

CONCENTRATION AND MARKET POWER ON THE LIFE AND NON-LIFE INSURANCE MARKET IN THE REPUBLIC OF CROATIA

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Abstract

Market power is a term used for determining the possibility of a company to influence the product price in the market. Depending on the indicators of concentration, we can analyze the level of market concentration. The goal of every company is to achieve the highest possible market power or to have the highest possible market concentration, as this consequently lead to higher profit. Especially interesting market is the insurance market where insurance companies can be divided into life and non-life insurance, which is the methodology of grouping them in this paper. In the Republic of Croatia currently there are 25 insurance companies and 1 reinsurance company. Insurance companies together achieve better results in non-life insurance because non-life insurance is more frequent than life insurance. The reason for this is that life insurance is more influenced by cyclical development comparing to non-life insurance, and there is still a lack of awareness about the importance of life insurance. After entering the European Union, Croatia had to harmonize its legislation with the common EU legislation. Entering EU made liberal the approach for Croatian companies to the EU market, as well as for EU firms to Croatian market. The concentration of the insurance market will be measured by various indicators of market concentration separately for life and non-life insurance, and together for the whole insurance market. Based on we will analyze the market power in the Croatian insurance market.

Key words: market power, concentration, Republic of Croatia, oligopolistic market, regression analysis

1. INTRODUCTION

Market power shows the power of each company in the market in terms of its ability to influence the price of products. Company with high market power has the ability to control prices and can increase prices without reducing the total own sales. Higher market power means greater market concentration. Depending on the concentration indicators, a market can be low, moderate or high concentrated. The insurance market in Croatia is regulated by the Law on Insurance and Law on Compulsory Insurance in Traffic. In the insurance market in Croatia currently operate 25 insurance companies and one reinsurance company. Of the total of 25 insurance companies, 7 operate with life insurance, 10 with non-life insurance, and the remaining 8 companies with both life and non-life insurance.

2. METHODOLOGY

The concentration of the insurance market will be measured by various which will lead to the analysis of market power in the Croatian insurance market. The data necessary for measuring the concentration in the market of life and non-life insurance in Croatia were taken from Croatian Agency for Supervision of Financial Services, Croatian Insurance Bureau, Croatian Chamber of Commerce and Central Bureau of Statistics. Throughout this paper we have also used financial data of insurance companies.

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The analysis of the market will be done from the aspect of market concentration. There are two main measures of market concentration: concentration ratio and Herfindahl-Hirschman Index.

Concentration ratios show the share of market covered by r largest market players (Pavić, Benić, Hashi, 2009). For calculating CR, all values should be arranged from highest to lowest value

$$x_1 \geq x_2 \geq \dots \geq x_i \geq \dots \geq x_n$$

Concentration ratio is calculated as (Šošić, 2006)

$$CR_r = \frac{\sum_{i=1}^r x_i}{\sum_{i=1}^n x_i}$$

where n denotes the total number of market participants, r the number of largest participants for which concentration is being calculated and x_i the individual value of market share. The value of CR_r can vary from 0 to 100%, where higher value shows higher concentration level. Concentration ratios show the market share of largest insurance companies. CR1 shows the market share of the largest insurance company, CR2 market share of 2 largest insurance companies, CR3 is the market share of 3 leading insurance companies etc.

Herfindahl-Hirschman Index of concentration is calculated as

$$HHI = \sum_{i=1}^n p_i^2$$

where p_i denotes the share of each individual market participant and n the total number of market participants. The value of HHI can vary from 1/10000 to 10000. Lower values of HHI indicate higher level of market competition and vice versa (Griffiths and Wall, 1996). The values of HHI lower than 1000 show low concentration, the values between 1000 and 1800 characterize moderate concentration, and the value of HHI greater than 1800 indicates high concentration (Hüschelrath, 2008; Stone, 2010; Tipurić, Pejić Bach, Pavić, 2008).

3. INSURANCE MARKET DEVELOPMENT

The first forms of distribution of risk were mentioned in China around 3000 BC. At that time men already knew the importance of insurance and protection from the dangers that can threaten life and cause damage to property. In the beginning there were primitive forms of insurance, after which came to the development of more advanced forms, especially at the time when men realized that by joining in risk community, individual risk can be reduced. Insurance enables simpler and more economically profitable protection against a variety of risks (Ćurak and Jakovčević, 2007).

Insurance is a type of activities which provide economic protection against certain dangers that threaten to property and people. Using insurance, an individual is safe from economically harmful effects of natural forces and accidents. Insurance is based on two fundamental features of which one is a transfer of risk from the individual to the group and other is the system of division of losses to all members of the group and covering these losses from premiums paid by the insured individuals. In exchange for a certain amount of premium an individual shifts the risk to the insurer who assumes and agrees to indemnify if the damage occurs. The insurer bears the insurance-technical risk (Bijelić, 2002), ie. the possibility that the risk premium which he has received for the risks assumed is not sufficient to cover potential damages that he has to pay out.

Throughout the history a very important place in the development of maritime insurance belongs to Dubrovnik, where in 1562 the Law on maritime security “Ordo super assecuratoribus” was issued. This law on maritime security is one of the oldest pieces of legislation which systematically regulates

the relations of insurance. The beginning of modern insurance in Croatia dates from 1884 when the insurance cooperative Croatia in Zagreb was established. The cooperative has initially dealt only with the insurance risk of fire in the city of Zagreb, and later expanded operations and other types of insurance. Today Croatia osiguranje is the largest insurance company in Croatia.

The insurance market has great features that contribute to the development of economic and financial system. Functions of insurance can be divided into two groups: basic functions and other functions. Basic functions include compensation for damages and payment of insured amount, as well as prevention, while other functions include social function, development function and anti-inflation function. In this way the insurance business provides sustainable business in a stable environment to all users of the insurance – individuals, companies and government.

By joining the European Union on 1 July 2013, the liberal approach to entering the insurer of the Union on the Croatian insurance market was enabled, as well as for Croatian insurer to the EU market. In the process of Croatian accession to the European Union, it was necessary to harmonize Croatian legislation with EU legislation. Croatian accession to the European Union has increased development opportunities in terms of ease of operation, more effective protection of the insured units, higher demand for security, increase in insurance premiums, introduction of new products and greater transparency and competitiveness of the insurance market in Croatia compared to the insurance markets of the European Union.

4. CROATIAN INSURANCE MARKET

In Croatia, the share of total premiums in GDP in 2014 amounted to 2.6% of which 1.8% is the share of non-life insurance premium and 0.8% is the share of life insurance premiums. These shares are lower than in the previous year, when the proportion of the total premiums in GDP was 2.75%, which is still lagging behind in comparison with the developed countries of the European Union.

In the years before the crisis, the insurance market has shown a steady growth. In 2008, the insurance market achieved 9.67 billion kuna of premiums, and already in 2009, premiums decreased by 2.7% to 9.4 billion kuna (1 kuna is equal to 0.13 euro).

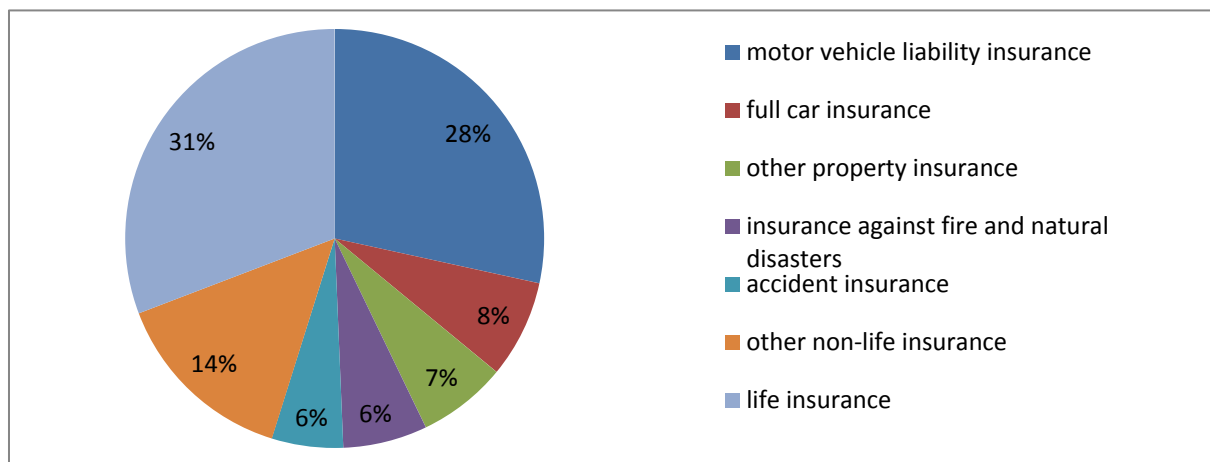
Table 1. Gross premium of insurance companies in Croatia

Year	2008	2009	2010	2011	2012	2013	2014
Total premium (bil kn)	9,67	9,4	9,24	9,14	9,04	9,08	8,56
Growth rate	6,80%	-2,70%	-1,80%	-1,10%	-1,10%	0,44%	-5,68%

Source: Croatian insurance office

In the period from 2008 to 2014 the largest decline in premiums occurred in 2014, when the premium was lower by 5.68% compared to the previous year. It is also the largest decline in premiums from the beginning of the financial and economic crisis in the Republic of Croatia. Such a fall is result of reduced premiums in all kinds of insurance, but mostly in insurance premiums for motor vehicle liability insurance (the fall of 18.3%).

Graph 1. Structure of total insurance premiums in 2014



Source: authors' calculation

The most important group in the total insurance premiums in 2014 was achieved in life insurance, which appears in this structure for the first time on the first place with the largest share in the total premium of 31%. Beyond life insurance the second most important is motor vehicle liability insurance with a share of 28%, which is significantly reduced compared to the previous year. In previous years, the first place was always reserved for motor vehicle liability insurance with continuous growth, which was not the case due to the liberalization of the price and the fall of the premium, although the number of insurance policies stood at 2.39 million and was higher than in the previous year.

5. MARKET CONCENTRATION

The market concentration will be calculated from the market shares of each insurance company. This will be done for 2013 and 2014. The data from which we got the market shares are the shares of insurance premiums of each insurance company. This data are shown in Table 2.

Table 2. Total premiums and share of insurance companies

Insurance company	Premium in 2014	Share in 2014	Premium in 2013	Share in 2013
Agram Life osiguranje d.d.	208.373.602	2,43%	205.597.080	2,27%
Allianz Zagreb d.d.	1.218.090.296	14,23%	1.179.481.960	12,99%
BNP Paribas Cardif osiguranje d.d.	55.719.652	0,65%	52.097.730	0,57%
Croatia osiguranje d.d.	2.279.905.186	26,63%	2.625.085.411	28,92%
Croatia zdravstveno osiguranje d.d.	173.506.251	2,03%	129.918.290	1,43%
Ergo osiguranje d.d.	18.570.401	0,22%	2.422.022	0,03%
Ergo životno osiguranje d.d.	1.357.164	0,02%	14.335.158	0,16%
Erste osiguranje VIG d.d.	151.384.723	1,77%	139.301.691	1,53%
Euroherc osiguranje d.d.	871.324.106	10,18%	970.271.327	10,69%
Generali osiguranje d.d.	379.955.360	4,44%	365.744.248	4,03%

Grawe Hratska d.d.	398.199.269	4,65%	393.632.996	4,34%
HOK osigurnje d.d.	180.216.351	2,10%	195.874.819	2,16%
Hrvatsko kreditno osiguranje d.d.	10.835.714	0,13%	9.003.221	0,10%
Izvor osiguranje d.d.	41.529.603	0,49%	34.481.512	0,38%
Jadransko osiguranje d.d.	558.528.509	6,52%	626.094.349	6,90%
KD životno osiguranje d.d.	17.043.193	0,20%	14.862.638	0,16%
Merkur osiguranje d.d.	267.674.074	3,13%	272.394.202	3,00%
Societe Generale osiguranje d.d.	41.446.012	0,48%	41.341.748	0,46%
Sunce osiguranje d.d.	53.784.861	0,63%	116.834.708	1,29%
Triglav osiguranje d.d.	320.287.243	3,74%	355.807.363	3,92%
Uniqa osiguranje d.d.	653.256.085	7,63%	679.915.223	7,49%
Velebit osiguranje d.d.	55.304.942	0,65%	68.418.309	0,75%
Velebit životno osiguranje d.d.	19.611.593	0,23%	16.085.300	0,18%
Wiener osiguranje VIG d.d.	563.534.345	6,58%	552.316.975	6,09%
Wustenrot životno osiguranje d.d.	21.919.110	0,26%	15.281.777	0,17%
Total	8.561.357.645	100,00 %	9.076.600.057	100,00 %

From the data in Table 2, we can calculate the market concentration. The ratios of concentration are shown in Table 3.

Table 3. Market concentration ratios (total insurance market)

Ratio	2014	2013
HHI	1.243,93	1.336,86
CR3	51,04%	52,61%
CR4	58,67%	60,10%
CR5	65,25%	66,99%
CR8	80,86%	81,45%

Table 3 shows the Herfindahl - Hirschman Index and Concentration ratios (CR3, CR4, CR5 and CR8) calculated based on the total gross premium of all insurance companies in the Republic of Croatia. Herfindahl - Hirschman Index (HHI) in 2014 was 1244, and in 2013 its value as 1337, which indicates a downward trend. According to HHI insurance market belongs to moderate concentrated markets, but is moving towards the low concentrated market.

CR3 includes the following insurance companies: Croatia osiguranje, Allianz osiguranje and Euroherc osiguranje. CR3 shows the share of the first three insurance companies of the total number of insurance companies. CR3 has decreased compared to 2013 and in 2014 was 51.04%, which means that this is a moderate concentrated market. All measures of concentrations have decreased in 2014 compared to 2013, which means that competition between insurance companies is growing.

From these measures of concentration, we can conclude that the insurance market in Croatia is oligopolistic, while according to the number of insurance companies it is closer to the market structure of monopolistic competition.

Now let's analyze the market concentration separately on life and non-life insurance markets. The aim of this analysis is to detect if there are some differences between this two types of insurance.

Table 4. Total premiums and share of non-life insurance companies

Insurance company	Premium in 2014	Share in 2014	Premium in 2013	Share in 2013
Agram Life osiguranje d.d.	0	0,00%	0	0,00%
Allianz Zagreb d.d.	676.992.706	11,43%	708.099.867	10,83%
BNP Paribas Cardif osiguranje d.d.	55.719.652	0,94%	52.097.730	0,80%
Croatia osiguranje d.d.	1.913.316.598	32,30%	2.269.034.358	34,70%
Croatia zdravstveno osiguranje d.d.	173.506.251	2,93%	129.918.290	1,99%
Ergo osiguranje d.d.	18.570.401	0,31%	2.422.022	0,04%
Ergo životno osiguranje d.d.	0	0,00%	0	0,00%
Erste osiguranje VIG d.d.	0	0,00%	0	0,00%
Euroherc osiguranje d.d.	871.324.106	14,71%	970.271.327	14,84%
Generali osiguranje d.d.	262.580.314	4,43%	245.869.004	3,76%
Grawe Hrska d.d.	151.776.227	2,56%	147.667.508	2,26%
HOK osigurnje d.d.	180.216.351	3,04%	195.874.819	3,00%
Hrvatsko kreditno osiguranje d.d.	10.835.714	0,18%	9.003.221	0,14%
Izvor osiguranje d.d.	41.529.603	0,70%	34.481.512	0,53%
Jadransko osiguranje d.d.	558.528.509	9,43%	626.094.349	9,58%
KD životno osiguranje d.d.	0	0,00%	0	0,00%
Merkur osiguranje d.d.	26.761.511	0,45%	28.916.796	0,44%
Societe Generale osiguranje d.d.	0	0,00%	0	0,00%
Sunce osiguranje d.d.	53.784.861	0,91%	116.834.708	1,79%
Triglav osiguranje d.d.	259.122.720	4,37%	290.698.909	4,45%
Uniqa osiguranje d.d.	331.002.707	5,59%	360.349.457	5,51%
Velebit osiguranje d.d.	55.304.942	0,93%	68.418.309	1,05%
Velebit životno osiguranje d.d.	0	0,00%	0	0,00%
Wiener osiguranje VIG d.d.	282.700.085	4,77%	282.133.870	4,32%
Wustenrot životno osiguranje d.d.	0	0,00%	0	0,00%
Total	5.923.573.258	100,00%	6.538.186.056	100,00%

From the Table 4, we can calculate the Herfindahl - Hirschman Index and Concentration ratios.

Table 5. Market concentration ratios (non-life insurance market)

Ratio	2014	2013
HHI	1.599,74	1.739,85
CR3	58,44%	60,37%
CR4	67,87%	69,95%
CR5	73,46%	75,46%
CR8	87,03%	87,98%

Table 5 shows the Herfindahl - Hirschman Index and Concentration ratios (CR3, CR4, CR5 and CR8) calculated on the basis of gross premium in non-life insurance. All measures of concentration have declined in 2014 compared to 2013. HHI in 2014 and in 2013 is above 1500, which means that this is a moderately concentrated market. Concentration ratios of non-life insurance market are higher than the concentration ratios in Table 3, which means that the market for non-life insurance has higher level of market concentration then the whole insurance market.

If non-life insurance market has higher level of market concentration, then life insurance market should be less concentrated then the whole market. Let's check this.

Table 6. Total premiums and share of life insurance companies

Insurance company	Premium in 2014	Share in 2014	Premium in 2013	Share in 2013
Agram Life osiguranje d.d.	208.373.602	7,90%	205.597.080	8,10%
Allianz Zagreb d.d.	541.097.590	20,51%	471.382.093	18,57%
BNP Paribas Cardif osiguranje d.d.	0	0,00%	0	0,00%
Croatia osiguranje d.d.	366.588.588	13,90%	356.051.053	14,03%
Croatia zdravstveno osiguranje d.d.	0	0,00%	0	0,00%
Ergo osiguranje d.d.	0	0,00%	0	0,00%
Ergo životno osiguranje d.d.	1.357.164	0,05%	14.335.158	0,56%
Erste osiguranje VIG d.d.	151.384.723	5,74%	139.301.691	5,49%
Euroherc osiguranje d.d.	0	0,00%	0	0,00%
Generali osiguranje d.d.	117.375.046	4,45%	119.875.244	4,72%
Grawe Hratska d.d.	246.423.042	9,34%	245.965.488	9,69%
HOK osigurnje d.d.	0	0,00%	0	0,00%
Hrvatsko kreditno osiguranje d.d.	0	0,00%	0	0,00%
Izvor osiguranje d.d.	0	0,00%	0	0,00%
Jadransko osiguranje d.d.	0	0,00%	0	0,00%
KD životno osiguranje d.d.	17.043.193	0,65%	14.862.638	0,59%
Merkur osiguranje d.d.	240.912.563	9,13%	243.477.406	9,59%
Societe Generale osiguranje d.d.	41.446.012	1,57%	41.341.748	1,63%

Sunce osiguranje d.d.	0	0,00%	0	0,00%
Triglav osiguranje d.d.	61.164.524	2,32%	65.108.454	2,56%
Unika osiguranje d.d.	322.253.379	12,22%	319.565.766	12,59%
Velebit osiguranje d.d.	0	0,00%	0	0,00%
Velebit životno osiguranje d.d.	19.611.593	0,74%	16.085.300	0,63%
Wiener osiguranje VIG d.d.	280.834.260	10,65%	270.183.105	10,64%
Wustenrot životno osiguranje d.d.	21.919.110	0,83%	15.281.777	0,60%
Total	2.637.784.389	100,00%	2.538.414.001	100,00%

Data shown and calculated in Table 6 were used to calculate the Herfindahl - Hirschman Index and Concentration ratios.

Table 7. Market concentration ratios (life insurance market)

Ratio	2014	2013
HHI	1.171,88	1.127,93
CR3	46,63%	45,19%
CR4	57,27%	55,83%
CR5	66,62%	65,52%
CR8	89,39%	88,70%

Table 7 shows the Herfindahl - Hirschman Index and Concentration measures (CR3, CR4, CR5 and CR8) calculated on the basis of gross premium in life insurance. Measures of concentration from Table 7 have increased in 2014 compared to 2013. HHI in 2014 and in 2015 is close to 1000, which means that this market is moderately concentrated, but with a downwards trend towards the low concentration level. CR3, CR4 and CR5 have lower values then for non-life insurance, while CR8 has higher value. Based on all this measures of concentration, we can conclude that life insurance market has lower market concentration than non-life insurance market.

6. CONCLUSION

In order to be successful, insurance company has to continue improving its business and approaching customers in a way that it offers a high level of service quality, but at the same time it has to consider the efficiency and cost control. Competitive advantages in insurance are achieved through greater specialization of offer, creating new and improving existing insurance services, providing greater choice for customers, use of new sales channels and conducting consistent business policy.

The economic crisis of global proportions affected the Croatian economy, and consequently the insurance sector. Lower volumes and changes in the structure of the total premium charged in Croatia are some of the consequences of the crisis. The economic crisis has had larger impact on life insurance than on non-life insurance. Based on data from 2013 and 2014 we have calculated and analyzed market concentration on life insurance market, non-life insurance market and total insurance market. In all three groups we have detected moderate level of market concentration, with a negative trend. Life insurance market is less concentrated than non-life insurance market, but on both markets there is a fall in concentration in 2014 compared to 2013.

In microeconomic perspective, we have showed that Croatian insurance market has elements of oligopoly and monopolistic competition. According to the number of companies, it is closer to monopolistic competition, but according to concentration measures it is closer to oligopoly. As market concentration is falling, we expect the Croatian insurance market to become typical monopolistic competition in following years.

In further research it would be interesting to analyze a larger time series of data for Croatian insurance market from the year of accessing to the European Union. This data could be compared to date from years before the accessing the EU to show the effect of opening the market for insurance companies.

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