (Deposits + Non-Deposit Funds)</td>
<td>0.0180</td>
</tr>
<tr>
<td>15</td>
<td>BALANCE SHEET RATIOS, %</td>
<td>TC Assets / Total Assets</td>
<td>0.0176</td>
</tr>
<tr>
<td>16</td>
<td>INCOME-EXPENDITURE STRUCTURE, %</td>
<td>Interest Income / Total Expenses</td>
<td>0.0176</td>
</tr>
<tr>
<td>17</td>
<td>ACTIVITY RATIOS</td>
<td>Total Operating Income / Total Assets</td>
<td>0.0162</td>
</tr>
<tr>
<td>18</td>
<td>ASSETS QUALITY, %</td>
<td>Financial Assets (Net) / Total Assets</td>
<td>0.0160</td>
</tr>
<tr>
<td>19</td>
<td>BALANCE SHEET RATIOS, %</td>
<td>Total Deposits / Total Assets</td>
<td>0.0128</td>
</tr>
<tr>
<td>20</td>
<td>INCOME-EXPENDITURE STRUCTURE, %</td>
<td>Total Income / Total Expense</td>
<td>0.0123</td>
</tr>
<tr>
<td>21</td>
<td>SHARE IN SECTOR, %</td>
<td>Total Deposits (SHARE IN SECTOR, %)</td>
<td>0.0118</td>
</tr>
<tr>
<td>22</td>
<td>LIQUIDITY, %</td>
<td>TC Liquid Assets / Total Assets</td>
<td>0.0107</td>
</tr>
<tr>
<td>23</td>
<td>ACTIVITY RATIOS</td>
<td>Personnel Expenses / Other Operating Expenses</td>
<td>0.0106</td>
</tr>
<tr>
<td>24</td>
<td>BRANCH RATIOS, TRY MILLION</td>
<td>Net Income / No. of Branches</td>
<td>0.0106</td>
</tr>
<tr>
<td>25</td>
<td>CAPITAL RATIOS, %</td>
<td>On Balance-sheet FC Position / Shareholders' Equity</td>
<td>0.0103</td>
</tr>
<tr>
<td>26</td>
<td>PROFITABILITY, %</td>
<td>Income Before Taxes / Total Assets</td>
<td>0.0101</td>
</tr>
<tr>
<td>27</td>
<td>BALANCE SHEET RATIOS, %</td>
<td>TC Deposits / Total Deposits</td>
<td>0.0095</td>
</tr>
<tr>
<td>28</td>
<td>INCOME-EXPENDITURE STRUCTURE, %</td>
<td>Interest Expense / Total Expenses</td>
<td>0.0090</td>
</tr>
<tr>
<td>29</td>
<td>SHARE IN GROUP, %</td>
<td>Total Deposits (SHARE IN GROUP, %)</td>
<td>0.0086</td>
</tr>
<tr>
<td>30</td>
<td>ASSETS QUALITY, %</td>
<td>Total Loans and Receivables / Total Assets</td>
<td>0.0083</td>
</tr>
<tr>
<td>31</td>
<td>BRANCH RATIOS, TRY MILLION</td>
<td>Total Deposits / No. of Branches</td>
<td>0.0072</td>
</tr>
<tr>
<td>32</td>
<td>CAPITAL RATIOS, %</td>
<td>N(on+off) Balance-sheet Position / Total Shareholders' Equity</td>
<td>0.0070</td>
</tr>
<tr>
<td>33</td>
<td>ACTIVITY RATIOS</td>
<td>(Personnel Expenses + Reserve for Employee Termination Benefit) / Total Assets</td>
<td>0.0069</td>
</tr>
<tr>
<td>34</td>
<td>SHARE IN SECTOR, %</td>
<td>Total Assets (SHARE IN SECTOR, %)</td>
<td>0.0065</td>
</tr>
<tr>
<td>35</td>
<td>BALANCE SHEET RATIOS, %</td>
<td>TC Liabilities / Total Liabilities</td>
<td>0.0065</td>
</tr>
<tr>
<td>36</td>
<td>INCOME-EXPENDITURE STRUCTURE, %</td>
<td>Interest Income / Interest Expense</td>
<td>0.0063</td>
</tr>
<tr>
<td>37</td>
<td>LIQUIDITY, %</td>
<td>FC Liquid Assets / FC Liabilities</td>
<td>0.0057</td>
</tr>
<tr>
<td>38</td>
<td>BRANCH RATIOS, TRY MILLION</td>
<td>Total Assets / No. of Branches</td>
<td>0.0048</td>
</tr>
<tr>
<td>39</td>
<td>SHARE IN GROUP, %</td>
<td>Total Assets (SHARE IN GROUP, %)</td>
<td>0.0047</td>
</tr>
<tr>
<td>40</td>
<td>INCOME-EXPENDITURE STRUCTURE, %</td>
<td>Net Interest Income After Specific Provisions / Total Assets</td>
<td>0.0044</td>
</tr>
<tr>
<td>41</td>
<td>ACTIVITY RATIOS</td>
<td>(Personnel Expenses + Reserve for Employee Termination Benefit) / Number of Personnel (Thousand TRY)</td>
<td>0.0044</td>
</tr>
<tr>
<td>42</td>
<td>BALANCE SHEET RATIOS, %</td>
<td>TC Loans and Receivables / Total Loans and Receivables</td>
<td>0.0043</td>
</tr>
<tr>
<td>43</td>
<td>SHARE IN SECTOR, %</td>
<td>Total Loans and Receivables (SHARE IN SECTOR, %)</td>
<td>0.0036</td>
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<tr>
<td>44</td>
<td>INCOME-EXPENDITURE STRUCTURE, %</td>
<td>Non-Interest Income (Net) / Total Assets</td>
<td>0.0032</td>
</tr>
<tr>
<td>45</td>
<td>BRANCH RATIOS, TRY MILLION</td>
<td>Total Loans and Receivables / No. of Branches</td>
<td>0.0032</td>
</tr>
<tr>
<td>46</td>
<td>BALANCE SHEET RATIOS, %</td>
<td>Funds Borrowed / Total Assets</td>
<td>0.0030</td>
</tr>
<tr>
<td>47</td>
<td>ACTIVITY RATIOS</td>
<td>Other Operating Expenses / Total Asset</td>
<td>0.0028</td>
</tr>
<tr>
<td>48</td>
<td>SHARE IN GROUP, %</td>
<td>Total Loans and Receivables (SHARE IN GROUP, %)</td>
<td>0.0026</td>
</tr>
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</table>
### Table 8. Global weights obtained by AHP

<table>
<thead>
<tr>
<th>Weights</th>
<th>0.0736</th>
<th>0.1020</th>
<th>...</th>
<th>0.0106</th>
<th>0.0028</th>
<th>0.0162</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weights</strong></td>
<td><strong>0.0736</strong></td>
<td><strong>0.1020</strong></td>
<td>...</td>
<td><strong>0.0106</strong></td>
<td><strong>0.0028</strong></td>
<td><strong>0.0162</strong></td>
</tr>
<tr>
<td><strong>RATIOS</strong></td>
<td>Shareholders' Equity / (Amount Subject to Credit Risk + Market Risk + Operational Risk)</td>
<td>Shareholders' Equity / Total Assets</td>
<td>...</td>
<td>Personnel Expenses / Other Operating Expenses</td>
<td>Other Operating Expenses / Total Asset</td>
<td>Total Operating Income / Total Assets</td>
</tr>
<tr>
<td><strong>BANKS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ziraat</td>
<td>15.61</td>
<td>8.20</td>
<td>...</td>
<td>50.06</td>
<td>1.63</td>
<td>3.86</td>
</tr>
<tr>
<td>Halk Bank</td>
<td>14.30</td>
<td>9.48</td>
<td>...</td>
<td>42.42</td>
<td>1.89</td>
<td>5.54</td>
</tr>
<tr>
<td>Vakıflar</td>
<td>13.38</td>
<td>10.43</td>
<td>...</td>
<td>42.96</td>
<td>2.18</td>
<td>4.96</td>
</tr>
<tr>
<td>Akbank</td>
<td>16.98</td>
<td>13.14</td>
<td>...</td>
<td>39.45</td>
<td>1.82</td>
<td>4.56</td>
</tr>
<tr>
<td>AnadoluBank</td>
<td>16.96</td>
<td>14.54</td>
<td>...</td>
<td>66.78</td>
<td>3.23</td>
<td>5.81</td>
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<tr>
<td>Sekerbank</td>
<td>13.24</td>
<td>10.15</td>
<td>...</td>
<td>41.73</td>
<td>3.80</td>
<td>6.09</td>
</tr>
<tr>
<td>Tekstil</td>
<td>15.86</td>
<td>14.75</td>
<td>...</td>
<td>60.07</td>
<td>2.78</td>
<td>4.22</td>
</tr>
<tr>
<td>Turkish</td>
<td>32.09</td>
<td>17.10</td>
<td>...</td>
<td>53.24</td>
<td>3.38</td>
<td>3.73</td>
</tr>
<tr>
<td>Turk</td>
<td>14.23</td>
<td>11.06</td>
<td>...</td>
<td>41.99</td>
<td>3.62</td>
<td>4.71</td>
</tr>
<tr>
<td>Garanti</td>
<td>16.89</td>
<td>11.99</td>
<td>...</td>
<td>38.93</td>
<td>2.19</td>
<td>5.41</td>
</tr>
<tr>
<td>Is Bank</td>
<td>14.07</td>
<td>11.09</td>
<td>...</td>
<td>52.26</td>
<td>2.15</td>
<td>5.05</td>
</tr>
<tr>
<td>Yapı Kredi</td>
<td>14.69</td>
<td>10.82</td>
<td>...</td>
<td>42.31</td>
<td>2.49</td>
<td>5.39</td>
</tr>
<tr>
<td>Denizbank</td>
<td>15.65</td>
<td>10.98</td>
<td>...</td>
<td>48.92</td>
<td>3.40</td>
<td>6.37</td>
</tr>
</tbody>
</table>
Finally, TOPSIS method is applied to rank the banks. The priority weights of banks with respect to criteria, calculated by AHP and shown in Table 8, can be used as input of TOPSIS (Table 9). The weighted normalized decision matrix can be seen from Table 10.

Table 9. Input values sample of the TOPSIS analysis for the year 2011

<table>
<thead>
<tr>
<th>BANKS</th>
<th>RATIO</th>
<th>SHAREHOLDERS' EQUITY / (AMOUNT SUBJECT TO CREDIT RISK + SHAREHOLDERS' EQUITY / TOTAL ASSETS)</th>
<th>SHAREHOLDERS' EQUITY / TOTAL ASSETS</th>
<th>PERSONNEL EXPENSES / OTHER OPERATING EXPENSES</th>
<th>OTHER OPERATING EXPENSES / TOTAL ASSET</th>
<th>TOTAL OPERATING INCOME / TOTAL ASSET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eurobank</td>
<td>16.94</td>
<td>12.77</td>
<td>...</td>
<td>50.41</td>
<td>2.98</td>
<td>4.26</td>
</tr>
<tr>
<td>Finans</td>
<td>17.18</td>
<td>12.33</td>
<td>...</td>
<td>43.43</td>
<td>3.41</td>
<td>6.49</td>
</tr>
<tr>
<td>HSBC</td>
<td>16.14</td>
<td>11.58</td>
<td>...</td>
<td>42.32</td>
<td>4.36</td>
<td>6.36</td>
</tr>
<tr>
<td>ING Bank</td>
<td>14.19</td>
<td>11.21</td>
<td>...</td>
<td>46.34</td>
<td>3.99</td>
<td>5.22</td>
</tr>
</tbody>
</table>

Table 10. Weighted evaluation for the bank evaluation for the year 2011

<table>
<thead>
<tr>
<th>BANKS</th>
<th>RATIO</th>
<th>SHAREHOLDERS' EQUITY / (AMOUNT SUBJECT TO CREDIT RISK + SHAREHOLDERS' EQUITY / TOTAL ASSETS)</th>
<th>SHAREHOLDERS' EQUITY / TOTAL ASSETS</th>
<th>PERSONNEL EXPENSES / OTHER OPERATING EXPENSES</th>
<th>OTHER OPERATING EXPENSES / TOTAL ASSET</th>
<th>TOTAL OPERATING INCOME / TOTAL ASSET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ziraat Bank</td>
<td>0.01650</td>
<td>0.01685</td>
<td>...</td>
<td>0.00270</td>
<td>0.00037</td>
<td>0.00290</td>
</tr>
<tr>
<td>Halk Bank</td>
<td>0.01511</td>
<td>0.01948</td>
<td>...</td>
<td>0.00229</td>
<td>0.00043</td>
<td>0.00416</td>
</tr>
<tr>
<td>Vakıflar Bank</td>
<td>0.01414</td>
<td>0.02142</td>
<td>...</td>
<td>0.00232</td>
<td>0.00049</td>
<td>0.00372</td>
</tr>
<tr>
<td>Akbank</td>
<td>0.01795</td>
<td>0.02700</td>
<td>...</td>
<td>0.00213</td>
<td>0.00041</td>
<td>0.00341</td>
</tr>
<tr>
<td>Anadolu Bank</td>
<td>0.01793</td>
<td>0.02987</td>
<td>...</td>
<td>0.00360</td>
<td>0.00073</td>
<td>0.00435</td>
</tr>
<tr>
<td>Sekerbank</td>
<td>0.01399</td>
<td>0.02086</td>
<td>...</td>
<td>0.00225</td>
<td>0.00086</td>
<td>0.00456</td>
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<tr>
<td>Tekstil Bank</td>
<td>0.01676</td>
<td>0.03031</td>
<td>...</td>
<td>0.00324</td>
<td>0.00063</td>
<td>0.00316</td>
</tr>
<tr>
<td>Turkish Bank</td>
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<td>0.03513</td>
<td>...</td>
<td>0.00287</td>
<td>0.00076</td>
<td>0.00279</td>
</tr>
<tr>
<td>Turk Ekonomi Bank</td>
<td>0.01504</td>
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<td>...</td>
<td>0.00226</td>
<td>0.00082</td>
<td>0.00353</td>
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<td>...</td>
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<td>0.00049</td>
<td>0.00406</td>
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<tr>
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<td>...</td>
<td>0.00282</td>
<td>0.00049</td>
<td>0.00378</td>
</tr>
<tr>
<td>Yatri Kredi Bank</td>
<td>0.01553</td>
<td>0.02224</td>
<td>...</td>
<td>0.00228</td>
<td>0.00056</td>
<td>0.00404</td>
</tr>
<tr>
<td>Denizbank</td>
<td>0.01654</td>
<td>0.02256</td>
<td>...</td>
<td>0.00264</td>
<td>0.00077</td>
<td>0.00477</td>
</tr>
<tr>
<td>Eurobank Tekfen</td>
<td>0.01791</td>
<td>0.02624</td>
<td>...</td>
<td>0.00272</td>
<td>0.00067</td>
<td>0.00319</td>
</tr>
<tr>
<td>Finans Bank</td>
<td>0.01816</td>
<td>0.02533</td>
<td>...</td>
<td>0.00234</td>
<td>0.00077</td>
<td>0.00487</td>
</tr>
<tr>
<td>HSBC Bank</td>
<td>0.01706</td>
<td>0.02380</td>
<td>...</td>
<td>0.00228</td>
<td>0.00098</td>
<td>0.00477</td>
</tr>
<tr>
<td>ING Bank</td>
<td>0.01500</td>
<td>0.02302</td>
<td>...</td>
<td>0.00250</td>
<td>0.00090</td>
<td>0.00391</td>
</tr>
</tbody>
</table>

Min or Max     | +     | +                                               | ...                                | -                                         | -                                       | +                                   |
| A'             | 0.03391 | 0.03513                                           | ...                                | 0.00210                                   | 0.00037                                 | 0.00487                             |
| A              | 0.01399 | 0.01685                                           | ...                                | 0.00360                                   | 0.00098                                 | 0.00279                             |

Table 10. Weighted evaluation for the bank evaluation for the year 2011
By using TOPSIS method, the ranking of banks are calculated. Table 11 shows the evaluation results and final ranking of banks.

<table>
<thead>
<tr>
<th>Banks</th>
<th>$d_i^*$</th>
<th>$d_i^-$</th>
<th>$R_{C_i}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ziraat Bank</td>
<td>0.041</td>
<td>0.041</td>
<td>0.500</td>
</tr>
<tr>
<td>Halk Bank</td>
<td>0.040</td>
<td>0.053</td>
<td>0.568</td>
</tr>
<tr>
<td>Vakıflar Bank</td>
<td>0.043</td>
<td>0.039</td>
<td>0.477</td>
</tr>
<tr>
<td>Akbank</td>
<td>0.036</td>
<td>0.044</td>
<td>0.551</td>
</tr>
<tr>
<td>Anadolubank</td>
<td>0.047</td>
<td>0.035</td>
<td>0.430</td>
</tr>
<tr>
<td>Sekerbank</td>
<td>0.055</td>
<td>0.026</td>
<td>0.315</td>
</tr>
<tr>
<td>Tekstil Bank</td>
<td>0.058</td>
<td>0.025</td>
<td>0.297</td>
</tr>
<tr>
<td>Turkish Bank</td>
<td>0.064</td>
<td>0.036</td>
<td>0.361</td>
</tr>
<tr>
<td>Turk Ekonomi Bank</td>
<td>0.056</td>
<td>0.025</td>
<td>0.309</td>
</tr>
<tr>
<td>Garanti Bank</td>
<td>0.033</td>
<td>0.050</td>
<td>0.601</td>
</tr>
<tr>
<td>Is Bank</td>
<td>0.041</td>
<td>0.041</td>
<td>0.496</td>
</tr>
<tr>
<td>Yapı Kredi Bank</td>
<td>0.043</td>
<td>0.041</td>
<td>0.487</td>
</tr>
<tr>
<td>Denizbank</td>
<td>0.037</td>
<td>0.055</td>
<td>0.600</td>
</tr>
<tr>
<td>Eurobank Tekfen</td>
<td>0.057</td>
<td>0.030</td>
<td>0.347</td>
</tr>
<tr>
<td>Finans Bank</td>
<td>0.038</td>
<td>0.051</td>
<td>0.575</td>
</tr>
<tr>
<td>HSBC Bank</td>
<td>0.047</td>
<td>0.036</td>
<td>0.429</td>
</tr>
<tr>
<td>ING Bank</td>
<td>0.060</td>
<td>0.025</td>
<td>0.293</td>
</tr>
</tbody>
</table>

Table 11. TOPSIS results for the year 2011

Depends on the RC$j$ values (Table 12), the ranking of the alternatives from top to bottom order are Garanti Bank, Denizbank, Finans Bank, Halk Bank, Akbank, Ziraat Bank, Is Bank, Yapı Kredi Bank, Vakıflar Bank, Anadolubank, HSBC Bank, Turkish Bank, Eurobank Tekfen, Sekerbank, Turk Ekonomi Bank, Tekstil Bank and ING Bank. Proposed model results show that Garanti Bank is the best performing bank for the year 2011 with RC value of 0.601.

<table>
<thead>
<tr>
<th>RANK</th>
<th>BANK</th>
<th>$R_{C_i}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Garanti Bank</td>
<td>0.601</td>
</tr>
<tr>
<td>2</td>
<td>Denizbank</td>
<td>0.600</td>
</tr>
<tr>
<td>3</td>
<td>Finans Bank</td>
<td>0.575</td>
</tr>
<tr>
<td>4</td>
<td>Halk Bank</td>
<td>0.568</td>
</tr>
<tr>
<td>5</td>
<td>Akbank</td>
<td>0.551</td>
</tr>
<tr>
<td>6</td>
<td>Ziraat Bank</td>
<td>0.500</td>
</tr>
</tbody>
</table>

Table 12. Ranking of banks for the year 2011
Table 12. Performance ranking for the year 2011

<table>
<thead>
<tr>
<th>BANK</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Akbank</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Anadolu bank</td>
<td>13</td>
<td>17</td>
<td>9</td>
<td>13</td>
<td>13</td>
<td>9</td>
<td>2</td>
<td>6</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Denizbank</td>
<td>15</td>
<td>9</td>
<td>11</td>
<td>9</td>
<td>6</td>
<td>11</td>
<td>12</td>
<td>8</td>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td>Eurobank Tekfen</td>
<td>7</td>
<td>15</td>
<td>14</td>
<td>15</td>
<td>17</td>
<td>17</td>
<td>17</td>
<td>17</td>
<td>17</td>
<td>13</td>
</tr>
<tr>
<td>Finans Bank</td>
<td>8</td>
<td>6</td>
<td>10</td>
<td>10</td>
<td>8</td>
<td>11</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Garanti Bank</td>
<td>16</td>
<td>14</td>
<td>12</td>
<td>7</td>
<td>9</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Halk Bank</td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>8</td>
<td>5</td>
<td>8</td>
<td>9</td>
<td>5</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>HSBC Bank</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>ING Bank</td>
<td>12</td>
<td>10</td>
<td>7</td>
<td>4</td>
<td>14</td>
<td>14</td>
<td>15</td>
<td>13</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>Is Bank</td>
<td>11</td>
<td>7</td>
<td>8</td>
<td>6</td>
<td>10</td>
<td>6</td>
<td>7</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Sekerbank</td>
<td>17</td>
<td>11</td>
<td>6</td>
<td>11</td>
<td>11</td>
<td>10</td>
<td>13</td>
<td>12</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>Tekstil Bank</td>
<td>5</td>
<td>16</td>
<td>17</td>
<td>16</td>
<td>16</td>
<td>15</td>
<td>16</td>
<td>15</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td>Turk Ekonomi Bank</td>
<td>14</td>
<td>12</td>
<td>16</td>
<td>14</td>
<td>15</td>
<td>16</td>
<td>14</td>
<td>14</td>
<td>12</td>
<td>15</td>
</tr>
<tr>
<td>Turkish Bank</td>
<td>6</td>
<td>5</td>
<td>13</td>
<td>12</td>
<td>8</td>
<td>13</td>
<td>7</td>
<td>16</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>Vakıflar Bank</td>
<td>10</td>
<td>8</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>7</td>
<td>10</td>
<td>11</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Yapı Kredi Bank</td>
<td>1</td>
<td>13</td>
<td>15</td>
<td>17</td>
<td>12</td>
<td>12</td>
<td>9</td>
<td>10</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Ziraat Bank</td>
<td>9</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

Table 13. Performance ranking for the years 2002-2011

Depends on the RCj values (Appendix: Table 12-Table 14), the rankings of the alternatives for the years 2002-2011 are shown on Table 13.
Proposed model results show that Akbank is the best performing bank during the years 2007-2011 and 2009-2011 (Table 14).

<table>
<thead>
<tr>
<th>Rank</th>
<th>Bank</th>
<th>Average</th>
<th>Rank</th>
<th>Bank</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Akbank</td>
<td>2.8</td>
<td>1</td>
<td>Akbank</td>
<td>2.33</td>
</tr>
<tr>
<td>2</td>
<td>Garanti Bank</td>
<td>2.8</td>
<td>2</td>
<td>Garanti Bank</td>
<td>2.33</td>
</tr>
<tr>
<td>3</td>
<td>Ziraat Bank</td>
<td>3.2</td>
<td>3</td>
<td>Finans Bank</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Finans Bank</td>
<td>5.6</td>
<td>4</td>
<td>Ziraat Bank</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>HSBC Bank</td>
<td>6</td>
<td>5</td>
<td>Halk Bank</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>Halk Bank</td>
<td>6.2</td>
<td>6</td>
<td>Is Bank</td>
<td>6.67</td>
</tr>
<tr>
<td>7</td>
<td>Is Bank</td>
<td>6.4</td>
<td>7</td>
<td>Denizbank</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>Anadolu Bank</td>
<td>7</td>
<td>8</td>
<td>Anadolu Bank</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td>Denizbank</td>
<td>8.8</td>
<td>9</td>
<td>HSBC Bank</td>
<td>8.33</td>
</tr>
<tr>
<td>10</td>
<td>Yapı Kredi Bank</td>
<td>9.2</td>
<td>10</td>
<td>Yapı Kredi Bank</td>
<td>8.33</td>
</tr>
<tr>
<td>11</td>
<td>Vakıflar Bank</td>
<td>9.4</td>
<td>11</td>
<td>Vakıflar Bank</td>
<td>10</td>
</tr>
<tr>
<td>12</td>
<td>Sekerbank</td>
<td>12.4</td>
<td>12</td>
<td>Sekerbank</td>
<td>13</td>
</tr>
<tr>
<td>13</td>
<td>Turkish Bank</td>
<td>12.8</td>
<td>13</td>
<td>Türk Ekonomi Bank</td>
<td>13.67</td>
</tr>
<tr>
<td>14</td>
<td>Türk Ekonomi Bank</td>
<td>14.2</td>
<td>14</td>
<td>Turkish Bank</td>
<td>14.67</td>
</tr>
<tr>
<td>15</td>
<td>İNG Bank</td>
<td>14.8</td>
<td>15</td>
<td>İNG Bank</td>
<td>15</td>
</tr>
<tr>
<td>16</td>
<td>Tekstil Bank</td>
<td>15.2</td>
<td>16</td>
<td>Tekstil Bank</td>
<td>15</td>
</tr>
<tr>
<td>17</td>
<td>Eurobank Tekfen</td>
<td>16.2</td>
<td>17</td>
<td>Eurobank Tekfen</td>
<td>15.67</td>
</tr>
</tbody>
</table>

Table 14. Performance ranking for the years 2007-2011 (5 years) and 2009-2011 (3 years)

6. CONCLUSIONS

The operations of individual banks are roughly similar throughout the world; they acquire, use and manage funds to make a profit. In all countries, banks are financial intermediaries in the business of earning profits and the efficiency of banks can affect the stability of the financial market and thus the effectiveness of the whole monetary system. Turkish Banking Sector has changed drastically after the financial crisis. The impact of 2000 and 2001 crises on financial system especially on the Turkish Banking sector was extensive. As mentioned, social and economic reforms have been introduced in many areas after the crises that includes restructuring of the state banks, restructuring of private banks, enhancement of supervision and audit of banking system and new legal arrangements and resolution of non-performing loans. From the view of these transforming activities, performance evaluation plays a major role in planning and it is an essential analytical tool in banks’ financial strategies. In this content, the primary purpose of this research is to evaluate the financial performances of Turkish Banks for the period 2002 to 2011.
This research proposes a financial performance evaluation model for banks that includes the consideration of financial ratios. This model is then applied to a case study for the financial performance evaluation of 3 state banks (Ziraat Bank, Halk Bank and Vakıflar Bank); 9 private banks (Akbank; AnadoluBank; SekerBank; Tekstil Bank; Turkish Bank; Turk Ekonomi Bank; Garanti Bank; Is Bank and Yapı Kredi Bank) and 5 foreign banks (Denizbank; Eurobank Tekfen; Finans Bank; HSBC Bank and ING Bank) in Turkey. Total performance of bank is divided into ten groups including Capital Ratios, Balance Sheet Ratios, Assets Quality, Liquidity, Profitability, Income-Expenditure Structure, Share in Sector, Share in Group, Branch Ratios and Activity Ratios as described by the Banks Association of Turkey. After AHP analysis most important ratios are found. Net Profit (Losses) / Total Assets (Profitability) (0,1057), Shareholders’ Equity / Total Assets (Capital Ratios) (0,1020), Consumer Loans / Total Loans and Reciv. (Assets Quality) (0,0763), Shareholders’ Equity / (Amount Subject to Credit Risk + Market Risk + Operational Risk) (Capital Ratios) (0,0736) and Net Profit (Losses) / Total Shareholders’ Equity (Profitability) (0,0583) are determined as the five most important financial ratios for the performance of the banks by AHP. Finally, TOPSIS method is applied to rank the banks.

Our model shows that Akbank is the best performing bank during the years 2007-2011 and 2009-2011. On the other hand, critical changes happened for Garanti Bank throughout years; it performs better than the others and has the highest rank in 2011, whereas it has the just before last rank (16th) after the 2001 financial crisis.

REFERENCES
Banks Association of Turkey, http://www.tbb.org.tr


Yılmaz A.A., Bank Efficiency Analysis in Turkish Banking System, WEU International Academic Conference Proceedings, 2013, pp.112-121


### APPENDIX

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Weights</th>
<th>$\lambda_{\text{max}}$, CI, RI</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shareholders' Equity / (Amount Subject to Credit Risk + Market Risk + ...</td>
<td>0.259</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shareholders' Equity / Total Assets</td>
<td>0.358</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Shareholders' Equity-Permanent Assets) / Total Assets</td>
<td>0.158</td>
<td>$\lambda_{\text{max}} = 7.22$</td>
<td></td>
</tr>
<tr>
<td>Shareholders' Equity / (Deposits + Non-Deposit Funds)</td>
<td>0.063</td>
<td>CI = 0.0363</td>
<td>0.027</td>
</tr>
<tr>
<td>On Balance-sheet FC Position / Shareholders' Equity</td>
<td>0.036</td>
<td>RI = 1.32</td>
<td></td>
</tr>
<tr>
<td>Net on Balance-sheet Position / Total Shareholders' Equity</td>
<td>0.101</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N(on+off) Balance-sheet Position / Total Shareholders' Equity</td>
<td>0.024</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1. Results of capital ratios obtained by AHP

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Weights</th>
<th>$\lambda_{\text{max}}$, CI, RI</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC Assets / Total Assets</td>
<td>0.285</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FC Assets / Total Assets</td>
<td>0.058</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TC Liabilities / Total Liabilities</td>
<td>0.145</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FC Liabilities / Total Liabilities</td>
<td>0.116</td>
<td>$\lambda_{\text{max}} = 9.44$</td>
<td></td>
</tr>
<tr>
<td>FC Assets / FC Liabilities</td>
<td>0.203</td>
<td>CI = 0.055</td>
<td>0.038</td>
</tr>
<tr>
<td>TC Deposits / Total Deposits</td>
<td>0.081</td>
<td>RI = 1.45</td>
<td></td>
</tr>
<tr>
<td>TC Loans and Receivables / Total Loans and Receivables</td>
<td>0.022</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Deposits / Total Assets</td>
<td>0.016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Funds Borrowed / Total Assets</td>
<td>0.030</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Results of balance sheet ratios obtained by AHP
### Table 3. Results of assets quality ratios obtained by AHP

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Weights</th>
<th>( \lambda_{\text{max}} ), CI, RI</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Assets (Net) / Total Assets</td>
<td>0.110</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Loans and Receivables / Total Assets</td>
<td>0.057</td>
<td>( \lambda_{\text{max}} = 4.12 )</td>
<td>0.045</td>
</tr>
<tr>
<td>Total Loans and Receivables / Total Deposits</td>
<td>0.308</td>
<td>CI = 0.041</td>
<td></td>
</tr>
<tr>
<td>Consumer Loans / Total Loans and Receiv.</td>
<td>0.525</td>
<td>RI = 0.9</td>
<td></td>
</tr>
</tbody>
</table>

### Table 4. Results of liquidity ratios obtained by AHP

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Weights</th>
<th>( \lambda_{\text{max}} ), CI, RI</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid Assets / Total Assets</td>
<td>0.425</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid Assets / Short-term Liabilities</td>
<td>0.246</td>
<td>( \lambda_{\text{max}} = 5.19 )</td>
<td>0.042</td>
</tr>
<tr>
<td>TC Liquid Assets / Total Assets</td>
<td>0.093</td>
<td>CI = 0.047</td>
<td></td>
</tr>
<tr>
<td>Liquid Assets / (Deposits + Non-Deposit Funds)</td>
<td>0.187</td>
<td>RI = 1.12</td>
<td></td>
</tr>
<tr>
<td>FC Liquid Assets / FC Liabilities</td>
<td>0.049</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 5. Results of profitability ratios obtained by AHP

<table>
<thead>
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<th>Weights</th>
<th>( \lambda_{\text{max}} ), CI, RI</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Profit (Losses) / Total Assets</td>
<td>0.520</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Profit (Losses) / Total Shareholders' Equity</td>
<td>0.287</td>
<td>( \lambda_{\text{max}} = 4.17 )</td>
<td>0.064</td>
</tr>
<tr>
<td>Income Before Taxes / Total Assets</td>
<td>0.050</td>
<td>CI = 0.057</td>
<td></td>
</tr>
<tr>
<td>Net Profit (Losses) / Paid-in Capital</td>
<td>0.144</td>
<td>RI = 0.9</td>
<td></td>
</tr>
</tbody>
</table>

### Table 6. Results of income-expenditure structure ratios obtained by AHP

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Weights</th>
<th>( \lambda_{\text{max}} ), CI, RI</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Interest Income After Specific Provisions / Total Assets</td>
<td>0.054</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Interest Income After Specific Provisions / Total Operating Income</td>
<td>0.027</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Interest Income (Net) / Total Assets</td>
<td>0.039</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Interest Income (Net) / Other Operating Expenses</td>
<td>0.019</td>
<td>( \lambda_{\text{max}} = 9.44 )</td>
<td></td>
</tr>
<tr>
<td>Interest Income / Interest Expense</td>
<td>0.078</td>
<td>CI = 0.054</td>
<td>0.037</td>
</tr>
<tr>
<td>Total Income / Total Expense</td>
<td>0.151</td>
<td>RI = 1.45</td>
<td></td>
</tr>
<tr>
<td>Interest Income / Total Assets</td>
<td>0.305</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest Income / Total Expenses</td>
<td>0.216</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest Expense / Total Expenses</td>
<td>0.111</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 7. Results of share in sector ratios obtained by AHP

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Weights</th>
<th>$\lambda_{\text{max}}$, CI, RI</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Assets</td>
<td>0.297</td>
<td>$\lambda_{\text{max}} = 3.01$</td>
<td>0.008</td>
</tr>
<tr>
<td>Total Loans and Receivables</td>
<td>0.164</td>
<td>CI = 0.005</td>
<td></td>
</tr>
<tr>
<td>Total Deposits</td>
<td>0.539</td>
<td>RI = 0.58</td>
<td></td>
</tr>
</tbody>
</table>

### Table 8. Results of share in group ratios obtained by AHP

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Weights</th>
<th>$\lambda_{\text{max}}$, CI, RI</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Assets / No. of Branches</td>
<td>0.159</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Deposits / No. of Branches</td>
<td>0.237</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRY Deposits / No. of Branches</td>
<td>0.046</td>
<td>$\lambda_{\text{max}} = 7.20$</td>
<td>0.025</td>
</tr>
<tr>
<td>FX Deposits / No. of Branches</td>
<td>0.032</td>
<td>CI = 0.033</td>
<td></td>
</tr>
<tr>
<td>Total Loans and Receivables / No. of Branches</td>
<td>0.106</td>
<td>RI = 1.32</td>
<td></td>
</tr>
<tr>
<td>Total Employees / No. of Branches (person)</td>
<td>0.070</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Income / No. of Branches</td>
<td>0.350</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 9. Results of branch ratios obtained by AHP

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Weights</th>
<th>$\lambda_{\text{max}}$, CI, RI</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Personnel Expenses + Reserve for Employee Termination Benefit) / Total Assets</td>
<td>0.160</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Personnel Expenses + Reserve for Employee Termination Benefit) / Number of Personnel (Thousand TRY)</td>
<td>0.102</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reserve for Employee Termination Benefit / Number of Personnel (Thousand TRY)</td>
<td>0.043</td>
<td>$\lambda_{\text{max}} = 6.12$</td>
<td>0.020</td>
</tr>
<tr>
<td>Personnel Expenses / Other Operating Expenses</td>
<td>0.249</td>
<td>CI = 0.025</td>
<td></td>
</tr>
<tr>
<td>Other Operating Expenses / Total Asset</td>
<td>0.065</td>
<td>RI = 1.24</td>
<td></td>
</tr>
<tr>
<td>Total Operating Income / Total Assets</td>
<td>0.379</td>
<td></td>
<td></td>
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</table>

### Table 10. Results of activity ratios obtained by AHP

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Weights</th>
<th>$\lambda_{\text{max}}$, CI, RI</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Personnel Expenses + Reserve for Employee Termination Benefit) / Total Assets</td>
<td>0.160</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personnel Expenses / Other Operating Expenses</td>
<td>0.249</td>
<td>CI = 0.025</td>
<td></td>
</tr>
<tr>
<td>Other Operating Expenses / Total Asset</td>
<td>0.065</td>
<td>RI = 1.24</td>
<td></td>
</tr>
<tr>
<td>Total Operating Income / Total Assets</td>
<td>0.379</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FINANCIAL RATIOS</td>
<td>Local Weight</td>
<td>SUB RATIOS</td>
<td>Min</td>
</tr>
<tr>
<td>------------------</td>
<td>--------------</td>
<td>----------------------------------------------------------------------------</td>
<td>-----</td>
</tr>
<tr>
<td>CAPITAL RATIOS, %</td>
<td>0.2847</td>
<td>Shareholders' Equity / (Amount Subject to Credit Risk + Market Risk + Operational Risk)</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shareholders' Equity / Total Assets</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Shareholders' Equity-Permanent Assets) / Total Assets</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shareholders' Equity / (Deposits + Non-Deposit Funds)</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>On Balance-sheet FC Position / Shareholders' Equity</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Net on Balance-sheet Position / Total Shareholders' Equity</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N(on+off) Balance-sheet Position / Total Shareholders' Equity</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TC Assets / Total Assets</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FC Assets / Total Assets</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TC Liabilities / Total Liabilities</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FC Liabilities / Total Liabilities</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FC Assets / FC Liabilities</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TC Deposits / Total Deposits</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TC Loans and Receivables / Total Loans and Receivables</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total Deposits / Total Assets</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Funds Borrowed / Total Assets</td>
<td>x</td>
</tr>
<tr>
<td>ASSETS QUALITY, %</td>
<td>0.1454</td>
<td>Financial Assets (Net) / Total Assets</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total Loans and Receivables / Total Assets</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total Loans and Receivables / Total Deposits</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consumer Loans / Total Loans and Reciv.</td>
<td>x</td>
</tr>
<tr>
<td>LIQUIDITY, %</td>
<td>0.1162</td>
<td>Liquid Assets / Total Assets</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Liquid Assets / Short-term Liabilities</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TC Liquid Assets / Total Assets</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Liquid Assets / (Deposits + Non-Deposit Funds)</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FC Liquid Assets / FC Liabilities</td>
<td>x</td>
</tr>
<tr>
<td>PROFITABILITY, %</td>
<td>0.2035</td>
<td>Net Profit (Losses) / Total Assets</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Net Profit (Losses) / Total Shareholders' Equity</td>
<td>x</td>
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<tr>
<td></td>
<td></td>
<td>Income Before Taxes / Total Assets</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Net Profit (Losses) / Paid-in Capital</td>
<td>x</td>
</tr>
<tr>
<td>INCOME-EXPENDITURE STRUCTURE, %</td>
<td>0.0813</td>
<td>Net Interest Income After Specific Provisions / Total Assets</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Net Interest Income After Specific Provisions / Total Operating Income</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-Interest Income (Net) / Total Assets</td>
<td>x</td>
</tr>
<tr>
<td>SHARE IN SECTOR, %</td>
<td>(0.0219)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
<td>------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Assets (SHARE IN SECTOR, %)</td>
<td>(x \ 0.2973 \ 0.0065)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Loans and Receivables (SHARE IN SECTOR, %)</td>
<td>(x \ 0.1638 \ 0.0036)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Deposits (SHARE IN SECTOR, %)</td>
<td>(x \ 0.5390 \ 0.0118)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SHARE IN GROUP, %</th>
<th>(0.0159)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Assets (SHARE IN GROUP, %)</td>
<td>(x \ 0.2973 \ 0.0047)</td>
</tr>
<tr>
<td>Total Loans and Receivables (SHARE IN GROUP, %)</td>
<td>(x \ 0.1638 \ 0.0026)</td>
</tr>
<tr>
<td>Total Deposits (SHARE IN GROUP, %)</td>
<td>(x \ 0.5390 \ 0.0086)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BRANCH RATIOS, TRY MILLION</th>
<th>(0.0302)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Assets / No. of Branches</td>
<td>(x \ 0.1590 \ 0.0048)</td>
</tr>
<tr>
<td>Total Deposits / No. of Branches</td>
<td>(x \ 0.2375 \ 0.0072)</td>
</tr>
<tr>
<td>TRY Deposits / No. of Branches</td>
<td>(x \ 0.0462 \ 0.0014)</td>
</tr>
<tr>
<td>FX Deposits / No. of Branches</td>
<td>(x \ 0.0318 \ 0.0010)</td>
</tr>
<tr>
<td>Total Loans and Receivables / No. of Branches</td>
<td>(x \ 0.1056 \ 0.0032)</td>
</tr>
<tr>
<td>Total Employees / No. of Branches (person)</td>
<td>(x \ 0.0696 \ 0.0021)</td>
</tr>
<tr>
<td>Net Income / No. of Branches</td>
<td>(x \ 0.3504 \ 0.0106)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACTIVITY RATIOS</th>
<th>(0.0427)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Personnel Expenses + Reserve for Employee Termination Benefit) / Total Assets</td>
<td>(x \ 0.1604 \ 0.0069)</td>
</tr>
<tr>
<td>(Personnel Expenses + Reserve for Employee Termination Benefit) / Number of Personnel (Thousand TRY)</td>
<td>(x \ 0.1024 \ 0.0044)</td>
</tr>
<tr>
<td>Reserve for Employee Termination Benefit / Number of Personnel (Thousand TRY)</td>
<td>(x \ 0.0434 \ 0.0019)</td>
</tr>
<tr>
<td>Personnel Expenses / Other Operating Expenses</td>
<td>(x \ 0.2488 \ 0.0106)</td>
</tr>
<tr>
<td>Other Operating Expenses / Total Asset</td>
<td>(x \ 0.0655 \ 0.0028)</td>
</tr>
<tr>
<td>Total Operating Income / Total Assets</td>
<td>(x \ 0.3794 \ 0.0162)</td>
</tr>
</tbody>
</table>

Table 11. Local and global weights of all criteria
Figure 1. Weights of financial ratios
## Financial Performance of the banks for the year

<table>
<thead>
<tr>
<th>RANK</th>
<th>BANK</th>
<th>RCi*</th>
<th>RANK</th>
<th>BANK</th>
<th>RCi*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Yapı Kredi Bank</td>
<td>0.528</td>
<td>1</td>
<td>Akbank</td>
<td>0.662</td>
</tr>
<tr>
<td>2</td>
<td>Halk Bank</td>
<td>0.510</td>
<td>2</td>
<td>HSBC Bank</td>
<td>0.579</td>
</tr>
<tr>
<td>3</td>
<td>HSBC Bank</td>
<td>0.507</td>
<td>3</td>
<td>Ziraat Bank</td>
<td>0.521</td>
</tr>
<tr>
<td>4</td>
<td>Akbank</td>
<td>0.481</td>
<td>4</td>
<td>Halk Bank</td>
<td>0.500</td>
</tr>
<tr>
<td>5</td>
<td>Tekstil Bank</td>
<td>0.473</td>
<td>5</td>
<td>Turkish Bank</td>
<td>0.443</td>
</tr>
<tr>
<td>6</td>
<td>Turkish Bank</td>
<td>0.434</td>
<td>6</td>
<td>Finans Bank</td>
<td>0.434</td>
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<tr>
<td>7</td>
<td>Eurobank Tekfen</td>
<td>0.426</td>
<td>7</td>
<td>Is Bank</td>
<td>0.389</td>
</tr>
<tr>
<td>8</td>
<td>Finans Bank</td>
<td>0.419</td>
<td>8</td>
<td>Vakıflar Bank</td>
<td>0.378</td>
</tr>
<tr>
<td>9</td>
<td>Ziraat Bank</td>
<td>0.385</td>
<td>9</td>
<td>Denizbank</td>
<td>0.365</td>
</tr>
<tr>
<td>10</td>
<td>Vakıflar Bank</td>
<td>0.373</td>
<td>10</td>
<td>İNG Bank</td>
<td>0.350</td>
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<tr>
<td>11</td>
<td>Is Bank</td>
<td>0.370</td>
<td>11</td>
<td>Sekerbank</td>
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<td>12</td>
<td>İNG Bank</td>
<td>0.362</td>
<td>12</td>
<td>Türk Ekonomi Bank</td>
<td>0.337</td>
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<tr>
<td>13</td>
<td>Anadolubank</td>
<td>0.317</td>
<td>13</td>
<td>Yapı Kredi Bank</td>
<td>0.326</td>
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<tr>
<td>14</td>
<td>Turk Ekonomi Bank</td>
<td>0.316</td>
<td>14</td>
<td>Garanti Bank</td>
<td>0.314</td>
</tr>
<tr>
<td>15</td>
<td>Denizbank</td>
<td>0.302</td>
<td>15</td>
<td>Eurobank Tekfen</td>
<td>0.302</td>
</tr>
<tr>
<td>16</td>
<td>Garanti Bank</td>
<td>0.280</td>
<td>16</td>
<td>Tekstil Bank</td>
<td>0.252</td>
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<tr>
<td>17</td>
<td>Sekerbank</td>
<td>0.238</td>
<td>17</td>
<td>Anadolubank</td>
<td>0.245</td>
</tr>
</tbody>
</table>

## Financial Performance of the banks for the year

<table>
<thead>
<tr>
<th>RANK</th>
<th>BANK</th>
<th>RCi*</th>
<th>RANK</th>
<th>BANK</th>
<th>RCi*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Akbank</td>
<td>0.669</td>
<td>1</td>
<td>Ziraat Bank</td>
<td>0.793</td>
</tr>
<tr>
<td>2</td>
<td>Ziraat Bank</td>
<td>0.618</td>
<td>2</td>
<td>HSBC Bank</td>
<td>0.779</td>
</tr>
<tr>
<td>3</td>
<td>Vakıflar Bank</td>
<td>0.604</td>
<td>3</td>
<td>Akbank</td>
<td>0.778</td>
</tr>
<tr>
<td>4</td>
<td>HSBC Bank</td>
<td>0.566</td>
<td>4</td>
<td>İNG Bank</td>
<td>0.777</td>
</tr>
<tr>
<td>5</td>
<td>Halk Bank</td>
<td>0.524</td>
<td>5</td>
<td>Vakıflar Bank</td>
<td>0.761</td>
</tr>
<tr>
<td>6</td>
<td>Sekerbank</td>
<td>0.497</td>
<td>6</td>
<td>Is Bank</td>
<td>0.756</td>
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<td>7</td>
<td>İNG Bank</td>
<td>0.484</td>
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<td>Garanti Bank</td>
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<td>8</td>
<td>Is Bank</td>
<td>0.482</td>
<td>8</td>
<td>Halk Bank</td>
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<tr>
<td>9</td>
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<td>9</td>
<td>Denizbank</td>
<td>0.737</td>
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<td>10</td>
<td>Finans Bank</td>
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<td>Finans Bank</td>
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<td>Denizbank</td>
<td>0.446</td>
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<td>Sekerbank</td>
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<td>Garanti Bank</td>
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<td>Turkish Bank</td>
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<td>13</td>
<td>Türkish Bank</td>
<td>0.397</td>
<td>13</td>
<td>Anadolubank</td>
<td>0.702</td>
</tr>
<tr>
<td>14</td>
<td>Eurobank Tekfen</td>
<td>0.358</td>
<td>14</td>
<td>Türk Ekonomi Bank</td>
<td>0.681</td>
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### Table 12. Performance ranking for the years 2002-2003-2004 and 2005

<table>
<thead>
<tr>
<th>RANK</th>
<th>BANK</th>
<th>RCi*</th>
<th>RANK</th>
<th>BANK</th>
<th>RCi*</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Yapı Kredi Bank</td>
<td>0.343</td>
<td>15</td>
<td>Eurobank Tekfen</td>
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### Table 13. Performance ranking for the years 2006-2007-2008 and 2009

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### Table 14. Performance ranking for the years 2010 and 2011

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MULTIPLE-FACTOR PERFORMANCE EVALUATION OF REGION MANAGEMENT SYSTEM IN TERMS OF INFORMATIZATION DEVELOPMENT

Alla Kalinina, Aleksei Sokolov
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prospect Universitetsky, 100, Volgograd, 400062

Abstract

The problem of evaluating the effectiveness of the authorities in the Russian Federation with respect to trends in the information society. The authors show that the improvement of regional management should be viewed in close connection with the development of the information factor that improves the efficiency of management functions: analysis, monitoring, maintenance, organization, planning and forecasting, as well as consulting for economic growth in the region. The authors summarized and systematized ways of improving management systems in the Russian regions, analyzed medical evaluation of the effectiveness of government, studied the international experience of this task. The paper proposed a method for multiple-factor region management system assessment considering the administrative reform and the informatization development on the basis of the integral impact assessment and object of management potential modernization, functionality and efficiency of the entity management using the absolute and relative performance rating technology. Practical approval performed on the basis of regions of the southern Russia.

Key words. region management system, management system development, evaluation of region management effectiveness

INTRODUCTION

Improving the management system informatization due to the activities planned and partially implemented in the process of administrative reform 2005-2010, within a block of actions "Bodies of executive power information system modernization and the administrative reform monitoring", intended to establish a monitoring system such as the activities of bodies of the executive power and local self-government, the quality of state and local government services, corruption and anti-corruption measures, and information transparency monitoring [1].

METHODS FOR EVALUATION OF REGION MANAGEMENT SYSTEM

Region Management System is a set of interrelated elements comprising a unified whole and implementing the process of regional management to achieve their goals at the mesolevel. It has certain characteristics, as follows: it is a subsystem of the macrolevel and includes subsystems of the microlevel and cannot be viewed in isolation; there are three interrelated subsystems in the system: state, municipal subsystem and the subsystem of businesses and individuals; as contrasted with enterprise management systems (microlevel) it cannot be eliminated, i.e. to cease their functions. The specific feature of its operation in adverse conditions is the inability of normal reproduction of the economic, demographic and natural processes [2, P. 26].
Traditionally the following items are distinguished in the region management system: control mechanism, management structure, management processes, improving management. In the modern context of the national economy modernization there are new requirements to the region management systems, as well as general approaches to their development are transformed.

There are following directions of region management systems improvement: network of multipurpose centers creation and development, the e-government formation, the creation of electronic public reception and region electronic map [3], the integration of local self-government. Most of the new elements are formed in connection with the decision of the Government Commission on the widespread adoption of information technology in government agencies and local authorities.

The main components of the regional management system are adapted to the new conditions changing the management methods (information technology search, collection, processing and storage), management tools (research and information systems, databases, storage media) and the information channels. [4]

Regional management development should be viewed in close connection with the information factor development that improves the efficiency of management functions: analysis, monitoring, maintenance, organization, planning and forecasting, as well as consulting for region economic growth.

The number of techniques was developed on the federal and regional levels to form the evaluation systems in the science and practice [5-13]. Thus, the method of the Russian Government defines a single procedure to estimate the effectiveness of the Russian Bodies activities in the inquiry period in order to prepare an annual report to the President of the Russian Federation.

Comparative analysis of existing techniques was conducted on selected criteria: the number of indicators in each method, the method of data collection and information sources, comprehensiveness phenomenon, reliability and accessibility of information, a method of the region management effectiveness estimation.

According to the first criteria, all estimation methods have different values that vary depending on the methods and evaluation purposes. For example, the U.S. rating system is based on 25 indicators, the system CAF uses 28 subcriteria. Performance evaluation method of the Russian bodies of executive power activities provides 236 basic and 112 additional parameters; others use from 25 to 40 indicators.

With regard to the region management efficiency determination, the discussed techniques can be divided into the following groups: internal and external evaluation, point-rating system, planned and actual results comparison, research of the indicators in dynamics and balance assessment methods.

Analyzed methods combine the existence of following indicators in a system: comprehensive assessment of the social and economic situation in the region; estimation measured by indicators of budget spending efficiency; evaluation of the implemented reforms recognized actual at the federal level (in the spheres of education, health, housing and utilities, etc.); assessment of the accomplished activities level at the regional level, assessment of the power activities effectiveness by the population, that is based on the survey, questionnaires and social indicators; transparency assessment of OIV.

The advantages of the discussed techniques are: the definition of targets that should be performed by the subjects of management in the enquiry period; indicators grouping in key areas of their activities which allow preparing a detailed analysis of the activities in certain areas; the possibility of regional comparative assessments and ways of increasing the subject of management activities efficiency.
At the same time considered approach has several disadvantages, which include: the substitution of the criteria of efficiency to performance criteria; in most techniques there are no integral factors, or if they have it, the formed indicators are equal which does not correspond to objective reality; one-sided assessment because the value of the integral index depends only on one line of activity (in most cases, on the region social and economic development); the dependence of the assessment of performance of one subject of management from another, because the value of the integral indicator of a municipality depends on the level of social and economic development of other municipalities; too many indicators (up to 236), which makes assessment methodology cumbersome.

It should be noted that the approaches of foreign practices to evaluate the effectiveness of the work of public authorities are important factors of integration of Russia into the international community, affecting not only the image of the country, but also various aspects of integration, such as transnational capital flows, international investment and cooperation in social issues [5, 7-13]. The results of the analysis show that the application of these techniques in Russia is difficult in view of the essential national distinctions of legal, social and economic and political systems, and regional specificity.

One of the major reasons for the need to improve the methods of evaluating the effectiveness of the region management system is the need to significantly reduce the cost for obtaining information, which is possible due to the development of communications, the cut of the cost of information technology, the increase in the level of information maturity of society and its institutions.

Consumer assessment of the effectiveness of the economy naturally leads to the prevalence and dominance of ratings of the effectiveness of economic, political and social systems. The desire to get the most "compact" indicator of rating of complex social processes at the lowest expression of subjectivity encourages the use of integrated assessment methods.

Building an integral methodology for assessing the effectiveness of the region management requires the formulation of some methodological principles on which it should be based, namely: a holistic approach to assessing the effectiveness of a complex economic system; multidimensionality of applied methodology; combination of quantitative and qualitative, static and dynamic characteristics of the system, being studied; scalability of the methods, i.e. its ability to "develop" its analytical "power" adequately to the increase of the demands, which are made to the power, without compromising the rates of accuracy and reliability.

At the same time, it is necessary to take into account, that the maximum depth of analysis is achieved by constructing the hierarchically subordinated system of indexes, and using appropriate integrated indexes [14].

The most effective way of building such systems is modeling a complex system of a small number of major parts, where each of them, in its turn, is built of smaller ones as long as it will be possible to build up the smallest parts of the available material [15]. Hierarchical decomposition allows tracking information about the condition of the whole system, as well as each of its sub-systems separately, while monitoring systems of any complexity level. Logically verified decomposition means that provided complex system has certain structural characteristics and must encapsulate its content.

Being based on the proposition of the system analysis and information designing it is proposed to evaluate the effectiveness of managing the region as an integral indicator, including indexes for the next four interconnected units of indicators:
1 unit of indicators: Indicators, which characterize strategic goals of the region development achieved by the object, and include the indicators of economic condition of the subject of management (the main socio-economic indicators of the region development, results of the operation of branches);

2 unit of indicators: Functionality of the subject of management (indicators of realization of the basic management functions, the degree of development of the region institutional sphere, the state of the information infrastructure, indicators, which characterize the use of information technology in the activity of the government);

3 unit of indicators: Economy of the activity of the subject of region management (indicators of costs of consolidated regional budgets of the Russian Federation subject for management, indicators of public opinion, quantitative estimates of the efficiency of budget funds, and indicators of municipal control); as the parameters of economic activity of the subject of management it is appropriate to consider not only absolute, but also relative indicators: such as administrative expenses, depending on the population; the share of the budget of the territorial education for one employee of the management apparatus or for one ruble of the expanses for maintenance of this apparatus; number of civil servants according to the population, etc.;

4 unit of indicators: Indicators, which characterize the performance of the operational objectives of the region development - the potential of modernization of the subject of management, which are reasonable to be constructed based on their subject-object, structural and functional and dynamic characteristics (such as, for example: the share of expenses for technological innovation, investment in fixed assets, the level of depreciation of fixed assets, the number of university students per 10 thousand people, the number of advanced production technology per 100 thousand people, the share of internal operating costs for basic and applied research and development to the total cost for the research, and a number of others).

Formulating the indicators of effectiveness and performance of the public body activity has principal importance when developing a system of indicators. The indicators of effectiveness give us a possibility to estimate the ratio of the obtained results with the resources, spent to obtain the results. Performance indicators enable us to estimate the extent of achievement of the purpose because of which the subject of management functions. Cost effectiveness indicators (3 Unit) allow us to evaluate the achievement of purposes or solution of problems when saving of the budget is achieved.

We must also take into consideration, that the main problem of economic growth and establishing the national economy of Russia, as a strong one in the world community, is Russia's switch over the innovative way of development by harnessing the potential of upgrading the economic system. The potential of modernization has a utilitarian value in the process of establishing state innovation policy, the complex of scientific and technical and innovative programs, in the direct activity of created structures and institutions which are adequate to market conditions. These structures and institutions are aimed to ensure practical application of scientific ideas. A potential of modernization of economic systems means a collection of resources, conditions and factors required for the transition to innovative way of development, and aimed at effective implementation of innovations in the domestic and foreign markets.

CONCLUSIONS

In our opinion, to identify the essential characteristics and indicators for assessment of the potential upgrade, it is necessary to take into account the potential itself and the balance of its components, the
adequacy of the level of development for creating innovative and active economy and reflecting the outcome of its use - the transition to innovative development (in the form of innovative products, obtained during implementing the innovation process, and used advanced production technologies, etc.). That’s why, we believe, that it is reasonable to include the fourth unit of indicators, which reflect the systemic availability and use of the potential of its modernization into the integrated evaluation of the effectiveness of the region management. The dynamics of the private ranking of the subjects of South Russia in terms of the indicator of modernization is represented in Figure 1.

![Regions of the Southern Russia Graphical Chart](image)

Figure 1. Dynamics of the private ranking of the subjects of South Russia in terms of the indicator of modernization, 2007-2010.

This approach was developed within the frame of federal and regional legislation in power, normative and methodological base and taking into account the best practice and approaches in foreign countries and positive examples of estimate in Russian regional practice.
The proposed assessment system is clear and accessible for handling accounts. This system assumes integration index and provides comparability of indexes for different conditions of its determination, i.e. invariant with respect to appraised subject and realization conditions of its estimates.

In this research multiple-factor estimation of the region management efficiency is represented through the integral index which includes efficiency of object of management activities and its modernization potential, functionality and economical efficiency of subject of management.

REFERENCES


360 DEGREE FEEDBACK PERFORMANCE TECHNIQUE AND EMPLOYEE PERCEPTION ACCORDING TO ORGANIZATION LEVEL

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Toros University, Mersin Turkey

Abstract

Performance appraisal techniques are developing very fast by increasing competitiveness level of global business life. 360 degree appraisal is one of common modern technique which is differs from other technique with participation. The purpose of this study is to examine the organization level peer, supervisor’s varying reaction to 360 degree feedback method. Data were gathered from the white-collar employee’s of the Adana Chamber of Commerce where 360 degree feedback technique has been in use for one year. The result of the study indicates that there is a significant difference between employees according to gender and position. Females are more open than their male counterparts to act based on supported feedback from 360 degree feedback technique. Another result of the study indicated that managers are more ready and open to get feedback from superiors rather than non-managers.

Key words: Performance Appraisal Technique, 360 Degree Feedback, Acceptance, Acceptance of Feedback, Performance, Appraisal

1. INTRODUCTION

The basic goal of human resource management is “to increase employee’s effectiveness”. So to find a theoretical background for performance appraisal models, a path will be open to productivity aim of management. All human resource function’s main aim is to increase employee’s effectiveness which makes the performance appraisal process so important and crucial.

By following theoretical developments, acceptability problem can be placed into perception topic especially in performance appraisal theory. Once effectiveness has been aimed, it is important to do more accurate and objective appraising. To support employees with objective feedback, managers need multi-source appraising instead single-source feedback. Thus multi-source techniques become the management scene contemporaneously with increased demand for multi-source feedback.

Thus human resource experts are more closely to consider the multi-source approaches (such as customer, peer and subordinate) in performance appraisal system than only-superior based systems. Modern human resource approaches recommend getting feedbacks from different aspects of the organizations which is fundamental for the 360 degree feedback technique (Beatty, 1993). In Turkey 360 degree feedback system is getting increased attention from a number of theorists (Barutçugil, 2002; Coşkun, 2007, Fındıkçı, 2000; Savaş, 2005; Sabuncuoğlu, 2000), the basic aim of the 360 degree feedback system is to provide employees with wider feedback approaches to increase his/her performance and make the appraising process more objective.

But the development of new techniques would not be finished by introducing new techniques into the process. Beside, it is followed by “acceptability” issue of the new techniques. The concept of the acceptability is developed by Bretz, Milkovich and Read (1992) as validity and usefulness of appraising process.
2. RESEARCH SIGNIFICANCE

The significance of this current study is based on the critical importance of the acceptance. Researchers suggest that employee’s reaction to feedback is critically important whether that person will take action (attendance to training etc.) to improve his or her performance or not (Ilgen, Fischer and Taylor, 1979). Therefore acceptability or reaction to 360 degree system has more importance than the system’s itself. Unless the HRM is not set up the systems which are not accepted by the employees it is not possible to expect positive attitude and result at the workplace.

Thus this study aimed to gather interest of the HRM practitioners’ on the acceptance issue.

2.1. 360 Degree Feedback System

In recent years there has been a vast interest in 360 degree feedback system and it has become popular term both in theoretical and practical realms (Beatty and London, 1993; Geake, Farrell, and Oliver, 1998; Toweers, 1996; Kaplan and Palus; Ilgen, Fischer and Taylor, 1979; Bretz, Milkovich and Read, 1992, Dessler, 2000; Sabuncuoglu, 2000)). It is reported that almost all Fortune 500 companies are now using 360 degree feedback for development and/or appraisal (Mabey, 2001, Handy, et all, 1996; Geake et all, 1998; Toolan, 1998).

360 degree feedbacks provide to involve multiple perceptions such as supervisors, subordinates, peers, and customers to support individual development of employees. Data should obtained with this method are collected from everyone who has close working relationships with ratee is seen as an effective person to provide insight. Since multisource data involved in the process, this method is deemed as fairer, reliable, and better method than the conventional appraisal methods that only superior carried out the appraisal process (Bernardin, Dahmus, and Redmon, 1993; Milliman., Zawacki., Norman, Powel, Kirksey, 1994).

In the 360 degree feedback appraisal method, appraised employee is interrogated continuously by the multi-source means like manager, peers, internal and external customers who have close relationship with the appraised employee (Tornow, 1998). The performance tool is created by taking options of the 360 degree relations group, of which the employee is placed at the center, when determining the performance of any employee at any positions (Debare, 1997).

2.2. Acceptability Problem of 360 Degree Feedback

Despite increasing interest in the system both from theoretical and practical perspectives, little research has been offered to argue the problem of acceptability of 360 degree feedback model. Acceptability can explain whether people are willing to get feedback from multi sources or not and the extent to which they are ready to benefit from feedbacks. It is more specifically defined by Walman and Bowen as either the willingness to provide unbiased input data (in the case of raters) or to receive and utilize 360 degree feedback data.

As a concept, “acceptability” was argued by Bretz, Milkovich and Read (1992) as being increasingly important in relation to the validity and usefulness of appraisal process in general. By looking deeply into feedback theory it is clearly understood that acceptability problem is more important matter than the method itself.

Considering both alternative usages (decision making usage such as promotion or salary; and developmental usage such as training, action taken by HR department) of 360 degree feedback it is seen that the system is utilized only when it is accepted by participant employees.
Feedback research and theory suggest that an individual’s reaction to feedback is a critical determinant of whether that person will subsequently take actions to improve performance or not (Ilgen, Fisher and Taylor, 1979). Acceptability is also important to perform effective implementation of 360 degree method in the firm (Waldman and Bowen, 1998). Waldman and Bowen indicate that once participant is not accepting the system, it is not possible to get objective feedbacks from him/her about others. However it is also important to define the acceptability accurately. Waldman and Bowen (1998) assert that a better understanding of predictors of acceptability would allow organizations to perform the 360 degree feedback more precisely.

2.3. Basic Factors Influencing the Acceptability of 360 Degree Appraisal by Employees

360 degree feedback is not generally viewed as acceptable method by employees. But few studies’ results show positive attitudes about 360 degrees feedback (Tornow, 1998; Bernardin et all, 1993). Traditional appraisal methods constitute the most accepted norm for both subordinates and managers. Some of the common factors that are related to acceptability of 360 degree feedback techniques in workplaces (Ilana, 1997)

- **Open Culture**: Like TQM fundamentals, some cultures are more sensitive to accept employees as internal customers while others are not. So, 360 degree feedback system requires more participation in the feedback process to get acceptance from employees who are already in the rating process for others (Dean and Bowen, 1994).

- **Perception of Organizational Change**: During day-to-day organizational activities, cynicism often accrues with regard to new initiatives such as 360 degree feedback.

- **Usage Field of Ratings**: Evaluation can be used for both positive and negative purposes such as promotion and demotion. Especially using ratings for evaluative purposes, would damage the organizational atmosphere.

- **Provide Anonymity of Ratings**: In the traditional appraisal programs anonymity is not a problem but it becomes a problem in the 360 degree system. In this process employees may have a fear of repercussions which will damage their objectivity during appraising.

- **Type of Job Design**: In some job designs such as, the team based types, possibility of peer’s interpersonal relationship is very high. So in such job designs, acceptance would vary against 360 degree feedback.

- **Perceived Competence of Raters**: Some of organizational skills and competence have unseen characteristics. Sometimes managers may not trust the feedback of non-managers because of rater’s competency level.

3. METHOD

The purpose of this study is to examine the extent to which the reactions of the employees vary toward 360 degree appraising system. Different methods of research such as interviews, case studies and questionnaires were considered in the methodology planning stage. But questionnaire was found to be most appropriate measure to examine proposed relations.

In this study, a questionnaire was used to gather needed data. The questionnaire was distributed by HR staff of the chamber to each employee and was returned to the researcher without the name of the respondents. Thus the anonymity of the feedbacks were secured. The questionnaire used in this research
was adopted from Ozdemir’s study (2006). Cronbach Alpha (.903) for the instrument shows that the internal consistency and reliability of the items are very high.

Only two demographic variables of the study are gender and position of the respondents. There are nine questions to understand the perceptions of the employees about 360 degree feedback appraisal system.

Research questionnaire is consisted of three basic perceptual aspects of the employees about 360 degree feedback system: truthfulness and usefulness of feedback system and participant readiness to receive feedback from subordinates, peers and superiors. Thus acceptance is measured by truthfulness, usefulness and readiness to take action based on the feedbacks provided by 360 degree method.

Survey is included basically items such as:

- I believe that the feedback provided from superior, peer, subordinate is true
- I believe that the feedback provided from superior, peer, subordinate is useful for my self-development
- I am ready to take action according to feedback provided by subordinates, peer and superior.

3.1. Limitations of the Study

One limitation of the study is sample size. There are limited number of respondents since the entire number of employees are small, employed by the chamber of commerce. There are 54 of the white collar employees and only 8 of them are managers. Another limitation of the study is anonymity issue: employees show concern about disclose their views. Despite the explanation of their names would not be revealed at all.

3.2. Population and Sample

The population of the study consists of all white-collar employees of chamber, 74. The sample of the research consisted of eight managers, 14 chief, ten experts and 22 officers.

4. ANALYSIS OF RESEARCH QUESTIONS

In order to analyze the data gathered from the employees SPSS 13.0 version was used. The research has aimed to examining the way employees’ response varied about multi-source feedback in relation to gender and position. The first research question

Is there any difference between males and females concerning their acceptance of 360 degree feedback system?

One-way ANOVA method was used to examine whether there are any statistically significant difference between genders. Table 1 shows means, standard deviations and other measures of 360 degree feedback system.
Table 1. Descriptive of Statistics for 360 Degree System by Gender

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<th>Max</th>
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### FEEDBACK FROM SUPERIOR

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### FEEDBACK FROM PEERS

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Table 2 shows the ANOVA result for gender differences. As seen in the Table 2 here is a statistically significant difference between female and male responses concerning acceptance of feedback form subordinates.

In the first row of the Table 1, the mean for female perception on truthfulness of feedback from superior is approximately 1.5 and 4.1 for male. Male perceptions are far more reactive for truthfulness of feedback from superiors. (1=completely agree, 2=agree 3= No comment, 4= Disagree, 5=completely disagree).

With regard to usefulness of feedback from superiors females have a mean score of 1.7 and males have a score of 4.3. These mean scores show that females perceive the feedback from superiors positively while males approach the usefulness of feedback from superiors negatively.

Males and females mean response scores are also different concerning readiness to accept feedback from subordinates. With a mean score of 1.3 females seem to be more willing to accept feedback from subordinate and males with a mean score of 4.3 are highly hesitant to accept feedback from subordinate.

Concerning to readiness to receive feedback from superior females has a mean score of 2.5 and males mean score is 2.7. Female in this regard are still more open to receive feedback from their superiors.

But when compared in terms of mean score s of readiness to receive feedback from peers based on 360 degree feedback system, females are more positive(x̄=1.) than males (x̄=4.3).

All in all, examining of Table 1 reveal that females are more positive and willing to change their behavior than males in light of the feedback provided by 360 degree performance appraisal system. So it is obviously seen that females are more ready to change their organizational behavior according to provided feedback.

In order to see whether there is differences between males and females responses to acceptance of 360 degree feedback system are statistically significant a one-way ANOVA is conducted. Table 2 shows the result of ANOVA for the first research question which is “are there any differences between males and females concerning their acceptance of 360 degree feedback system?

Table 2. One-way ANOVA Analysis for Research Question One (N=54)

<table>
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<th>Sig.</th>
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<tr>
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<td>.034</td>
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<table>
<thead>
<tr>
<th>Feedback From Superior</th>
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**USEFULNESS**

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<th>90,339</th>
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</table>

**READINESS**

|                        | 122,867 | 1 | 122,867 | 319,993 | .000* |
Examination of Table 2 shows that significant differences between males and females in terms of their perceptions as to the truth of feedback from subordinates and from peers. Concerning feedback from superiors no significant difference is observed between males and females.

Likewise males and females perceptions differ in terms of usefulness of feedback from subordinates and from peers significantly. But no significant differences exist on usefulness of feedback from superiors between sexes.

Finally, male and female difference is also significant in terms of readiness to accept feedback from subordinates and from peers at a statistically significant level. No significant difference is seen in addition to readiness to accept feedback from superiors between males and females.

4.1. Employee Position and Acceptance of Feedback From 360 Degree System

The second research question of this study is reads “is there statistically significant difference between non managers and managers in terms of their perceptions of acceptance of feedback from 360 degree system?”

Table 3 shows the means and standard deviations of acceptance of feedback from 360 degree system for managers and non-managers. In terms of truthness of feedback from subordinates non-managers have higher scores than managers. Likewise, non-managers have higher mean scores in terms of receiving feedback from superiors and from peers. It can be said that in all three sources of accepting feedback (subordinates, peers, superiors) non-managers are more likely to be cautious than managers. That is managers when compared to non-managers seem to be more supportive of 360 degree feedback system.
In relation to usefulness of feedback, again, non-managers have higher mean scores than managers for usefulness of feedback from subordinates, superiors and peers. Overall, this finding means that managers are more opt to receiving feedback provided by 360 degree system through different sources.

Concerning readiness to receive feedback from subordinates, superiors and peers also non-managers have higher mean scores than managers. Again this can be interpreted as managers have relatively higher tendency to receive feedback from different sources than managers.

In summary, Table 3 shows that managers are reacting favorably to perceive feedback provided by 360 degree system from superiors, subordinates and peers.

<table>
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<th>Min</th>
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USEFULNESS

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<td>Managers</td>
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<td>6,4164</td>
</tr>
<tr>
<td>Non-Managers</td>
<td>32, 3,3125</td>
<td>1,34338</td>
</tr>
<tr>
<td>Total</td>
<td>54, 2,6852</td>
<td>6,4164</td>
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</table>

<table>
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<tr>
<th>Feedback From</th>
<th>Non-Managers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peers</td>
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<td>5,0556</td>
</tr>
<tr>
<td>Managers</td>
<td>32, 1,5313</td>
<td>5,0331</td>
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<tr>
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<td>5,0331</td>
</tr>
<tr>
<td>Total</td>
<td>54, 1,4630</td>
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</tr>
</tbody>
</table>
Table 4 shows the results of one-way ANOVA conducted to test differences on feedback from 360 degree system b employee positions. Statistically significant differences are observed in relation to truthness of feedback from superiors (F=88.8; p< .001). Managers and non-managers perceptions to receive feedback from subordinates and peers on the other hand are not statistically significant. Concerning readiness to receive According to table, managers of the chamber are more ready to get feedback from their superior while non managers are not. Relating two tables result it is seen that mean degree of the managers are higher than non managerial positions.

Concerning the usefulness of feedback, significant differences exist in relation to feedback from superiors and from peers at p=.05 level. But there is no significant difference between managers and non-managers concerning feedback received from subordinates.

In terms of readiness to receive feedback manager and non-manager differences are observed for feedback provided by superiors. For readiness to receive feedback from subordinates and peers there are no statistically significant differences between managers and non-managers. Result of the ANOVA analyses shows that managers are more ready to change their organizational behavior according to provided feedbacks from superior while non managers are not.

<table>
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<th>ITEMS</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig</th>
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<td></td>
<td></td>
<td></td>
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</tr>
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<td>FEEDBACK FROM SUBORDINATES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Between Groups</td>
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<td>1</td>
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<td>Total</td>
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<td>53</td>
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<td></td>
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<tr>
<td>FEEDBACK FROM SUPERIOR</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Between Groups</td>
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<td>46,670</td>
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<tr>
<td>Within Groups</td>
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<tr>
<td>Total</td>
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<td>53</td>
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<tr>
<td>FEEDBACK FROM PEERS</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Between Groups</td>
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<td>.160</td>
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<td>.455</td>
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<tr>
<td>Within Groups</td>
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<tr>
<td>Total</td>
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<tr>
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<tr>
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<td>.404</td>
<td>.185</td>
<td>.669</td>
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</table>
FROM SUBORDINATES

<table>
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<th>Between Groups</th>
<th>Within Groups</th>
<th>Total</th>
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<tbody>
<tr>
<td>FROM SUPERIOR</td>
<td>55,764</td>
<td>52</td>
<td>2,182</td>
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<tr>
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<td>52,773</td>
<td>52</td>
<td>1,015</td>
</tr>
<tr>
<td></td>
<td>108,537</td>
<td>53</td>
<td></td>
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<tr>
<td>FROM PEERS</td>
<td>1,778</td>
<td>52</td>
<td>1,015</td>
</tr>
<tr>
<td></td>
<td>17,648</td>
<td>52</td>
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</tr>
<tr>
<td></td>
<td>19,426</td>
<td>53</td>
<td></td>
</tr>
<tr>
<td>READINESS</td>
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<td>2,707</td>
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<tr>
<td>FROM SUBORDINATES</td>
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<tr>
<td></td>
<td>142,833</td>
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<td></td>
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<tr>
<td>FROM SUPERIOR</td>
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<tr>
<td></td>
<td>95,648</td>
<td>53</td>
<td></td>
</tr>
<tr>
<td>FROM PEERS</td>
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<td>.251</td>
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<tr>
<td></td>
<td>13,426</td>
<td>53</td>
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</tbody>
</table>

5. DISCUSSION

It is discovered that acceptability of multi-source feedback is an overlooked issue of the human resources management literature. An underlying aim of this empirical study is to prove that acceptability is more important than accuracy of the appraising system itself. If there is not acceptance on the part of participants feedback system would not work properly.
Gender and position of employees are used to examine the variation of employee’s acceptance of getting feedback from their superior, subordinates and peers. Like Auteri’s (1994) study in providing upward feedback process, demographic variables have some important role in acceptability perceptions. In this study acceptance is measured by truthfulness, usefulness, and readiness to change based on the provided feedback.

This study has examined 360 degree appraising system’s acceptance by focusing on the employee’s gender and position. The first research question of the study indicates that there is a statistically significant difference in relation to employee’s gender to accept feedback from subordinates and peers. This is consistent with Tsu and Bary (1986) findings. According to Tsu and Bary study female employees are more open to get feedback from their subordinates, peers and superiors. Also in feminist theory it is emphasized that women are more open to get criticize and have positive attitude about other’s feelings and perception. It also can relate to masculine work life. In the organizational life women usually underrate their efforts thus they are ready to get feedback from others and take action based on those feedback.

According to Beyer (1990, 1992) women significantly underrate their performance and recalling more task failure than had occurred. By correlating Beyer (1990, 1992) study results, we can explain why women are more ready to accept feedback from others. Sherman et al. (1997) found that females are more ready to get feedback from external sources. Finally, gender is found as an explaining factor concerning provided feedback by subordinates and peers.

The second research question concerns with the position of employees to examine acceptance of feedback. Results of the analysis indicate that there is a significant difference between managerial and non-managerial positions concerning the acceptance of feedback from superiors. Manager’s perception is significantly more positive than non-managers perception to get feedback from their superiors. According to Waldman and Bowen (1998), perceived competency of rater influences the acceptability of feedback gathered by 360 degree system. There were only eight managers who are participated in the research. So the rest 46 non manager employees do not perceive that they receive truthful and useful data gathered by 360 degree system and they are not willing to change their organizational behavior. Waldman and Bowen (1998) indicate that usage for evaluative purposes of the appraising would damage the perception of employees against the systems.

It is also influencing the proper functioning implication of the appraising system. Managers should use the result of the performance appraisal for developmental purposes (Christopher, 2001; Richard 1993). Administrative board of the Chamber of Commerce had already announced that employee’s performance appraisal results will be used for evaluation process such as promotion decision and performance bonus.

Antonioni and Park (2001) indicate that perceived competence of raters influence the acceptance of 360 degree feedback system. Result of the ANOVA showed that in the chamber non-managers perceive their superior’s appraising untruthful, useless and consequently they are not willing to take action according to feedback while manager’s acceptance is highly positive about feedbacks provided by same method. It is clear that there is manager’s positive perception and subordinate’s negative perception about accepting feedback from superiors.

This result is prompting the question of “why superiors more open to accept feedback from their superiors while their subordinate are not”. On a common sense it looks like that there should be some extra linkages explanation about the promotion policy to discuss this emerging question deeply.
Hazucha et all (1993) indicated that almost all human resource policies impact the perception of 360 degree feedback system.

6. IMPLICATIONS FOR HUMAN RESOURCE PRACTITIONERS AND FUTURE RESEARCH

Practitioners in organizations who are using or planning to use 360-degree feedback system should not ignore acceptability issue. However, the results of this study provide empirical data suggesting that upward and peer 360-degree feedback vary according to employee’s position and gender. Practitioners would be wise to consider influencing factors carefully, when they design and implement 360 degree appraisal system. If practitioners hope to benefit from theoretically known advantages of this popular appraising system they should be aware of acceptance problem (Waldman and Bowen, 1998).

Feedback is most meaningful when there is a genuine desire on both sides (employees and practitioners) for a meaningful and authentic exchange of perceptions. Walker (1995) stresses that for mutual understanding, it is essential to approach every organization uniquely so human resource service experts should be able to adapt the systems according to their organization’s characteristics.

It would be very interesting to discuss the impact of other characteristics of the chamber such as hierarchical level and structure on the acceptance of model. This might enable the researchers to offer more valuable insights about acceptability issue.

REFERENCES


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Findikçi, İ 2000, İnsan Kaynakları Yönetimi, 2nd ed, İstanbul.


Abstract

Poland has been an active participant of the world economy since the beginning of 1990s. Gradual opening of the Polish economy has resulted in the creation of strong ties between Poland and other subjects of the world economy. One should stress the importance of Poland’s participation in the World Trade Organization and its membership in the European Union. An attempt has been made in the paper to present the evolution of international trade and capital relations of Poland in the beginning of the 21st century. The value and dynamics of Polish exports and imports were studied. The geographical structure and commodity pattern of Polish foreign trade were analysed. Revealed comparative advantage was evaluated. Real investment attractiveness of the Polish economy reflected in inward FDI as well as its potential for outward FDI were presented.

Key words: Poland, exports, imports, revealed comparative advantage, inward FDI, outward FDI

1. INTRODUCTION

Transition process in Poland began in mid 1989. Since then the Polish economy and society have undergone a long way of changes. Gradual opening of the Polish economy has resulted in the creation of strong ties with other subjects of the world economy. Poland’s cooperation with some international organizations (the World Trade Organization, the Organization for Economic Cooperation and Development, the International Monetary Fund, the World Bank) as well as its membership in regional integration blocks (the Central European Free Trade Agreement from 1992 to 2004 and the European Union since May 2004) are of great importance here (Pawlas & Tendera-Właszczuk 1999). As an active subject of contemporary world economy Poland is engaged - among others - in international trade and international transfer of capital (Pawlas 2008). Both commercial and capital ties get more and more intense each and every year (Folfas 2009). An attempt has been made to analyse the intensity, dynamics, geographical structure and commodity pattern of Poland’s foreign trade from 2001 to 2012. In addition to that Poland’s engagement in FDI inflow and outflow from 2001 to 2012 was presented.

2. POLAND’S ENGAGEMENT IN INTERNATIONAL TRADE

Merchandise trade relations constitute the initial element of international cooperation. They are considered one of the crucial areas of engagement in the world economy. Poland’s foreign trade from 2001 to 2012 is presented in table 1.
As it stems from the data Poland’s exports rose from USD 36 billion in 2001 to USD 185 billion in 2012. At the same time Poland’s imports increased from USD 50 billion to USD 198.5 billion. A significant trade deficit was observed in each and every year. The biggest trade deficit of as much as USD 38 billion was noted in 2008. In 2012 trade deficit amounted to USD 13.8 billion.

Indices of exports and imports for Poland and the world are shown in table 2. Exports dynamics for Poland is usually higher than the exports dynamics for the world (years 2010 and 2012 are the only exceptions here), e.g. in 2001 world exports decreased by 1% while the Polish exports rose by 11.8%; in 2004 exports dynamics for Poland was more than seven percentage points higher than exports dynamics for the world; in 2009 world exports shrank by 14% while Poland’s exports decreased by 8%. A similar tendency can be observed on the imports side. In 2001 world imports did not change while the Polish imports noted a 3.2% rise; in 2004 world imports increased by 11.7% and the Polish imports rose by 17.3%; in 2006 imports dynamics for Poland was as high as 17% while imports dynamics for the world equalled 8% only; in 2007 world imports noted a 5% increase while imports dynamics for Poland was 10%. In 2009 imports indices for Poland and the world were the same – minus 14%. Imports dynamics in Poland was lower than in the world in 2010 and 2012 only.


A dynamic development of Poland’s exports and imports is reflected in changes of Poland’s share in world’s merchandise trade (see table 3.). In 2001 Poland’s share in world’s merchandise exports equalled 0.58%. It reached 1.00% in 2007 and in 2009 it was the highest – 1.09%. Unfortunately in 2010-2012 it was reduced to 1.02% - 1.00%. Poland’s share in world’s merchandise imports increased gradually from 0.77% in 2001 to 1.02% in 2006 and 1.17% in 2009. From 2010 to 2012, due to a bit lower dynamics of Poland’s imports, it was reduced to 1.13% and 1.07%.

<table>
<thead>
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<th></th>
</tr>
</thead>
<tbody>
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<td>0.58</td>
<td>0.63</td>
<td>0.71</td>
<td>0.81</td>
<td>0.85</td>
<td>0.91</td>
<td>1.00</td>
<td>1.06</td>
<td>1.09</td>
<td>1.02</td>
<td>1.02</td>
<td>1.00</td>
</tr>
<tr>
<td>Imports</td>
<td>0.77</td>
<td>0.82</td>
<td>0.87</td>
<td>0.94</td>
<td>0.94</td>
<td>1.02</td>
<td>1.16</td>
<td>1.26</td>
<td>1.17</td>
<td>1.13</td>
<td>1.13</td>
<td>1.07</td>
</tr>
</tbody>
</table>

Source: Own calculations.

Poland’s leading trade partners in the analysed period of time are presented in table 4. Germany is the number one trade partner in both exports and imports of Poland. In 2001 the share of the German market in Poland’s exports was really high – 34.4%. Since then, however, a gradual reduction of the importance of the German market has been observed. In 2010-2011 26% of Polish exported goods went to the German market, in 2012 – just 25%. France was the second most important export market for Polish goods from 2001 to 2010 (with the share of 5.5% - 6.9%). In 2011-2012 the United Kingdom took the second position among the most important export markets for Polish goods (6.4% - 6.8% of Poland’s exports went to the UK). Italy was Poland’s third partner in exports from 2001 to 2009 (with the share of 5.4% - 6.9%). In 2010 the third position among Poland’s partners in exports was taken by the UK (6.3%) and in 2011-2012 by the Czech Republic (6.2% - 6.3%). As far as the imports side is concerned Germany, the Russian Federation and China are the leading partner-countries for Poland. Germany took the first position from 2001 to 2012. Its share in Poland’s imports amounted to 24% in 2001 and was reduced to 21.3% in 2012. The Russian Federation is Poland’s second partner in imports (with just one exception: in 2009 the Russian Federation took the third position after China). Its share in Poland’s imports was about 8% - 9% from 2001 to 2009, more than 10% in 2010 and rose to 14% in 2012. From 2001 to 2005 Italy was Poland’s third most important partner in imports (7% - 8%) but later it was overtaken by China (Pawlas 2010). The share of China in Poland’s imports was about 9% from 2009 to 2012.
Table 4. Poland’s leading trade partners in 2001, 2005, 2010, 2011 and 2012 (shares, %)

<table>
<thead>
<tr>
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<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>1st Partner</td>
<td>Germany</td>
<td>34.4</td>
<td>Germany</td>
<td>28.2</td>
<td>Germany</td>
<td>26.2</td>
<td>Germany</td>
</tr>
<tr>
<td>2nd Partner</td>
<td>France</td>
<td>5.4</td>
<td>France</td>
<td>6.2</td>
<td>France</td>
<td>6.9</td>
<td>France</td>
</tr>
<tr>
<td>3rd Partner</td>
<td>Italy</td>
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<td>Italy</td>
<td>6.1</td>
<td>Italy</td>
<td>6.9</td>
<td>United Kingdom</td>
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<table>
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<td>Italy</td>
<td>7.1</td>
<td>Russia</td>
<td>8.5</td>
<td>China</td>
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</table>


Commodity pattern of Poland’s foreign trade constitutes the next element of the analysis. The data for the years 2005-2011 are presented in tables 5 and 6. There is a strong concentration of both exports and imports. With respect to Poland’s exports the following three sections are crucial: section XVI – Machinery and mechanical appliances, electrical and electronic equipment, section XVII – Transport equipment and section XV – Base metals and articles thereof. Machinery and mechanical appliances, electrical and electronic equipment constituted 21% of Poland’s exports in the analysed period of time. The share of transport equipment in Poland’s exports ranged from 18% to 21%. The share of base metals and articles thereof was about 11% - 13%. In addition to that three more sections are getting more and more important: section XIV – Prepared foodstuffs, section VI – Mineral products and section VII – Plastics and rubber and articles thereof. The share of prepared foodstuffs rose from 3.8% in 2005 to 5.2% in 2011. The share of mineral products increased from 5.5% to 7.45%. The share of plastics and rubber rose from 5.6% to 7.6%. One more section should be noted, namely section XX - Miscellaneous manufactured articles (furniture, toys). Its share in Poland’s exports equalled 7.7% in 2005 and was a bit reduced in the analysed period of time (to 6.3% in 2011). The above mentioned seven commodity sections constituted 74% of Poland’s exports in 2005 and as much as 78% of Poland’s exports in 2011.

The analysis of commodity pattern of Poland’s imports brought similar results. The same three sections are crucial: section XVI - Machinery and mechanical appliances, electrical engines and equipment (21% - 24%, downward tendency), section XVII - Transport equipment (11% - 13%) and section XV - Base metals and articles thereof (10% - 11.5%). Three more sections are of great importance for Poland’s imports in the beginning of the 21st century, namely: section V - Mineral products (its share rose from 11% to 13.5%), section VI - Products of the chemical industry (9.5% - 10.5%) and section VII - Plastics
and rubber and articles thereof (7% - 8%). The above mentioned six sections constituted 76% of Poland’s imports in 2005 and 74% in 2011 (Pawlas 2012).

Table 5. Commodity pattern of Polish exports from 2005 to 2011 (CN sections, %)

<table>
<thead>
<tr>
<th>CN Section</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
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<td>I</td>
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<td>3.31</td>
<td>3.09</td>
<td>3.13</td>
<td>3.42</td>
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<td>II</td>
<td>2.01</td>
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<td>1.89</td>
<td>1.84</td>
<td>2.48</td>
<td>2.11</td>
<td>2.02</td>
</tr>
<tr>
<td>III</td>
<td>0.05</td>
<td>0.06</td>
<td>0.09</td>
<td>0.14</td>
<td>0.15</td>
<td>0.14</td>
<td>0.17</td>
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<tr>
<td>IV</td>
<td>3.80</td>
<td>3.95</td>
<td>4.02</td>
<td>4.21</td>
<td>5.31</td>
<td>5.34</td>
<td>5.21</td>
</tr>
<tr>
<td>V</td>
<td>4.44</td>
<td>3.90</td>
<td>3.25</td>
<td>3.60</td>
<td>2.74</td>
<td>3.46</td>
<td>3.66</td>
</tr>
<tr>
<td>VI</td>
<td>5.50</td>
<td>5.42</td>
<td>5.65</td>
<td>6.42</td>
<td>6.66</td>
<td>7.40</td>
<td>7.44</td>
</tr>
<tr>
<td>VII</td>
<td>5.58</td>
<td>6.39</td>
<td>6.58</td>
<td>6.36</td>
<td>6.51</td>
<td>7.14</td>
<td>7.56</td>
</tr>
<tr>
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<td>0.36</td>
<td>0.24</td>
<td>0.26</td>
<td>0.24</td>
<td>0.26</td>
<td>0.31</td>
<td>0.27</td>
</tr>
<tr>
<td>IX</td>
<td>2.72</td>
<td>2.56</td>
<td>2.53</td>
<td>2.14</td>
<td>2.14</td>
<td>2.14</td>
<td>1.95</td>
</tr>
<tr>
<td>X</td>
<td>2.34</td>
<td>2.30</td>
<td>2.35</td>
<td>2.29</td>
<td>2.44</td>
<td>2.46</td>
<td>2.40</td>
</tr>
<tr>
<td>XI</td>
<td>4.32</td>
<td>3.68</td>
<td>3.36</td>
<td>3.39</td>
<td>3.69</td>
<td>3.56</td>
<td>3.41</td>
</tr>
<tr>
<td>XII</td>
<td>0.45</td>
<td>0.42</td>
<td>0.39</td>
<td>0.37</td>
<td>0.40</td>
<td>0.46</td>
<td>0.46</td>
</tr>
<tr>
<td>XIII</td>
<td>2.35</td>
<td>2.46</td>
<td>2.48</td>
<td>2.22</td>
<td>2.14</td>
<td>2.14</td>
<td>2.10</td>
</tr>
<tr>
<td>XIV</td>
<td>0.47</td>
<td>0.62</td>
<td>0.54</td>
<td>0.50</td>
<td>0.58</td>
<td>0.68</td>
<td>1.09</td>
</tr>
<tr>
<td>XV</td>
<td>11.78</td>
<td>13.01</td>
<td>13.05</td>
<td>12.82</td>
<td>10.37</td>
<td>11.58</td>
<td>12.12</td>
</tr>
<tr>
<td>XVI</td>
<td>21.08</td>
<td>21.70</td>
<td>23.05</td>
<td>21.74</td>
<td>20.66</td>
<td>21.61</td>
<td>20.61</td>
</tr>
<tr>
<td>XVII</td>
<td>18.50</td>
<td>18.76</td>
<td>18.21</td>
<td>19.28</td>
<td>20.43</td>
<td>18.41</td>
<td>18.60</td>
</tr>
<tr>
<td>XVIII</td>
<td>0.98</td>
<td>0.90</td>
<td>0.86</td>
<td>0.88</td>
<td>1.01</td>
<td>1.07</td>
<td>1.14</td>
</tr>
<tr>
<td>XIX</td>
<td>0.02</td>
<td>0.01</td>
<td>0.03</td>
<td>0.03</td>
<td>0.02</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>XX</td>
<td>7.68</td>
<td>7.17</td>
<td>6.96</td>
<td>6.53</td>
<td>6.70</td>
<td>6.42</td>
<td>6.30</td>
</tr>
<tr>
<td>XXI</td>
<td>0.01</td>
<td>0.03</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.02</td>
<td>0.02</td>
</tr>
<tr>
<td>XXII</td>
<td>2.30</td>
<td>1.32</td>
<td>1.35</td>
<td>1.87</td>
<td>1.88</td>
<td>0.05</td>
<td>0.06</td>
</tr>
<tr>
<td>Total</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
</tbody>
</table>

I – Live animals, animal products
II – Vegetable products
III – Fats and oils
IV – Prepared foodstuffs
V – Mineral products
VI – Products of the chemical industry
VII – Plastics and rubber and articles thereof
VIII – Raw hides and skins, articles thereof
IX – Leather and articles thereof
X – Footwear, headwear and articles thereof
XI – Articles of stone, ceramic products, glass
XII – Articles of base metals and articles thereof
XIII – Optical, photographic, measuring, checking instruments
XIV – Synthetic textile fibers
XV – Machinery and mechanical appliances, elect. electron. equipment
XVI – Optical, photographic, measuring, checking instruments
XVII – Transport equipment
XVIII – Metal articles
XIX – Armaments
XX – Armed forces
XXI – Armaments
XXII – Armaments

I – Live animals, animal products
II – Vegetable products
III – Fats and oils
IV – Prepared foodstuffs
V – Mineral products
VI – Products of the chemical industry
VII – Plastics and rubber and articles thereof
VIII – Raw hides and skins, articles thereof

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In order to analyse the character of Poland’s merchandise trade B.Balassa’s revealed comparative advantage (RCA) was implemented. B.Balassa formulated RCA indicator as follows:

\[ \text{RCA}_{iy} = \frac{\sum \text{Ex}_{iy}}{\sum \text{Im}_{iy}} \]

where: i – commodity section, y – trade partner, Ex – exports, Im – imports.

If the RCA indicator is bigger than one, one may assume that a country enjoys a favourable position in trade (i.e. gains comparative advantage) (Budzowski & Wydymus 1999). The results of the analysis with the application of B.Balassa’s RCA indicator are presented in table 7.

Table 6. Commodity pattern of Polish imports from 2005 to 2011 (CN sections, %)

<table>
<thead>
<tr>
<th>CN Section</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>1.58</td>
<td>1.47</td>
<td>1.53</td>
<td>1.89</td>
<td>2.57</td>
<td>2.40</td>
<td>2.31</td>
</tr>
<tr>
<td>II</td>
<td>2.02</td>
<td>1.95</td>
<td>2.18</td>
<td>2.18</td>
<td>2.22</td>
<td>2.13</td>
<td>2.19</td>
</tr>
<tr>
<td>III</td>
<td>0.36</td>
<td>0.39</td>
<td>0.35</td>
<td>0.41</td>
<td>0.40</td>
<td>0.40</td>
<td>0.50</td>
</tr>
<tr>
<td>IV</td>
<td>2.90</td>
<td>2.81</td>
<td>2.88</td>
<td>2.84</td>
<td>3.65</td>
<td>3.54</td>
<td>3.50</td>
</tr>
<tr>
<td>VI</td>
<td>10.57</td>
<td>9.91</td>
<td>9.35</td>
<td>9.55</td>
<td>10.41</td>
<td>10.52</td>
<td>10.04</td>
</tr>
<tr>
<td>VII</td>
<td>8.06</td>
<td>7.97</td>
<td>7.90</td>
<td>7.16</td>
<td>7.52</td>
<td>7.94</td>
<td>8.40</td>
</tr>
<tr>
<td>VIII</td>
<td>0.35</td>
<td>0.33</td>
<td>0.32</td>
<td>0.32</td>
<td>0.31</td>
<td>0.32</td>
<td>0.33</td>
</tr>
<tr>
<td>IX</td>
<td>0.89</td>
<td>0.79</td>
<td>0.90</td>
<td>0.82</td>
<td>0.72</td>
<td>0.68</td>
<td>0.73</td>
</tr>
<tr>
<td>X</td>
<td>1.93</td>
<td>1.72</td>
<td>1.62</td>
<td>1.54</td>
<td>1.76</td>
<td>1.76</td>
<td>1.70</td>
</tr>
<tr>
<td>XI</td>
<td>5.00</td>
<td>4.55</td>
<td>4.19</td>
<td>4.04</td>
<td>4.85</td>
<td>4.57</td>
<td>4.40</td>
</tr>
<tr>
<td>XII</td>
<td>0.55</td>
<td>0.51</td>
<td>0.52</td>
<td>0.55</td>
<td>0.66</td>
<td>0.68</td>
<td>0.68</td>
</tr>
</tbody>
</table>
In the analysed period of time (from 2005 to 2011) Poland achieved comparative advantage in trade in the following commodity sections: I – Live animals, animal products, IV – Prepared foodstuffs, IX – Wood and articles of wood, X – Pulp of wood, paper, paperboard and articles thereof, XIII - Articles of stone, ceramic products, glass, XIV - Pearls, precious stones and metals, articles thereof, XV - Base metals and articles thereof, XVII - Transport equipment, XX - Miscellaneous manufactured articles (furniture, toys) and XXI - works of art., collectors pieces and antiques. Unfortunately most mentioned sections are labour intensive and/or raw materials intensive ones.

Table 7. Revealed comparative advantage of Poland on the world market

<table>
<thead>
<tr>
<th>CN Section</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>2.06</td>
<td>2.25</td>
<td>2.02</td>
<td>1.65</td>
<td>1.33</td>
<td>1.46</td>
<td>1.47</td>
</tr>
<tr>
<td>II</td>
<td>1.00</td>
<td>0.93</td>
<td>0.87</td>
<td>0.84</td>
<td>1.11</td>
<td>0.99</td>
<td>0.92</td>
</tr>
<tr>
<td>III</td>
<td>0.15</td>
<td>0.16</td>
<td>0.26</td>
<td>0.34</td>
<td>0.37</td>
<td>0.36</td>
<td>0.33</td>
</tr>
<tr>
<td>IV</td>
<td>1.31</td>
<td>1.41</td>
<td>1.40</td>
<td>1.48</td>
<td>1.45</td>
<td>1.51</td>
<td>1.49</td>
</tr>
<tr>
<td>V</td>
<td>0.38</td>
<td>0.37</td>
<td>0.33</td>
<td>0.31</td>
<td>0.29</td>
<td>0.30</td>
<td>0.26</td>
</tr>
<tr>
<td>VI</td>
<td>0.52</td>
<td>0.55</td>
<td>0.60</td>
<td>0.67</td>
<td>0.64</td>
<td>0.70</td>
<td>0.74</td>
</tr>
<tr>
<td>VII</td>
<td>0.69</td>
<td>0.80</td>
<td>0.83</td>
<td>0.89</td>
<td>0.87</td>
<td>0.90</td>
<td>0.90</td>
</tr>
<tr>
<td>VIII</td>
<td>1.04</td>
<td>0.73</td>
<td>0.81</td>
<td>0.76</td>
<td>0.84</td>
<td>0.96</td>
<td>0.84</td>
</tr>
<tr>
<td>IX</td>
<td>3.07</td>
<td>3.24</td>
<td>2.80</td>
<td>2.62</td>
<td>2.98</td>
<td>3.13</td>
<td>2.66</td>
</tr>
<tr>
<td>X</td>
<td>1.21</td>
<td>1.33</td>
<td>1.45</td>
<td>1.49</td>
<td>1.39</td>
<td>1.40</td>
<td>1.42</td>
</tr>
<tr>
<td>XI</td>
<td>0.87</td>
<td>0.81</td>
<td>0.80</td>
<td>0.84</td>
<td>0.76</td>
<td>0.78</td>
<td>0.77</td>
</tr>
<tr>
<td>XII</td>
<td>0.83</td>
<td>0.83</td>
<td>0.75</td>
<td>0.67</td>
<td>0.60</td>
<td>0.67</td>
<td>0.67</td>
</tr>
<tr>
<td>XIII</td>
<td>1.61</td>
<td>1.72</td>
<td>1.59</td>
<td>1.52</td>
<td>1.53</td>
<td>1.58</td>
<td>1.65</td>
</tr>
</tbody>
</table>
3. POLAND AND FOREIGN DIRECT INVESTMENT

International transfer of capital in the form of foreign direct investment is considered an important element of international economic relations in contemporary world economy. Investment attractiveness can be defined as an ability to convince investors to choose the country/region as a destination for their investment. A high level of real investment attractiveness of a country results in inward FDI. On the other hand, however, if you want to build a sustainable competitiveness of a national economy you should promote not only its attractiveness for FDI but also aggressiveness on international markets which can be reflected in outward FDI.

The most important features of the Polish economy as a location for FDI embrace: favourable geographical location, big internal market of more than 38 million consumers, comparatively cheap labour, highly educated specialists. Table 8 presents inward FDI flows to Poland from 2001 to 2012. From 2001 to 2003 inward FDI flow amounted to USD 4-6 billion. Poland’s accession to the European Union in 2004 gave an additional positive stimulus for inward FDI flows. In 2004 inward FDI flow was really high – USD 12.9 billion. In 2005 the situation was a bit worse – inward FDI flow of USD 10.3 billion was noted. The next two years brought a significant increase in inward FDI flow to Poland: USD 19.6 billion in 2006 and USD 23.6 billion in 2007. Despite a comparatively good performance of the Polish economy during the global crisis and instability 2008+ Poland experienced a decline in FDI inflow from 2008 to 2010 (Zimny 2012). Inward FDI flows were reduced to USD13-15 billion a year. In 2011 the situation got much better: FDI inflow rose to USD 18.9 billion. Unfortunately the data for the year 2012 are extremely and surprisingly bad: inward FDI flow to Poland amounted to USD 3.6 billion only. Poland’s share in world’s FDI inflow was the highest in 2006 – 1.32%.

Table 8. Poland as a location of FDI: inward FDI flows from 2001 to 2012

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Inward FDI flow (USD billion)</td>
<td>5.7</td>
<td>4.1</td>
<td>4.6</td>
<td>12.9</td>
<td>10.3</td>
<td>19.6</td>
<td>23.6</td>
<td>14.9</td>
<td>12.9</td>
<td>13.9</td>
<td>18.9</td>
<td>3.6</td>
</tr>
<tr>
<td>Share in world inward FDI flow (%)</td>
<td>0.68</td>
<td>0.66</td>
<td>0.76</td>
<td>1.75</td>
<td>1.04</td>
<td>1.32</td>
<td>1.18</td>
<td>0.82</td>
<td>1.06</td>
<td>0.99</td>
<td>1.15</td>
<td>0.25</td>
</tr>
</tbody>
</table>

The activity of the Polish entities on international markets in the form of outward FDI has not had a long history. Outward FDI flows from Poland to the world from 2001 to 2012 are presented in table 9. The scale of outward FDI is just a small fraction of inward FDI (Zimny 2013). In 2002-2003 the Polish entities invested only USD 0.2-0.3 billion in the form of FDI in the world market. In 2004 it was nearly USD 1.0 billion. The year 2006 was the best for outward FDI flows from Poland – almost USD 9.0 billion invested abroad. The years 2007-2009 showed a decline in outward FDI flows to the level of USD 4.4-4.7 billion. In 2010-2011 the situation was a bit better: the Polish entities invested more that USD7 billion in the form of FDI abroad. The share of Poland in world’s FDI outflow was the highest in 2006 – 0.62%.

Table 9. Poland as an investor on the world market: outward FDI flows from 2001 to 2012 (USD million)

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Outward FDI flow (USD million)</td>
<td>-89</td>
<td>229</td>
<td>305</td>
<td>900</td>
<td>3437</td>
<td>8883</td>
<td>5405</td>
<td>4414</td>
<td>4699</td>
<td>7226</td>
<td>7211</td>
<td>-894</td>
</tr>
<tr>
<td>Share in world outward FDI flow (%)</td>
<td>n.a.</td>
<td>0.04</td>
<td>0.05</td>
<td>0.10</td>
<td>0.38</td>
<td>0.62</td>
<td>0.24</td>
<td>0.22</td>
<td>0.41</td>
<td>0.48</td>
<td>0.43</td>
<td>n.a.</td>
</tr>
</tbody>
</table>


Inward FDI stock and outward FDI stock for the period 2000-2012 are presented in table 10. Inward FDI stock in Poland amounted to USD 34.0 billion in 2000. In 2010 it reached USD 215.6 billion. Unfortunately the year 2011 marked a reduction in inward FDI stock to USD198 billion. In 2012 the situation got better; inward FDI stock in Poland reached USD 230.0 billion. Outward FDI stock equalled only USD 1.00 billion in 2000 (i.e. 2.9% of inward FDI stock in Poland in 2000). It’s worth mentioning that in 1987 total amount of outward FDI stock from Poland was as low as USD 50 million. In 1992 it amounted to USD 100 million. The 21st century brought a significant increase of outward FDI activity of the Polish entities. In 2012 outward FDI stock from Poland reached USD 57.5 billion (i.e. almost 25% of inward FDI stock in Poland).

Table 10. Poland: Inward and Outward FDI stock from 2000 to 2012 (USD billion)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Inward FDI Stock</td>
<td>34.0</td>
<td>41.2</td>
<td>48.3</td>
<td>57.8</td>
<td>86.7</td>
<td>90.9</td>
<td>125.8</td>
<td>178.4</td>
<td>164.3</td>
<td>185.2</td>
<td>215.6</td>
<td>198.2</td>
<td>230.6</td>
</tr>
<tr>
<td>Outward FDI Stock</td>
<td>1.0</td>
<td>1.2</td>
<td>1.5</td>
<td>2.1</td>
<td>3.4</td>
<td>6.3</td>
<td>14.4</td>
<td>21.3</td>
<td>24.1</td>
<td>29.3</td>
<td>44.4</td>
<td>49.7</td>
<td>57.5</td>
</tr>
</tbody>
</table>

The geographical pattern of inward FDI stock in Poland in 2000 and 2010 is presented in table 9. The overwhelming majority of inward FDI in Poland comes from developed economies (97.9% in 2000 and 98.5% in 2010), mostly from Europe (88.0% and 91.5% respectively). EU-15 economies’ investment represented 79.2-82.5% of total inward FDI stock in Poland. The Netherlands, Germany and France form the top three sources of inward FDI stock in Poland. The share of the Netherlands was as high as 24.6% in 2000 and 17.8% in 2010. Germany’s share equalled 19% in 2000 and 13.5% in 2010. Investment from France accounted for 12.4% of total inward FDI stock in Poland both in 2000 and 2010. FDI from the USA represented 9.6% of total inward FDI stock in Poland in 2000 and 6.3% in 2010.

What are the crucial destinations of outward FDI from Poland? The answer can be found in table 10. The Polish investors are mostly attracted by: Luxembourg, Switzerland and the Netherlands. One can also find the Polish investment projects in Sweden, Germany, the United Kingdom, the Czech Republic, Lithuania, Belgium, Ukraine, the Russian Federation, the USA, Norway.

<table>
<thead>
<tr>
<th>Economy/Region</th>
<th>2000</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>World</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Developed economies</td>
<td>97.9</td>
<td>98.5</td>
</tr>
<tr>
<td>Europe</td>
<td>88.0</td>
<td>91.5</td>
</tr>
<tr>
<td>EU-15</td>
<td>79.2</td>
<td>82.6</td>
</tr>
<tr>
<td>Netherlands</td>
<td>24.6</td>
<td>17.8</td>
</tr>
<tr>
<td>Germany</td>
<td>19.0</td>
<td>13.5</td>
</tr>
<tr>
<td>France</td>
<td>12.3</td>
<td>12.4</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>n.a.</td>
<td>8.7</td>
</tr>
<tr>
<td>North America</td>
<td>9.6</td>
<td>6.3</td>
</tr>
<tr>
<td>USA</td>
<td>9.3</td>
<td>6.2</td>
</tr>
<tr>
<td>Other developed countries</td>
<td>0.6</td>
<td>0.8</td>
</tr>
<tr>
<td>Japan</td>
<td>0.3</td>
<td>0.7</td>
</tr>
<tr>
<td>Developing economies</td>
<td>2.0</td>
<td>1.4</td>
</tr>
<tr>
<td>Rep. of Korea</td>
<td>1.5</td>
<td>0.4</td>
</tr>
<tr>
<td>Hong Kong, China</td>
<td>n.a.</td>
<td>0.2</td>
</tr>
<tr>
<td>China</td>
<td>0.0</td>
<td>0.2</td>
</tr>
</tbody>
</table>

Table 10. Top 10 destinations of Poland’s outward FDI from 2005 to 2010

<table>
<thead>
<tr>
<th>Position</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>Switzerland</td>
<td>Luxembourg</td>
<td>Switzerland</td>
<td>Switzerland</td>
<td>Luxembourg</td>
<td>Luxembourg</td>
</tr>
<tr>
<td>2nd</td>
<td>Czech Rep.</td>
<td>Lithuania</td>
<td>Luxembourg</td>
<td>Netherlands</td>
<td>Belgium</td>
<td>Switzerland</td>
</tr>
<tr>
<td>3rd</td>
<td>Sweden</td>
<td>United Kingdom</td>
<td>Czech Rep.</td>
<td>Luxembourg</td>
<td>Switzerland</td>
<td>New Caledonia</td>
</tr>
<tr>
<td>4th</td>
<td>Netherlands</td>
<td>Netherlands</td>
<td>Lithuania</td>
<td>United Kingdom</td>
<td>Norway</td>
<td>Belgium</td>
</tr>
<tr>
<td>5th</td>
<td>United Kingdom</td>
<td>Switzerland</td>
<td>Norway</td>
<td>Cyprus</td>
<td>Germany</td>
<td>Cyprus</td>
</tr>
<tr>
<td>6th</td>
<td>Ukraine</td>
<td>Ukrainian</td>
<td>Russian Fed</td>
<td>Germany</td>
<td>Lithuania</td>
<td>Germany</td>
</tr>
<tr>
<td>7th</td>
<td>Russian Fed.</td>
<td>USA</td>
<td>Netherlands</td>
<td>Romania</td>
<td>Czech Rep.</td>
<td>USA</td>
</tr>
<tr>
<td>9th</td>
<td>USA</td>
<td>Germany</td>
<td>Germany</td>
<td>Norway</td>
<td>Russian Fed.</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>10th</td>
<td>Luxembourg</td>
<td>Hungary</td>
<td>Hungary</td>
<td>USA</td>
<td>Ukraine</td>
<td>Lithuania</td>
</tr>
</tbody>
</table>


4. CONCLUSION

Poland as an active subject of the world economy is engaged in both international trade and international transfer of capital. The first decade of the 21st century brought further opening of the Polish economy. The accession to the European Union in May 2004 was crucial here. It was reflected in a significant rise in the intensity of Poland’s foreign merchandise trade and inward and outward FDI flow. Poland’s trade cooperation concentrates on the market of the European Union and Germany is the most important trade partner of Poland in both exports and imports. Exports to Germany accounted for 34% of Poland’s exports in 2001 and 24% in 2012. France, the United Kingdom, Italy and the Czech Republic are also important export markets for Poland. Imports from Germany accounted for 24% of Poland’s imports in 2001 and 21% in 2012. Among the leading partners in merchandise imports one should also list China and Russia. A high concentration of both merchandise exports and imports was observed, with three commodity sections prevailing: XVI - Machinery and mechanical appliances, electrical and electronic equipment, XVII - Transport equipment and XV - Base metals and articles thereof. In the analysed period of time Poland gained revealed comparative advantage mostly with respect to labour intensive and/or raw materials intensive goods; the following sections should be mentioned here: I - Live animals, animal products, IV – Prepared foodstuffs, IX – Wood and articles of wood, X – Pulp of wood, paper, paperboard and articles thereof, XIII - Articles of stone, ceramic products, glass, XV - Base metals and articles thereof, XVII - Transport equipment, XX - Miscellaneous manufactured articles (furniture, toys).

Poland is considered an attractive location for FDI. In 2012 inward FDI stock in Poland amounted to USD 230.6 billion (in 2001 it was just USD 34.0 billion). The EU countries account for 82.5% of inward FDI stock in Poland. The Netherlands should be seen as the number one investor in Poland (17.6% of inward FDI stock in 2010). The group of four leading investors embraces: the Netherlands, Germany,
France and Luxembourg. FDI from the above mentioned countries accounts for more than 52% of total inward FDI stock in Poland.

In 2001 outward FDI stock from Poland amounted to USD 1.0 billion. Since 2005 FDI outflow has become much more intense. In 2012 outward FDI stock equalled USD 57.0 billion. The investment activity of the Polish entities focuses on European markets mostly.

The Polish economy avoided the recession in 2009 and seemed to be comparatively stable in the period of global economic instability 2008+. The prolonging instability of the global market, however, may adversely affect the Polish economy. Further studies and analysis concerning the engagement of Poland in international trade and international transfer of capital must be undertaken.

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APPLIED PHARMACOECONOMICS – METHODOLOGY, STRUCTURING AND CONDUCTING OF PHARMACOECONOMICAL STUDIES

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Abstract

The applied pharmacoeconomics is a result of the increased application of pharmacoeconomics methods in the real world to assess cost-benefit balance of drug therapy and treatment approaches. Till now, this has been the missing piece of the pharmacoeconomics puzzle and the missing link that pulls together all the concepts into a “user-friendly” discipline.

The most popular application of pharmacoeconomics is to support decision-making and to help decision-makers to raise a better, more informed, and more complete decisions regarding pharmaceuticals. The complete regulatory, clinical and pharmacy actions should assess the three major primary outcomes: Clinical, Economic and Humanistic whenever possible.

It can be concluded, that applied pharmacoeconomics was the “missing link” in healthcare and hospital management and public funds spending for pharmaceuticals. The economic principles in pharmacy and their methods can be successfully applied in the “real world” to enhance decision-making through above 12 steps process for conducting a local pharmacoeconomic evaluation.

Key words: pharmacoeconomics, study, methodology, structuring, conducting

1. INTRODUCTION

The applied pharmacoeconomics is a result of the increased application of pharmacoeconomics methods in the real world to assess cost-benefit balance of drug therapy and treatment approaches. Till now, this has been the missing piece of the pharmacoeconomics puzzle and the missing link that pulls together all the concepts into a “user-friendly” discipline. Researchers have spent a lot of time developing the theory, methods and defining the principles to alleviate the burden of scarce resources by improving the allocative efficiency of health care financing (Badrogi 2010). However not so much on how can take these principles, methods and theories to work for us in the real world but how can be they applied to the daily practice of pharmacy, drug regulation, pricing and reimbursement. However, regulators and customers are asking for pharmacoeconomic data and manufacturers should be actively responsive (Pandey 2003).

Sanchez (1997) defines applied (practical) pharmacoeconomics as “Putting pharmacoeconomic principles, methods and theories into practice, to quantify the “value” of medicinal products and healthcare services utilized in “real-world” environments”.

The most popular application of pharmacoeconomics is to support decision-making and to help decision-makers to raise a better, more informed, and more complete decisions regarding pharmaceuticals. The complete regulatory, clinical and pharmacy actions should assess the three major primary outcomes - Echo Model: Clinical, Economic and Humanistic whenever possible (Kozma et al. 1993).
Traditionally, most clinical decisions have been based solely on the clinical outcomes associated with a product or service (clinical outcomes are the medical events, that occur as a result of a disease or treatment). A clinical decision maker would choose the program or treatment alternative with the highest net benefit or the greatest benefit-to-cost (B/C) ratio (Freund & Dittus 1992).

Over the past 10-15 years, it has become very in-vogue to assess the economic outcomes associated with a product or service (economic outcomes are the direct, indirect and intangible costs associated with a disease and its treatment) (Shtereva 2010).

Most recently, the trend is to bring the patient back into this decision-making equation and assess the humanistic outcomes (humanistic outcomes are the impact of disease on patient functioning and QoL).

Pharmacoeconomics provides us with the means of quantifying these outcomes and the tools to assess these outcomes to make a better, more complete decision (Greenberg et al. 1999).

There are 3 main strategies for putting pharmacoeconomical theory into practice:

– Interpret, criticize, and use results from studies published in the literature.
– Utilize economic modeling.
– Conduct a local pharmacoeconomical evaluation.

The main questions which have to be answered before consider and selecting an application strategy are:

- What is the pharmacoeconomic question being asked?
- What is the perspective and the results will be used for?
- What is the timeframe for the decision?
- What are the resources and data sources available?
- What is the impact of the decision on costs and quality of care?

2. ADVANTAGES

The literature can be a rich source of information when used appropriately. There are many advantages associated with the literature as pharmacoeconomic data source. If any published studies exist (relevant to your setting and conducted rigorously) then this strategy can provide data quickly and inexpensively. Most often, studies that are published in reputable journals have been peer-reviewed (i.e. other experts in the field reviewed the paper and determined that the methodology employed and study contents are rigorous and potentially relevant for that journal’s readers.). Another advantage is that if more than one study exists; addressing your specific topic of interest, then a variety of results can be examined. This may give you increased confidence in the findings. Finally, quite often studies published in peer-reviewed journals are reports of randomized controlled trials. These are usually large scale studies that employ rigorous study methods. These trials are usually powered to detect statistically significant differences, thus lending credibility to the findings. The first disadvantage of this strategy is that data published may have been generated from an RCT. While, adequate sample sizes are ensured, pharmacoeconomical data collected in this manner can be protocol driven (collected under “ideal” and “controlled” conditions) and may not be reflective of using a drug under “real-world” conditions. Also, results reported in these studies can be difficult to generalize to other practice settings due to deviations from the study protocol and differences in practice patterns, patient populations, and drug acquisition.
costs. The eagerness of many healthcare professionals to conduct pharmacoeconomic evaluations has at times outpaced the rigor by which many of these have been conducted. Thus, wide variations in quality and rigor of studies published, as well as rampant misuse of pharmacoeconomic terms has been well documented in the medical literature sources.

When the literature is not sufficient and perhaps you need not conduct a prospective study, modeling the impact of a medicinal product or pharmacy service can be useful. Economic modeling often employs decision analysis and can be relatively inexpensive to prepare. Use of models can provide support for various decisions, especially those which are time-contingent. Models can use data from various sources available within (internal) and from outside (external) a specific hospital and generate results that are specific. Economic modeling can be used to bridge the gap between efficacy and effectiveness. Further, data collection is unobtrusive.

3. DISADVANTAGES
Disadvantages include the potential for bias (researcher and others). Models are built using some assumptions so the results are dependent on these assumptions. For this reason they can be controversial and there may be a reluctance of decision makers to accept findings at face value. Keys to successful models are reasonable and defendable assumptions and transparency of model.

4. CONDUCTING LOCAL STUDY
When there is not enough info in the literature or modeling is not appropriate, we may be challenged to conduct our own local pharmacoeconomic evaluation. However, this decision should not be made lightly. Again, many advantages and disadvantages associated with this application strategy exist. Advantages include the flexibility to decide what is compared and in which patient populations. The results will be specific to local organization and more reflective of “usual care” or effectiveness. Also, you can incorporate data from multiple sources available within and outside a healthcare institution and these studies are generally less expensive than RCT’s. However, there is still some expense to this strategy as compared to the previous two in terms of time and money. In the real world, it can be difficult to randomize subjects and also many of these studies are plagued with small sample sizes making it hard to detect statistically significant differences. Lastly, it can be difficult to generalize results to other institutions that you have to choose your targets wisely. Such a strategy for decisions will have potential for significant impact on costs and quality of care.

5. PROCESS FOR CONDUCTING A LOCAL PHARMACOECONOMIC EVALUATION

Step 1 – Define the pharmacoeconomical problem and objective.

The problem must be clearly and concisely defined, as well as measurable. A well-defined problem is half-solved.

Step 2 – Create a cross-functional team.

Create this team to provide assistance with project and early “buy-in” by target individuals and groups. This team should be multidisciplinary and include professionals who may be impacted by study results.

Step 3 – Determine the study perspective.
This is very important as the results of your study are highly dependent on the perspective taken. Various perspectives include patient, institution, payer (insurer) or society.

**Step 4** – Determine the comparators and outcomes.

Determine the possible treatment alternatives being compared and their relevant outcomes to be measured.

**Step 5** – Select the appropriate pharmacoeconomical method for analysis.

Once you have identified the treatment alternatives and outcomes being compared (in step 4) then you can select the appropriate pharmacoeconomic method (CMA, CBA, CEA, CUA).

**Step 6** – Place a monetary value on outcomes.

This may need to include more than just acquisition drug costs and include various other costs such as supply costs, laboratory costs, personnel costs, etc.

Table 1. Optional pharmacoeconomical data sources for local assessment

<table>
<thead>
<tr>
<th>Source</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCT</td>
<td>Measure efficacy</td>
<td>Do not reflect “usual care”</td>
</tr>
<tr>
<td></td>
<td>Well controlled</td>
<td>Results may be difficult to generalize</td>
</tr>
<tr>
<td></td>
<td>Powered to detect statistically significant differences</td>
<td>Not usually comparative</td>
</tr>
<tr>
<td></td>
<td>Offer sufficient sample size</td>
<td>Not usually powered to detect QoL or economic differences</td>
</tr>
<tr>
<td></td>
<td>Collect prospective data</td>
<td>Time-consuming &amp; expensive</td>
</tr>
<tr>
<td>Database studies</td>
<td>Have large sample size potential</td>
<td>Differ in quality of databases</td>
</tr>
<tr>
<td></td>
<td>Can provide data quickly</td>
<td>Use on inconsistent coding</td>
</tr>
<tr>
<td></td>
<td>Are reflective of “usual care”</td>
<td></td>
</tr>
<tr>
<td>Expert opinions</td>
<td>Are inexpensive</td>
<td>Have potential for bias</td>
</tr>
<tr>
<td></td>
<td>Can provide missing data quickly</td>
<td>Are controversial</td>
</tr>
<tr>
<td></td>
<td>Are reflective of usual care</td>
<td>Potential for large variations</td>
</tr>
<tr>
<td></td>
<td>Can adjust to protocol-driven resource use</td>
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</table>
those outcomes occurring. Using “averaging” all of these variables can be reduced into a ratio for ease of comparison.

**Step 10** – Perform discounting and/or sensitivity analysis.

For example, costs and consequences that occur in the future must be discounted back to their present value. Sensitivity analysis tests the robustness of your study results by varying sensitive variables over a range of plausible values.

**Step 11** – Presentation of results.

Results should be presented to the appropriate groups using appropriate way and medium.

**Step 12** – Document “value” through follow-up.

Implement results, create policy, and educate other healthcare professionals using a variety of communication strategies and collect follow-up data.

In conclusion it can be said, that applied pharmacoeconomics was the “missing link” between healthcare and hospital management and public funds spending money for pharmaceuticals. The economic principles in pharmacy and their methods can be successfully applied in the “real world” to enhance decision-making through the 12 steps process shown above, for conducting a local pharmacoeconomic evaluation.

Application of pharmacoeconomics to the “real world” is a new dimension, challenge and opportunity for pharmacists.

The figure presents the process of incorporation of pharmacoeconomic evaluation in healthcare decision making on both local and higher levels.

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6. **APPLIED PHARMACOECONOMICS – BULGARIAN OVERVIEW**

In Bulgaria pharmacoeconomic evaluation is required for the purpose of reimbursement to determine the status of fully or partly paid pharmaceuticals from the Positive Drug List. At the beginning of its establishment in the year 2000 National Health Insurance Fund first began compiling lists of fully or partly paid medicines for outpatient therapy. Manufacturers are required to provide economic and/or pharmacoeconomic evaluation of the medicinal products. In economic and/or pharmacoeconomic study, consistent with the available data and the organization of drug supply in the country has developed a methodical approach which is consistent with the views of the NHIF and can be followed by manufacturers and health authorities in Bulgaria. The main requirement that must be observed is that the assessment is not only for a given product but also for the country registered major competing medicines. The necessary data can be divided into two types – economic and pharmacoeconomic (Petrova & Getov 2000).

The main objective of the economic evaluation is to calculate the direct costs associated with drug supply and administration, market share, distribution network and pricing characteristics. Very important aspect is also to assess the the risk of additional costs associated with adverse drug reactions and the factors affecting them (Stoyanova et al. 2011).

The main purpose of pharmacoeconomic evaluation is to compare the costs associated with the implementation of the medicine and its competitors, and to compare them with the therapeutic results and price characteristics, based on preliminary data collected from official sources and published studies and literature (Drummond et al. 2005).
In conducting the analysis is first carried out an economic assessment, and based on its estimated costs are compared with the evidence of the therapeutic results in the main product, the object of analysis and related or similar products (Phillips 2005).

![Diagram of pharmacoeconomics evaluation]

The regulatory practice in Bulgaria includes also requirements to create Positive Drug List (PDL). In 2003, two changes to the Health Insurance Act and Drug Act was awarded the Council of Ministers to form a committee to establish a positive list of medicines that would be the basis for the subsequent preparation of lists of all other drugs paid by public funds.

With Decree 81/2003 of the Council of Ministers were adopted criteria, terms and conditions for inclusion of medicines in the positive list. Medicinal products are divided into three groups:

- Group A – new drugs without an alternative in clinical practice (with a new mechanism of action, a new ATC code):
  
  The results showed
  worst efficacy and safety
  
  DISMISAL

  If it is less expensive compared the available treatment
  
  CHOOSE IT!!!

- Group B – new drugs with an alternative in clinical practice (with a new mechanism of action, a new ATC code):
  
  Evaluation of
  efficacy and safety
  
  The results showed
  same or similar efficacy and safety

  There is need to perform CMA pharmacoeconomic analysis

  If it is more expensive compared the available treatment

  There is need to perform CEA, CUA or CBA pharmacoeconomic analysis

- Group C – new drugs with the same clinical efficacy and safety compared with the available treatment:
  
  The results showed
  better efficacy and safety

  There is need to perform CMA pharmacoeconomic analysis

  If it is less expensive compared the available treatment

  CHOOSE IT!!!

  If it is more expensive compared the available treatment

  DISMISAL

Fig.1. Process of conducting pharmacoeconomics evaluation
- Group B – new drugs with an alternative drug in clinical practice in Bulgaria and pharmacotherapeutic benefits (similar mechanism of action but with different pharmacokinetic parameters, no significant drug-drug interactions and contraindications for use of the product according to instructions regimen, simplified dosing, etc.);

- Group C– drugs with an alternative drug in clinical practice.

According to the selection criteria within a pharmacological ATC group includes drugs for which there is sufficient evidence of benefits in terms of:

- Effectiveness and safety as a result of randomized controlled trials of the product, and have important evidence from clinical trials in Bulgaria, according to the rules of Good Clinical Practice and local regulations;

- Indicators "of potential risks/anticipated therapeutic and/or economic benefit" compared to comparable medicine, founded by pharmacoeconomic evaluation.

The application, which manufacturers or MAHs have to submit to the Committee on the positive drug list include updated pharmaco economical data for Group A and B according to the following methodology.

1. The First part of the assessment includes tabular data published in the scientific literature, clinical trials and pharmaco economic evaluations of product applicant;

2. Part Two presents the estimated costs of treatment with the applicant product standard treatment course for one and 100 patients for one year period;

3. Part Three includes a comparative analysis of the cost of treatment with the applicant product and competitive alternatives;

4. Part Four includes free-form evidence presented for possible long-term cost savings.

Fig.2. Procedure to create PDL – three step process from 2011 (current state-of-art).

We will point out steps 2&3 as example of local applied pharmaco economics in the country.

The PDL includes medicinal products which meet the following conditions:
A. Have marketing authorization in accordance with the Drug Act;
B. the SPC specifies indications for treatment, prevention or diagnosis of the diseases reimbursed under the health insurance system;
C. The INN of the medicinal product or the combination is reimbursed for the same diseases or indications by public funds in at least five of the countries: Romania, France, Estonia, Greece, Slovakia, Lithuania, Portugal, Spain, Belgium, Czech Republic, Poland, Latvia, Hungary, Italy, Finland, Denmark, Slovenia;
D. The products are in pharmaceutical and dosage forms with regimen and methods of administration appropriate for the treatment of the following diseases:
   - which are reimbursed under the terms of the Health Insurance Act;
   - paid through the budgets of the medical facilities, through the budget of the state and/or municipal participation;
   - HIV, infectious diseases, diseases out of the scope of the Health Insurance Act, vaccines for mandatory immunization or re-immunization, vaccines for special indication and in extraordinary circumstances, specific sera and immunoglobulins, etc.;
   - specified in the regulation of the Health Law;

**E. a special complex assessment has been performed.**

This special complex assessment for the purpose to include medicinal product in PDL has a set of standard assessment criteria:

1. Availability or lack of a medicinal alternative for treatment of the disease for which the medicinal product is intended;
2. Criteria for **efficacy and therapeutic effectiveness**:
   a) assessment of the therapeutic benefits from the medicinal product;
   b) extension of life expectancy;
   d) quality of life improvement;
   e) additional therapeutic benefits;
   f) decreasing the complications from the core disease;
   g) patient comfort;
   h) effectiveness of the medicinal product related to the specific pharmaceutical form and route of administration;
3. Criteria for safety:
   a) frequency of adverse reactions;
   b) severity of the adverse reactions;
   c) frequency of cancellation of the treatment because of adverse reactions;
   d) necessity for additional prophylactic or therapeutic measures to prevent ADRs;
4. Pharmacoeconomic indicators:
a) cost of the therapy with the medicinal product;
b) comparison of the therapy cost with the available alternatives;
c) cost/effect ratio;
d) economic evaluation of the additional benefits;
e) analysis of the impact on the budget on the basis of the expected number of patients.

Table 2. Pharmacoeconomical assessment table for PDL

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Score</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Pharmacoeconomical indicators</td>
<td>40 points</td>
<td>Costs for the therapy are lower then costs for the current therapy – 15 points or Costs for the therapy are higher then costs for the current therapy but new therapy decrease total costs for the treatment of the disease (reduce hospital stay or complications or laboratory tests, etc.) – 15 points and Costs-outcome ratio is lower then current therapy – 15 points or Costs of additional benefits exceed costs for the therapy – 15 points and The use of medicinal product will result to budget health costs savings – 10 points</td>
</tr>
</tbody>
</table>

5. The medicinal product is intended for treatment of diseases with high risk for society.
   • For a product for which a medicinal alternative for the treatment of the disease is available, the assessment by the criteria shall be performed as comparative analysis with the medicinal alternative.
   • In cases when one or more medicinal products with the same INN, pharmaceutical form and strength of the active substance are already included in the respective part of the PDL the assessment shall not be performed.

The third step is to define level of reimbursement. The reimbursement of the medicinal products by INN included in the PDL shall be determined in percentages of the price as follows:
– 100% for all products for inpatients;
– up to 100% for medicinal products for chronic diseases that lead to serious damage in the QoL or disability and require continuous treatment;
– up to 75% for medicinal products for chronic diseases with high prevalence;
– up to 50% for medicinal products for all other diseases.
– The level of reimbursement of products with one and the same INN and the same pharmaceutical form shall be determined according to an assessment results.

The main criteria for the definition of the level of reimbursement are:

1. The result of standard assessment criteria for PDL inclusion;
2. The indications for use of the product according to the SPC for the type of treatment:
   a) the main etiological/pathogenetic treatment;
   b) symptomatic treatment;
   c) preventive treatment;
   d) palliative treatment;
   e) supporting treatment;
   f) additional treatment;
3. Social significance of the disease in Bulgaria for the treatment of which the product is used;
4. Duration of the treatment and outcome;
5. Therapeutic algorithm in accordance with the endorsed pharmacotherapeutic guidelines in Bulgaria, or, in the absence of such guidelines, according to treatment standards and the guidelines for Good Medical Practice in the countries of the European Union;
6. The number of patients defining the relative share of the disease for which the medicinal product is intended by using the data from the previous year and the trends for changes in the incidence of the disease;
7. The money spent for the medicinal product for the number of patients with a given disease during the previous year;
8. The budget planned for providing the medicinal product for the respective period based on Budget impact analysis methodology.
### Table 3. Reimbursement level definition table for PDL

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Score</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed level of reimbursement in (%)</td>
<td></td>
<td>..........%</td>
</tr>
<tr>
<td>1. Medicinal products paid through the budgets of the medical facilities and medicinal products intended for treatment of HIV, infectious diseases, diseases out of the scope of the health insurance and vaccines for mandatory immunization or re-immunization, vaccines for special indication and in extraordinary circumstances, specific sera and immunoglobulins – <strong>100%</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. medicinal products for chronic diseases that lead to serious damage in the quality of life or disability and require continuous treatment – <strong>up to 100%</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. medicinal products for chronic diseases with high prevalence – <strong>up to 75%</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. all other medicinal products – <strong>up to 50%</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Parameters:**

1. **Total score from medical, economical and pharmacoeconomical assessment** ...... points

2. **Clinical indications according to SmPC**
   - a) etiological and pathogenetical treatment 5
   - b) symptomatic treatment 2
   - c) prophylactics 4
   - d) palliative care 1
   - e) supportive treatment 3 Replacement therapy
   - f) additional treatment 1

3. **Social importance of the disease in Bulgaria is high** – **2 points YES or 0 point NO**

4. **Duration of the treatment and outcome**
   - Fast and definitive – 5 points
   - Prolong and effective – 3 points
   - Prolong and insufficiently effective – 1 point

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**7. CONCLUSION**

In times of global economic crisis and budget cuttings in healthcare systems all over the world it is very important for pharmacoeconomics not only to survive, but to mature on a level that faces needs of decision-makers. It is necessary to adopt new methods considering full range of problems and to abandon those that have little basis for carrying out.
In particular, the use of the cost per QALY ratio as the key to reimbursement decisions will fade away, to be replaced by more direct methods that consider fully the relevant aspects of the difficult decisions that must be made.

Development of pharmacoconomics as an applied discipline is a great challenge that is required to be met.

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EVALUATION OF PRIVATE VOLUNTARY HEALTH INSURANCE COMPANY IN BULGARIA

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Abstract

The health insurance in Bulgaria is mandatory and voluntary. The mandatory health insurance is provided by a public monopoly – the National Health Insurance Fund (NHIF) and its regional branches. The voluntary health insurance is provided by joint-stock companies licensed by the State Financial Control Commission. Private voluntary health insurance company “DZI” AD is one of the first of its kind established in Bulgaria.

The goal of this study was to analyze the different types of clients of a Voluntary health insurance company in Bulgaria and calculate the economical parameters related with the use of the various insurance packages by the persons.

The results showed that private voluntary health insurance company “DZI” AD has 3 groups of clients, each one with its specifics. During the years the premium income is increasing. The share premium is arising from the third group of customers- Individual customers contracts is only 3%, with the highest quota of damage in the portfolio for 2008 around 58%. Using the financial resources of the Voluntary health insurance funds, the burden on the National Healthcare Insurance fund can be decreased.

Key words: economic, evaluation, private, healthcare, fund

INTRODUCTION

Bulgaria provided compulsory common healthcare insurance free at the point of use prior to its transition from communism in 1989 (Exadaktylos 2005). The Bulgarian health system achieved much during this period including the guarantee of accessible health care. A network of health services was established across the country and many communicable diseases were largely controlled. The inflexible and centrally controlled health system, however, lacked the capacity to respond to worsening indicators for chronic diseases, and contained few incentives for efficient provision of good quality health care. As the economy declined, the funds needed to sustain the health care system were not available and demand exceeded the supply of services, although shortages were nevertheless officially acknowledged (Borissov & Rathwell 1996). Throughout the 1990s, the Soviet-style model in central and eastern Europe that provided free health services has been subject to radical reforms (Bulabanova & McKee 2002). After 1990p a reform in the health insurance field appeared to be necessity. The new seeds coming with the Grand National Assembly were sown. It restored the private medical practice in Bulgaria and also the Medical and Stomatological Unions. However, at this time the first real steps were made when a reform started with changes in the emergency surgeries and with some legislative initiative (Stoyanov 2003). In the 90’s, Bulgaria as a country in transition from communism provide valuable information on the effects of democracy on health (McKee & Nolte 2004). Key reform issues include identifying ways to encourage additional investment in the health sector; and defining formal benefit packages, co-payments, and the role of private insurance (Waters et al. 2008). In 1998, with the new
Health Insurance Law in Bulgaria was adopted the statue with provisions for private health insurance (Golinowska et al. 2006). Beyond the basic package, citizens were free to buy different insurance packages on the market. Private insurance may also cover those services included in the basic package and negotiated by the National Framework Contract. Voluntary health insurance funds (VHIF) were also legally entitled to own hospitals and pharmacies. Its objective scope is relatively extensive, but the demand for health services offered by private insurance companies remains very limited (Koulaksazov et al. 2003). These companies also have the opportunity to reimburse medicines, but it is a decision of the physician to prescribe original or generic drug. The core factors forming patients’ opinion and expectations for generic drugs are medical professionals’ recommendation and previous experience (Lebanova, Manolov & Getov 2012). Voluntary health insurance funds are also eligible for paying for value-added pharmacy services (Grigorov, Dolmayan & Getov 2011). The starting year of licensing funds for voluntary health insurance by the State Financial Control Commission is 2001. Were the first two companies - Bulgarian Health Insurance Company "Zakrila" AD and United Health Fund "Doverie" AD were approved (Spassov & Petkov 2008).

Shtereva et al.(2012) claimed that, there is a ten time increase of the expenses in all types of hospitals in Bulgaria for the period 2001-2009. Using the financial resources of the Voluntary health insurance funds, the burden on the National Healthcare Insurance fund can be decreased.

The goal of this study was to analyze the different types of clients of a Voluntary health insurance fund “DZI” AD in Bulgaria and calculate the economical parameters related with the use of the various insurance packages by these companies and persons.

MATERIALS AND METHODS

The article reviews the context under which voluntary private insurance company “DZI” AD could contribute to an improvement of its work.

The main challenges and limitations when calculating the costs can be summarized like this:

- Diversity in size the activities of the VHIF;
- Summarize the data on VHIF activities;
- Choice of easy to use mathematical models for data processing;

The approach allows analysis and assessment of the premium and technical economic results of VHIF.

RESULTS

Private voluntary health insurance company “DZI” AD already plays an important role in the health sector in Bulgaria. In 2008, the family and individual contracts made up only 2% of the premium income of the company as compared to 2007 when they are accounted to be 3% of it. The remaining 98% of the premium income is made up by 63 group contracts, active until the end of 2008.
Tabl. 1. Premiums and technical result by type of the contracts for 2008:

<table>
<thead>
<tr>
<th>Type of the voluntary health insurance contract</th>
<th>Number of contracts</th>
<th>Premium profit</th>
<th>Technical result (in leva)</th>
<th>Damage quota</th>
<th>Costs quota</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family and individual</td>
<td>307</td>
<td>69 597</td>
<td>-5 217</td>
<td>3%</td>
<td>59.3%</td>
</tr>
<tr>
<td><strong>Group:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- little companies</td>
<td>37</td>
<td>177 861</td>
<td>-22 782</td>
<td>15%</td>
<td>77.5%</td>
</tr>
<tr>
<td>from 12 to 50 persons</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- middle companies</td>
<td>16</td>
<td>481 897</td>
<td>61 077</td>
<td>-40%</td>
<td>45.9%</td>
</tr>
<tr>
<td>from 50 to 250 persons</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- big companies I</td>
<td>7</td>
<td>467 539</td>
<td>76 324</td>
<td>-50%</td>
<td>52.2%</td>
</tr>
<tr>
<td>from 250 to 1000 persons</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- big companies II</td>
<td>3</td>
<td>1 621 260</td>
<td>-263 439</td>
<td>172%</td>
<td>86.6%</td>
</tr>
<tr>
<td>over 1000 persons</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Avto</td>
<td>47</td>
<td>1 015</td>
<td>595</td>
<td>0%</td>
<td>0.0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2 819 169</strong></td>
<td><strong>100%</strong></td>
<td><strong>-153 441</strong></td>
<td><strong>100%</strong></td>
<td><strong>71.0%</strong></td>
</tr>
</tbody>
</table>

Despite the small volume of individual and family contracts for 2008, they show a quota of damage 59.3%, well below the average for the market, and in particular to the company. Technical losses for these contracts are determined by other technical expenses, representing mainly impairment of receivables terminated contracts.

Group contracts are allocated according to the number of individuals in four groups representing types: small, medium and large companies (2 groups). The total quota of damage to them is at the rate of 71.3%, slightly above the average for the company. Its size is determined by a group of small businesses bodies with a number of employees up to 50, with a quota of 77.5% damage and large companies with a number of people over 1000, with a quota of 86.6% damage.

The large firms with over 1000 people consist of only three contracts include: Coca Cola HBC with a quota of 48.9% damage, CIBank quota of 28.3% damage and NPP Kozloduy EAD quota of 106.6% damage. Exclude contracts with NPP Kozloduy EAD, the quota of damage in the group would be 38.7%:

Table 2. Two contracts comparison.

<table>
<thead>
<tr>
<th>Type of the voluntary health insurance contract</th>
<th>Number of contracts</th>
<th>Premium profit (in leva and %)</th>
<th>Technical result (in leva and %)</th>
<th>Damage quota</th>
<th>Costs quota</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coca Cola HBC and CIBank</td>
<td>2</td>
<td>526 720 19%</td>
<td>128 992 -84%</td>
<td>38.7%</td>
<td>26.0%</td>
</tr>
<tr>
<td>NPP Kozloduy EAD</td>
<td>1</td>
<td>1 094 540 39%</td>
<td>-392 432 256%</td>
<td>106.6%</td>
<td>33.6%</td>
</tr>
</tbody>
</table>
Regarding the structure of the portfolio by type of health insurance contract, the conclusion is positive technical result can expect contracts with medium and large companies with a number of people over 50 up to 1000, with the exclusion of the contract with the NPP Kozloduy EAD, even up to 2000 employees.

The analysis of the clients of private voluntary health insurance company “DZI” AD shows:

First group of customers- Large corporate clients

This covers the following category companies:

Large companies with over 1000 persons (acting in 2008. Contracts are 3, including one contract for the employees of CIBank). Quota of damage for this portfolio is 90%, which is due to the basal of the terminated contract with NPP Kozloduy EAD with its very high ratio, because of the specific of this client.

The approach for this group of customers is primarily through public procurement, brokers and direct sales from HQ.

Very often for this segment of customers the competition is severe, due to the large amount of premiums transactions and competition between health insurance companies. Very important for the conclusion of contracts of this kind have relationship to the client with financial or political oriented groups.

Technical result from customer contracts falling within this segment very strongly depends on the specifics of the client: localized or diffuse, staff turnover their coverage without sublimits, experience of staff in the use of this product as a substitute for government-run health system. Average of a contract written premiums for private voluntary health insurance company “DZI” AD is 427 889,67 leva.

Large companies with 250 to 1000 persons (active in 2008 are 7 contracts). Quota of damage for this portfolio is 51%. Average of a contract written premiums for private voluntary health insurance company “DZI” AD is 72 749,67 leva at similar level of difficulty and time consumption by the Contracting traders as a segment of small and medium-sized customers. The approach for this customer group is currently mainly in government procurement, brokers and direct sales from HQ.

Second group of customers- Medium and small enterprises

This covers the following two categories companies:

Medium companies from 50 to 250 persons (acting in 2008 are 16 contracts). Low share of wallet damage by 48%, with an average of a contract written is 26 675,88 leva at similar level of difficulty and time consumption by the Contracting vendors for small segments and individual customers. The approach to this customer group is currently mainly through brokers, direct sales from the HQ and a very small percentage in agencies of voluntary health insurance company “DZI” AD around the country. Deals for this customer segment, because customers and employees are often localized in one village could be successfully negotiated together with other general insurance products.

Small businesses companies from 12 to 50 persons (acting in 2008 are 37 contracts). Here we have the lowest quota of damage in the portfolio for 2008 and it is 37%, but the average profit of a signed contract is 4 264,38 leva. The approach to this customer group is currently primarily through direct sales from HQ, brokers, agencies in a small percentage in agencies of voluntary health insurance company “DZI” AD around the country. Deals for this segment of customers could be successfully negotiated directly by the main experts "Life" / experts TM of insurance company "DZI" when there are good contractual
relations, between the legal entities. Their conclusion is profitable for the company, but working with these agents is necessary to provide additional staff resources for their realization.

**Third group of customers- Individual customers (existing in 2008 were 307 contracts)**

This covers a diverse category of companies with staff up to 12 persons (acting in 2008 are 307 contracts). The share premium arising from these contracts is only 3%, with an average quota of damage in the portfolio for 2008 around 58%. The average sum from one signed contract is 214,36 leva. The approach to this customer group is currently mainly through brokers, giving them a high percentage in agencies of the private voluntary health insurance company “DZI” AD. Deals for this segment could be successfully negotiated by the major experts "Live" in Insurance Company "DZI". Their conclusion in agents' of private voluntary health insurance company “DZI” could be successful, (counting as contracts) and profitable for the company, but working with these agents is necessary to provide additional staff resources of the company.

**Economic analysis of private voluntary health insurance company “DZI” AD**

In 2008 the company has recorded the highest premium income: 2,825,416 leva, with in an increase of 29% compared to 2007.

![Fig.1. Premium income of private voluntary health insurance company “DZI” by years](image)

**DISCUSSION**

By segmentation of the specifics of the customers purchasing health insurance packages, it can be summarized, that the clients of private voluntary health insurance company “DZI” AD are oriented towards comprehensive health insurance solutions, including package "Prophylaxis" with strong element of cooperation and support from the health insurance company, as opposed to the level of care and services of the public health system.
Contracts are renewed with clients only after evaluation of financial parameters and results from their previous years of partnership. The main criteria for the selection of health insurance company, which brokers are applying in the market are:

- Presence of a full range of marketed health insurance packages and their scope;
- Existence of a "Dentistry" (more often with the option of choosing a dentist);
- A large number of medical institutions which is under contract throughout the country;
- "Contract Coordinator / contact center" with a minimum of 10 -12 working hours;
- Price
- Liquidation of damages - in the agreed period and the agreed terms;
- High level of attendance at the screening of employees;

CONCLUSION

During the years the premium income of private voluntary health insurance company “DZI” AD is increasing. The share premium is arising from the third group of customers- Individual customers contracts is only 3%, with the highest quota of damage in the portfolio for 2008 around 58%. Using the financial resources of the Voluntary health insurance funds, the burden on the National Healthcare Insurance fund can be decreased.

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COMPETITIVENESS OF THE CZECH REPUBLIC
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Abstract
Paper deals with the competitiveness of the Czech Republic. Concept of competitiveness is defined in the paper. Attention is focused on the competitiveness of the economy and competitive advantage. The paper describes the concept of competitive advantage of the country by M. E. Porter. The importance of environmental factors for competitiveness is emphasized. Competitive position of the Czech Republic by "The World Competitiveness Yearbook" is performed and partial factors of competitiveness are discussed.

Key words: competitiveness, macro analysis, PEST analysis, strengths, weaknesses.

INTRODUCTION
Competitiveness is defined by Hindls et al. (2003) as: "Competitiveness of economy is a concept that expresses by synthetic way the ability of the country to penetrate their goods and services to foreign markets and gain comparative advantages from international exchange."

Economy is competitive when it has the positive evolution of the main macroeconomic indicators. These indicators include gross domestic product, employment and living standards. The productivity growth is emphasized in this concept. The productivity growth is seen to be a prerequisite for achieving good values of the above parameters (Beneš, 2006).

Competitiveness depends on the local, regional and national strategies. Further it depends on the implementation of macroeconomic policy and its credibility and reliability.

The major factor of competitiveness for industrial enterprises is productivity. Productivity may be affected by the macroeconomic environment. Labour productivity depends mainly on technical equipment, quality of staff and the factors that affect the industry as a whole (Dvoracek, 2003).

The competitive advantage of countries is solved by Michael E. Porter (1990). This author sought the answer to question, why some enterprises in some countries are able to innovate.

The answers are these factors: factor conditions, demand conditions, related and supporting industries and firm strategy, structure and rivalry. These factors are introduced in the picture 1.
Classical economic theory suggests that the classical factors of production (labor, land, natural resources, capital, infrastructure) affect the flow of trade. However, in the sophisticated sectors, the most important factor must be created (skilled labour for example). These most important factors of production are specialized and require the most investment. The basic factors of production such as raw material sources are not advantage in industries that require a high level of knowledge. Competitive advantage is therefore based on specialized factors that are constantly being developed and improved.

Another important factor for the country’s competitiveness is domestic demand. Its importance is not in its size but in character. Domestic demand must give businesses the signals on the development of global market trends.

For the competitiveness of a country is important local presence of related and supporting industries. Suppliers competitive in international markets can deliver cost-effective entry-effective distribution channels. The advantage of domestic suppliers is also flexible and efficient communication.

Conditions in a particular country affect the management and organization of enterprises. They shape the character of competition. These factors shape the competitiveness in related sectors. An example might be a German management system, which is successful in technical fields. In this field, it is necessary to be precise manufacturing, professional development and excellent after-sales service (Porter, 1990).

In general, it can be said that dynamics of gross domestic product, development of world exports and development of foreign direct investments and development of unemployment are the indicator of competitiveness of country (Dvoracek, 2003).

Achieving of competitiveness is not only important for the commercial sector, but also for non-profit organizations (Boukal, 2012; Boukal, 2008).
IMPORTANCE OF ENVIRONMENT

As seen above, for the competitiveness at the national level factors are important that significantly affect the activities of enterprises. Enterprises monitor these factors and evaluate their current and future impact. From a business perspective, therefore, it is the most extensive monitoring the environment in which it operates. We talk about the macro environment (Johnson et al., 2008).

The aim of the analysis is search and exploration company environment factors that influence the position and form of its opportunities and threats. The specific method used in this case is called PEST analysis. This analysis divide macro factors into four basic groups. Then it is called about PEST analysis (Sedláčková, Buchta, 2006). It is possible to meet various modifications, such as PESTEL (Johnson et al., 2008), or LONGPEST (Dvoracek, Slunčík, 2012).

Political and legislative factors affect each company. For example, the stability of the national and international political situation, the level of laws regulating the export and import, antitrust laws that may prevent the company achieve market dominance, etc. Regulating of the impact of business on the environment plays currently an increasingly important role (Johnson et al., 2008).

Economic factors are characterized by the state of the economy, which affects the ability of the enterprise to achieve an appropriate return. Significant macro factors are for example inflation, interest rates, economic growth, exchange rates, unemployment rates, energy availability, and price level. (Johnson et al., 2008).

The rate of economic growth in the economy directly affects the amount and significance of opportunities and threats. Economic growth increases consumption and thus market opportunities and firms can better cope with competitive pressure. The decline has opposite effects and is often the cause of price wars in mature competitive surroundings. The interest rate is important for the availability of free funds. It affects the composition of the financial resources and investment activities of firms. Growing interest rate represents a threat for companies. An important indicator of the stability of the economic environment is the rate of inflation. Its high value makes the slow economic growth, high interest rate and exchange rate instability. If the value increases, planned investment become more risky, because it is very difficult to predict the rate of return. Exchange rate affects the competitiveness of enterprise in the global market. The low value of the exchange rate advantages domestic production over foreign production (Dedouchová, 2001).

These indicators are closely related. The government decisions play the important role. These decisions can be important source of threats and opportunities.

Social and demographic factors reflect the effects of environmental care, labour, and the growth of population age, lifestyle and population changes. One of the important changes in recent years is the pursuit of a healthy lifestyle. This creates a risk for some sectors, but rather significant opportunities for others, such as the organic food market. Demographic factors are primarily changes in the composition of the population. These factors should be thoroughly know, because it is the knowledge of customers (Dedouchová, 2001). There are many others social factors. Among other social factors the migration of people with different culture may include (Jedlickova, 2010).

Technological and technical factors, the enterprise must constantly monitored to avoid backwardness. After World War II, the pace of technological change accelerates and technological change can very quickly cause a lag of the undertaking. Analysis of these effects presents the study by the expected impact of new technologies on the status of competitive environment and competitive position (Dedouchová, 2001).
Factors important for one company may be insignificant to another. Aim of the PEST analysis is therefore not to develop a complete list of effects, but it is necessary to identify important factors for the company. For example, for bio farm, changes in lifestyle and legislative rules will be a very important. The task of PEST analysis is to identify areas where the change affects business. It is also trying to anticipate these changes.

These four traditional parts of macro analysis are especially recently supplemented by environmental surroundings (Pearce et al. 2000).

The most important factors in the remote area are often the relationship between ecology and business. The term ecology concerns the relationship between human activities and the air, soil and water. Many companies are worried more stringent environmental laws and higher costs associated with environmental protection. They argue that these costs will prevent their further growth and productivity of their operations. Enterprises must be addressed responsibly to environmental issues and to incorporate into their environmental strategies (Unru, Ettenson, 2010; Makower, 2009; Lubin, Esty, 2010).

Competitiveness of the Czech Republic

The IMD World Competitiveness Yearbook is the comprehensive annual report on the competitiveness of nations.

World Competitiveness Yearbook evaluates 59 countries. Over 300 criteria is incorporated into the evaluation of competitiveness. These criteria come out the literature and the discussion with the members of business, academic and government area.

Criteria are divided into 4 groups: economic performance (78 criteria), government efficiency (70 criteria), business efficiency (67 criteria), and infrastructure (114 criteria).

Part “Economic Performance” contains macro-economic evaluation of the domestic economy. Sub-factors are domestic economy, international trade, international investment, employment and prices in this category.

Part “Government Efficiency” evaluates extent to which government policies are conducive to competitiveness. Sub-factors are public finance, fiscal policy, institutional framework, business legislation and societal framework.

Part “Business Efficiency” evaluates extent to which the national environment encourages enterprises to perform in an innovative, profitable and responsible manner. Sub-factors are productivity and efficiency, labour market, finance, management practices and attitudes and values.

Part “infrastructure” contains scope to which basic, technological, scientific and human resources meet the needs of business. Sub-factors are basic infrastructure, technological infrastructure, scientific infrastructure, health and environment and education.

The rank of the Czech Republic according to World Competitiveness Yearbook during 2008 – 2012 is given in table 1.
The position of the Czech Republic has worsened by 4 steps in the monitored period. The position has worsened the most in the area Economic Performance. The decrease was 9 steps. The decrease was in the areas Business Efficiency (7 steps) and Infrastructure (6 steps). The position has improved in the area Government Efficiency (3 steps).

Almost all sub-factors in the area of Economic Performance have worsened its position. An only sub-factor price has improved its position. In the area Government Efficiency, the sub-factors public finance and fiscal policy have worsened its position. On the opposite side, the sub-factors institutional framework, business legislation and societal framework have improved. All sub-factors in the area Business Efficiency has worsened during the chosen period. In the area Infrastructure, sub-factors basic infrastructure, technological infrastructure and health and environment have worsened. Sub-factors scientific infrastructure and education have improved.

Table 2 shows strength and weaknesses in the area economic performance in the Czech Republic.

<table>
<thead>
<tr>
<th>STRENGTHS</th>
<th>WEAKNESSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Export of goods</td>
<td>Real GDP growth</td>
</tr>
<tr>
<td>Trade to GDP ratio</td>
<td>Real GDP growth per capita</td>
</tr>
<tr>
<td>Direct investment flows inward (%)</td>
<td>Direct investment stocks abroad</td>
</tr>
<tr>
<td>Direct investment stocks inward</td>
<td>Direct investment stocks abroad</td>
</tr>
<tr>
<td>Exchange rates</td>
<td>Resilience of the economy to economic cycles</td>
</tr>
</tbody>
</table>

The most important strengths are export of goods, trade to GDP ratio and direct investment flow inward. Indicator “exports of goods” is calculated as percentage of GDP. Value of this indicator for the Czech Republic is 79, 7 %. The Czech Republic is on the 8th position. Indicator “trade to GDP ratio” is calculated as:

\[
\text{exports + imports} = \frac{\text{exports + imports}}{\text{GDP}}
\]  

(1)
Value of this indicator is 86,1 and the Czech Republic has 10th position. Indicator “direct investment flow inward” is calculated as percentage of GDP. Value of this indicator is 5,4 % and the Czech Republic has 11th position WCY (2012).

The most important weaknesses are real GDP growth and real GDP growth per capita. Indicator “real GDP growth” is calculated as percentage change of GDP which is based on national currency in constant prices. Value of this indicator is -1,2 % and the Czech Republic has 53th position. The position of the Czech Republic according indicator real GDP growth per capita is 50.

Table 3 shows strength and weaknesses in the area governance efficiency in the Czech Republic.

<table>
<thead>
<tr>
<th>STRENGTHS</th>
<th>WEAKNESSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real short-term interest rate</td>
<td>Employer’s social security contribution rate</td>
</tr>
<tr>
<td>Gini index</td>
<td>Start-up procedures</td>
</tr>
<tr>
<td>Real corporate taxes</td>
<td>Creation of firms</td>
</tr>
<tr>
<td>Central bank policy</td>
<td>Transparency of government policy</td>
</tr>
<tr>
<td>Corporate tax rate on profit</td>
<td>Government budget surplus/deficit</td>
</tr>
</tbody>
</table>

Table: 3 Government efficiency
Source: WCY (2012)

The most important strengths are real short-term interest rate and Gini index. Real short-term interest rate is calculated as ratio of real discount to bank rate. The Czech Republic has the 3rd position of the monitored countries. Gini index gives information about the distribution of income. The value 0 means absolute equality. The value of this index in the Czech Republic is 26 and the Czech Republic is on 5th position.

The most important weaknesses are employer’s social security contribution rate, start-up procedures and creation of firms. The first factor is compulsory contribution as a percentage of an income equal to GDP per capita. The Czech Republic is on the 54th position of the measured firms. Start-up procedures and creation of firms give information about the difficulty of establishment of new firms. The Czech Republic has the 50th position of the monitored countries in this factor.

Table 4 gives information about strengths and weaknesses of the Czech Republic in the area business efficiency.

<table>
<thead>
<tr>
<th>STRENGTHS</th>
<th>WEAKNESSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance and banking regulation</td>
<td>The need for economic and social reforms</td>
</tr>
<tr>
<td>Brain drain</td>
<td>Credibility of managers in society</td>
</tr>
<tr>
<td>The risk factor in the financial system</td>
<td>Corporate values</td>
</tr>
<tr>
<td>Remuneration of management</td>
<td>The value system in society</td>
</tr>
<tr>
<td>Remuneration on services professions</td>
<td>Corporate boards</td>
</tr>
</tbody>
</table>

Table: 4 Business efficiency
Source: WCY (2012)
The most important strengths are finance and banking regulation, brain drain and the risk factor in the financial system. Finance and banking regulation is sufficiently adequate according to survey in the Czech Republic. The Czech Republic has well-educated and skilled people and the risk factor in the financial system is low. Ranking of the Czech Republic in these factors is around 12th position.

The most important weaknesses of the Czech Republic are the need for economic and social reforms, credibility of managers in society and corporate values. According to survey, the position of the Czech Republic is bad. The credibility of managers in society is low and the Czech Republic need reforms WCY (2012).

Table 5 shows situation in the area infrastructure in the Czech Republic.

<table>
<thead>
<tr>
<th>STRENGTHS</th>
<th>WEAKNESSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Future energy supply</td>
<td>Public and private sector ventures</td>
</tr>
<tr>
<td>Health problems</td>
<td>Fixed telephone tariffs</td>
</tr>
<tr>
<td>Student mobility inbound</td>
<td>Environmental laws and compliance</td>
</tr>
<tr>
<td>Medical assistance</td>
<td>Sustainable development</td>
</tr>
<tr>
<td>Dependency ratio</td>
<td>Pupil-teacher ratio</td>
</tr>
</tbody>
</table>

Tab.: 5 Infrastructure
Source: WCY (2012)

The most important strengths are future energy supply, health problems and student mobility inbounds. The future energy supply is adequately ensured according to survey. The Czech Republic is on the 8th position. Health problems do not have a significant impact on companies. Student mobility inbound according to foreign tertiary-level students per 1000 inhabitants is on high level in the Czech Republic.

The most important weaknesses are public and private sector ventures, fixed telephone tariffs and environmental laws and compliance. The Czech Republic is on 50th position in these factors WCY (2012).

CONCLUSION

Czech Republic is not in terms of competitiveness among the most powerful country. Especially in the area of government efficiency, business efficiency and overall competitiveness is its rather weak position. Relatively better its position in the field of economic performance and infrastructure. In most factors, the position of Czech Republic in the past 5 years slightly deteriorated.

The most important weaknesses of the Czech Republic are factors related to GDP growth, economic and social reforms and social a legal environment. The most important strengths of the Czech Republic are factors related to exports of goods, interest rate and taxes and finance and banking system.

ACKNOWLEDGEMENT

The research is financed by project “IGS F3/32/2012 “The importance of environmental issues for business competitiveness” granted by Internal Grant Agency at University of Economics in Prague.
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CAPITAL MANAGEMENT IN CHARACTERISTIC INDUSTRIES
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IMPACT OF ENERGY CROP PRODUCTION ON LAND USE IN HUNGARY
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ENERGY CONSUMPTION AND ENERGY INTENSITY IN REGARD TO SUSTAINABILITY IN SOME CENTRAL AND EASTERN EUROPEAN COUNTRIES
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CROSS-BORDER CONNECTEDNESS IN THE INTERNATIONAL FINANCIAL NETWORK
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Adriana IOTA, Magdalena MIHAI, Cristian DRĂGAN
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POLITICAL ENVIRONMENT, DEMOCRACY AND JAPANESE OUTWARD FDI:
A PANEL DATA ANALYSIS
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FISCAL POLICY AND REAL ECONOMIC ACTIVITY IN A SMALL OPEN TRANSITION ECONOMY (THE REPUBLIC OF MACEDONIA): COINTEGARTION MODEL
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IMPACT OF SELECTION METHODS OF REINSURANCE IN THE ECONOMY FINANCIAL INSURANCE
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ENTREPRNEURS’ TAX STRATEGIES IN THE SCOPE OF INCOME TAXATION
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