

NEW TRENDS IN THE EUROPEAN CENTRAL BANK MONETARY POLICY

Silvia T. Trifonova

University of National and World Economy (UNWE), Students Town, "8 December" Str., no. 19,
Sofia 1700, Bulgaria

Abstract

This paper is devoted to the European Central Bank (ECB) monetary policy, which has undergone significant changes since it was introduced on January 1, 1999. A special focus of the paper is the period from the 2007-2008 global financial crisis until now. With the outbreak of the global financial crisis, the conventional (standard, traditional) monetary policy of the ECB and other world's leading central banks began to lose its effectiveness. The unconventional course of monetary policy was undertaken mainly to restore the normal functioning of financial markets and financial intermediation in both developed and developing countries after the severe shocks during the global financial crisis.

However, in the period following the world financial crisis, a new unprecedented global crisis event occurred – the COVID-19 pandemic. The monetary policy of the ECB and the other leading global central banks continued its unconventional course. The non-standard monetary measures are aimed at countering heightened risks during the acute economic shock caused by the COVID-19 pandemic.

In relation to this the main new trends in the ECB monetary policy that are examined in the paper are the transition from zero and negative key policy nominal interest rates to positive nominal interest rates, and the process of normalization of the ECB monetary policy, i.e. limiting and removing some unconventional monetary measures.

Keywords: *Unconventional monetary policy, European Central Bank, Interest-rate policy, process of normalization*

1. INTRODUCTION

With the outbreak of the global financial crisis, the conventional (standard, traditional) monetary policy of the European Central Bank (ECB) and the other world's leading central banks began to lose its effectiveness. The global financial crisis began in August 2007 and deepened after the bankruptcy of the US investment bank Lehman Brothers in September 2008. The two most severe episodes of the crisis were the subprime crisis in the United States and the debt crisis in the Eurozone, culminating in the Greek debt default crisis in May 2010. The magnitude of the market turbulence in the international financial markets quickly led to a severe slowdown in real economic activity, exports collapsed and the global economy fell into recession. The 2007-2008 global financial crisis became known as the Great Recession, by analogy with the Great Depression of 1929-1933.

The ECB and the other leading central banks have undertaken **unconventional (non-standard, non-traditional) monetary policy measures** mainly to: first, to restore the normal functioning of financial markets and financial intermediation in both developed and developing countries; second, to provide additional accommodative monetary policy at near-zero, zero, or negative nominal interest rates; third, to counteract the increased risks during the global financial crisis, comparable in magnitude to those during the Great Depression (Trifonova, V 2016, p. 177). These policy goals, although conceptually distinct, are closely related. After all, they have the task of supporting price and macroeconomic stability, including by reducing subsequent risks in the acute phases of a crisis (collapse of the financial system, depression and deflation) (Trifonova, V 2016, p. 177).

Since the beginning of 2020, the extraordinary and unconventional measures and programs undertaken by the ECB and the other world's leading central banks are aimed at overcoming the serious risks to price stability, the transmission mechanism of monetary policy and the forecasts for the development of their economies that arose as a result of the outbreak and the escalating spread of COVID-19.

The non-standard monetary policy measures of the ECB and the other global leading central banks continued to operate during the COVID-19 pandemic. They were aimed at countering heightened risks during the acute economic shock caused by the COVID-19 pandemic. As Wehinger (2008, p. 4) argues, no two crises are exactly alike. The 2007-2008 global financial crisis and the crisis caused by the COVID-19 pandemic differ significantly.

In 2021 and 2022, the COVID-19 crisis is leading to accelerating inflationary pressures, raising the question of a reduction in monetary stimulus by the ECB and the other world's leading central banks. This brings to the fore the question of the process of monetary policy normalization and how it should be led by the central banks. The answer to this question is tied to the analysis of the state of the macroeconomic conditions and the financial sector in the economies.

Non-traditional monetary measures are not what central banks usually undertake. Therefore, they should not become the standard form of monetary policy, but this is also debatable. Therefore, central banks should carefully consider when to withdraw unconventional monetary measures, as there are risks if they do it too soon and if they do it too late.

This process started to take place in 2021, when, in the face of rising inflation caused by the COVID-19 pandemic, the ECB and the other leading global central banks carefully moved to limit and/or end some non-conventional monetary policy instruments. "Following the acute phase of the pandemic, central banks in most advanced economies have started to withdraw stimulus as the recovery has progressed and inflationary pressures have emerged. In the jargon of central bankers, this process is often described as bringing about a "normalisation" of monetary policy (Panetta, 2022).

This current paper therefore analyzes two main new trends in the ECB monetary policy, which are as follows: first, the transition from zero and negative key ECB nominal interest rates to positive nominal interest rates, and second, the process of normalization of ECB monetary policy, i.e. limiting and eliminating some non-traditional monetary measures.

The structure of the paper is as follows: Section 2 describes the key characteristics of the central bank's unconventional monetary policy. Section 3 is focused on the toolkit of the unconventional monetary policy. Section 4 is devoted to the interest-rate policy of the ECB and the process of normalization. Finally, the paper ends with summarizing the results from the study.

2. UNCONVENTIONAL MONETARY POLICY OF THE CENTRAL BANK

Before the 2007-2008 global financial crisis, monetary policy, in terms of the amount of money and interest rates in the economy, was permanently carried out by central banks in a relatively predictable and systematic way (Trifonova, S 2006). The policy was formulated and implemented in a relatively stable environment of economic growth in accordance with the state of the national and international financial markets and long-term government economic goals. It reveals the decisions and measures of central banks, which, using certain instruments of intervention, adjust parameters such as the monetary base or interest rates in order to realize their goals and above all: to maintain price stability in the economy.

In the period before the global financial crisis, the key instrument of central banks' monetary policy was the short-term interest rate. To a large extent, monetary aggregates and the exchange rate are left to adjust freely. The central bank's transparency function guides market expectations about the future of interest rates. Well-functioning arbitrage ensures that actual and expected changes in short-term interest rates are passed along the yield curve for government bonds and among private asset classes, including bank credit. Changes in nominal interest rates affect real interest rates and thus are transmitted to real economic decisions, such as consumption, investment, trade (Trifonova S et al., 2017). **This model has been challenged by the global financial crisis in three ways:**

- First, because of large-scale financial disruptions, changes in interest rates fail to be transmitted along the yield curve on debt securities, to all asset classes, as well as to credit spreads (Adrian and Shin, 2009);

- Second, the increased vulnerability pushes some segments of the financial markets to “freeze” (market freeze), for example, the interbank money market;
- Third, the severity of the recession and the threat of a prolonged period of too low inflation forced central banks to lower nominal interest rates close to zero, and even to introduce negative nominal interest rates.

During the global financial crisis, financial markets and financial intermediation were severely shaken for two main reasons. The first reason was the collapse of confidence in certain institutions or markets due to the presence of counterparty credit risk and the greater vulnerability of financial systems. The second cause, observed not only in crises but also in recessions, was an increase in the self-propagation of asset price cycles and constraints in the lending process. Central banks responded to the global financial crisis by dramatically expanding their role as lender of last resort. During the global financial crisis, disruptions also affected the interconnected funding markets for non-bank institutions and for sovereigns, as well as some derivatives markets (Trifonova V & Trifonova, S 2016).

Before the emergence of the global financial crisis, the transmission mechanisms of monetary policy were extremely clear. According to Zavadská et al. (2012), the main channels through which central bank impulses influence the decisions of economic units are the interest rate channel, the exchange rate channel and the bank credit channel. For example, in the interest rate channel effect, changes in central bank key interest rates lead to changes in bank interest rates. In the bank credit channel, through its expansionary policy, the central bank provides more reserve money to the banks. This allows them to increase the supply of credit, which in turn leads to increased demand, investment, consumer spending and economic growth.

The money supply created in the economy depends on the monetary policy of the central bank, and under normal conditions this policy is carried out by setting interest rates. The introduction of non-conventional measures is dictated by the problem that, in a period of economic crisis or deep recession, the usefulness of conventional monetary instruments becomes limited. Nominal interest rates are reduced to practically zero, and reserve requirements can no longer be lowered, for example, because changes in banks' reserve requirements have a very strong impact on the money supply, which is why they are one of the instruments of monetary policy, which are rarely used. When interest rates are reduced to near zero, the economy also risks falling into a liquidity trap, as economic agents are no longer interested in investing and instead start saving, which can prove to be an obstacle to recovery.

In relation to the impact of monetary policy on the economy, economists (Zavadská et al., 2012, Greenville, 2018, etc.) distinguish between **expansionary, restrictive (contractory) or neutral monetary policy**. Expansionary monetary policies are monetary policies that increase the aggregate demand in the economy, while contractionary monetary policies are monetary policies that decrease the aggregate demand curve in the economy (StudySmarter, 2023). An expansionary monetary policy decreases the interest rate in order to increase the size of money supply, while a contractionary monetary policy increases the interest rate to reduce the size of money supply (AnalystNotes, 2023).

The idea behind the concept of neutral rate of interest is that there might be a rate of interest that neither deliberately seeks to stimulate aggregate demand and growth nor deliberately seeks to weaken growth from its current level (AnalystNotes, 2023). In other words, a neutral interest rate would be one that encourages a rate of growth of demand close to the estimated trend rate of growth of real gross domestic product (GDP). The neutral rate is a useful method of measuring the stance of monetary policy. It has two components – trend growth and inflation target (AnalystNotes, 2023). When the neutral rate is reached, the state of equilibrium is attained, implying that the economy is now well-balanced and the price level is stable. Certainly there can be no such thing as an exact measure of the neutral rate (AnalystNotes, 2023). According to Greenville (2018), “determining the neutral rate can determine how much stimulus an economy requires, and important policy implications follow if present low estimates are correct”.

Depending on its responsiveness, the monetary policy is said to be **active or passive** (Black, 1972, Trifonova S et al., 2017, Maćkowiak & Schmidt, 2023). Policy rule is said to be active if it responds strongly while it is said to be passive if it responds weakly. “Under an active monetary policy, a central

bank uses its discretion to set monetary policy in response to changing economic conditions. Active monetary policy grants central bank the flexibility and discretion to act based on its assessment of the nation's economy. Hence, active policy allows the central bank to moderate economic fluctuations that could create instability. Monetary policy is passive, when the central bank reacts only weakly to macroeconomic changes in a country. It follows a predetermined set of rules that are not altered in response to economic changes" (jncollege.co).

Kydland & Prescott (1977) were the first to introduce a distinction between **time-inconsistent and time-consistent policy**. A time-inconsistent policy may make the public happy in the short run but will ultimately fail to produce the long-run policy goal. A time-consistent policy, in contrast, nails the long-run policy goal but does not make people unhappy in the short run (Kydland & Prescott, 1977).

Economists also categorize policy-making frameworks as either **rule-based or discretionary** (Trifonova S, 2006, Buol & Vaughan, 2003). According to Buol & Vaughan (2003): "In a rules framework, policy responses must follow a pre-specified plan. The plan can be non-activist in nature – the rule may force policy-makers to pursue the same course of action in all circumstances. Or the plan can be activist in nature – the rule may direct policy-makers to respond to different circumstances in different pre-determined ways. The rules are supposed to constrain policy-makers' actions in advance. Proponents of discretionary policy note that such flexibility allows policy-makers to respond to unforeseen scenarios."

According to Trifonova S et al. (2017), the main types of monetary policy from the point of view of the characteristics of the policy instruments used are **conventional (traditional, standard, orthodox) monetary policy and unconventional (non-traditional, non-standard) monetary policy**.

In the economic literature, **there is no exact definition of the concept of "unconventional monetary policy"**, but in general it refers to monetary policy measures that are non-standard, unusual, non-typical. There is no exact date on which the concept was first used, but it entered the vocabulary of central bankers and economists after the global financial crisis, which led to unprecedented measures by governments, central banks and regulators.

The term "unconventional monetary policy" is believed to have been used for the first time by Bini Smaghi in 2009. According to Bini Smaghi (2009), **unconventional monetary policy** is a type of monetary policy that directly targets the cost and availability of and access to external finance for banks, households and non-financial enterprises. These sources of funding can be in the form of liquidity provided by the central bank, loans, fixed income securities or shares. Since the cost of external funding is at a premium over the short-term interest rates in the interbank market, on which monetary policy largely relies, unconventional measures can be seen as an attempt to narrow the spread across different forms of external funding, which affects asset prices and cash flows to the economy. Since such measures aim to affect financing conditions, their design must take into account the financial structure of the economy, in particular the structure of the flow of funds (Bini Smaghi, 2009).

Bini Smaghi (2009) argues that "when conventional tools can no longer achieve the central bank's objective, policy-makers are confronted with a number of issues:

- First, the unconventional tools include a broad range of measures aimed at easing financing conditions. Having this menu of possible measures at their disposal..., monetary policy-makers have to clearly define the intermediate objectives of their unconventional policies. These may range from providing additional central bank liquidity to banks to directly targeting liquidity shortages and credit spreads in certain market segments. The policy-makers then have to select measures that best suit those objectives.
- Second, they should be wary of the possible side-effects of unconventional measures and, in particular, of any impact on the financial soundness of the central bank's balance sheet and of preventing a return to a normal market functioning".

According to Mihailova-Borisova (2016b), the inability of central banks to deal with imbalances in the economy through the use of their traditional monetary policy instruments such as open market

operations, reserve requirements and discount policy necessitates the search for non-traditional monetary policy instruments.

3. TOOLKIT OF THE UNCONVENTIONAL MONETARY POLICY

In addition to clarifying the essence of unconventional monetary policy, it is also necessary to provide definitions for aspects inherent to its toolkit, such as **quantitative easing (QE)**, **the introduction of zero or negative nominal interest rates**, **credit support** and **forward guidance**.

- **Zero Nominal Interest Rate Policy (ZNIRP)** is an unconventional monetary policy tool in which key central bank interest rates are lowered and maintained at or near zero. Under ZNIRP, the central banks are considered to be unable to lower nominal interest rates any further, which constrains conventional monetary policy and can render it ineffective. As a result, in exceptional circumstances, such as financial crises, the central banks can also influence the quantity of money directly through asset purchases or through “**Quantitative Easing**” (QE).
- **Negative Nominal Interest Rate Policy (NNIRP)** is an unconventional monetary policy tool in which key interest rates are set and maintained at a negative nominal value, below a theoretical interest rate floor assumed to be zero. NNIRP differs from negative real interest rates, which are obtained when the level of inflation is taken into account. By introducing nominal interest rates close to zero or even below zero, the central banks have lost one of their traditional monetary policy instruments.
- **Quantitative Easing (QE)** refers to the purchase of financial assets by the central bank through the creation of excess reserves for banks (Mishkin (2010)). The central banks can directly purchase assets in the relevant markets, thus modifying the size and composition of their balance sheets. QE is similar to money market operations, but includes private financial assets such as corporate bonds and commercial paper. By buying financial assets, the central bank affects the cost of financing by increasing the prices of the purchased assets and reducing their yield. By creating excess reserves for banks, the central bank encourages them to extend more credit to households and businesses, leading to increased economic activity.

Bini Smaghi (2009), who speaks of **Direct Quantitative Easing (QE)**, argues that: “When the central bank decides to expand the size of its balance sheet, it has to choose which assets to buy. In theory, it could purchase any asset from anybody. In practice, however, quantitative easing has traditionally focused on buying longer-term government bonds from banks. The idea is twofold: first, sovereign yields serve as a benchmark for pricing riskier privately issued securities. When long-term government bonds are purchased, the yields on privately issued securities are expected to decline in parallel with those on government bonds. Second, if long-term interest rates were to fall, this would stimulate longer-term investments and hence aggregate demand, thereby supporting price stability.”

QE is an unconventional instrument of monetary policy, related to the purchase of large volumes of assets by central banks (Mihailova-Borisova (2016a)). These purchases result in a substantial expansion of central banks’ balance sheets and increase liabilities in relation to the monetary base. QE is usually associated with the purchase of long-term government securities. According to StudySmarter (2023), QE is a type of monetary policy which involves buying securities from the open market to inject money into the economy.

According to Bini Smaghi (2009), “...banks play a critical role in the success of any quantitative easing policy. If the aim is to ensure that new loans are provided to the private sector, central banks should mainly purchase bonds from the banks. The additional liquidity would then be used by the banks to extend new credit. However, banks may choose to hold the liquidity received in exchange for the bonds in their reserves at the central bank as a buffer. In this case, the liquidity provided by the central bank remains within the financial sector; it does not flow out of it. This risk can be minimised if the central bank conducts this type of operation only at the **lower bound** – that is, when it has fully exploited the standard interest rate channel. At the lower bound the remuneration of deposits is null (or almost null) and there is hence little or no incentive for banks to park excess reserves with the central bank. Deploying

a policy of quantitative easing at a policy rate different from the lower bound may necessitate a larger expansion of the central bank's balance sheet and thus increase the risk exposure of the monetary authority." Mishkin (2010) also defines QE as a high-risky tool of monetary policy, but because it increases the risk of injecting too much money into the economy and causing inflation to rise rapidly.

QE is considered an **unconventional monetary policy measure that is quite different from the interest rate targeting** that central banks around the world have been using for nearly thirty years. QE targets the amount of liquidity provided by the central bank, not the price of liquidity, which achieves interest rate targeting.

- **Credit support or Direct credit easing** is a measure of monetary policy that is aimed at providing liquidity and support for spreads in different (mainly wholesale) market segments through purchases of private issued securities (commercial paper, corporate bonds and asset-backed securities) in these markets (Bini Smaghi, 2009). Credit support may affect the money supply or the monetary base, depending on how asset purchases are financed (for example, a central bank may sell government securities to finance the purchase of corporate securities). The credit support channel is considered to be most effective when there are liquidity constraints in the banking system that would impair the credit function of banks, or when banks or firms use the additional liquidity to repay old liabilities or improve their capital adequacy ratios and liquidity. According to Bini Smaghi (2009), the effectiveness of credit easing measures which are aimed at wholesale financial markets depends on their importance in the financing of households and firms, which varies considerably from country to country.

According to Chen (2022), credit easing is a group of unconventional monetary policy tools used by central banks to make credit and liquidity more readily available in times of financial stress. Credit easing happens when central banks purchase certain assets such as government bonds. The aim of credit easing is to stabilize lending markets by having the central bank act as a buyer of last resort for certain debt securities. According to Bini Smaghi (2009), the purchase of privately issued securities implies that the central bank interacts directly with the private sector and thus enters the realm of credit risk. Outright purchases of privately issued securities affect the risk profile of the central bank's balance sheet. Therefore, in order not to compromise the financial independence of the central bank, policy-makers should carefully assess the eligibility of all assets in view of the implications they could have on the risk exposure of the central bank's balance sheet (Bini Smaghi, 2009).

Chen (2022) explains that QE is similar to credit easing, but however QE differs somewhat in that credit easing focuses on the quality of central bank assets held while QE looks at quantity. Today, QE and credit easing are used interchangeably, primarily referring to a central bank's purchase of assets to stimulate growth.

Bernanke (2017) also points out that in addition to QE, the unconventional monetary policy includes credit easing measures. They are characterized by the provision of liquidity to the economy by central banks through financial intermediaries, by purchases of private assets such as corporate bonds, mortgage-backed securities (MBSs), asset-backed securities (ABS) and by direct lending. This definition can include subsidized credit, credit provided at low interest rates, and liquidity and credit provided directly.

Fawley and Neely (2013) define QE as any policy that unusually increases the monetary base, including through asset purchase instruments and the provision of credit support. According to Bini Smaghi (2009), a central bank can affect the cost of credit by influencing the market conditions of different assets with different maturities (for example, government securities, corporate bonds, commercial securities or foreign assets) by conducting two types of measures – quantitative easing and credit facility. The first is aimed at the level of the long-term interest rate on financial assets. Such a measure would work mainly on the market for risk-free assets, usually government securities. The second measure targets the risk spread across a range of assets, between those whose markets are functioning normally and between those whose markets are affected. The two measures affect the central bank's balance sheet differently. Another difference is that credit easing can take place at levels of short-term nominal interest rates above zero, while QE makes sense when interest rates are zero or very close to zero. Both measures

are aimed at increasing the size of the central bank's balance sheet and thereby increasing its monetary liabilities.

According to Mishkin (2010), credit support refers to the purchase of private sector assets by the central bank in critical markets considered important to the functioning of the economy. The purpose of credit support is to reduce risk spreads and improve liquidity and trading in these markets, thereby stimulating economic activity. Unlike QE, which leads to an expansion of the monetary base by creating excess reserves, the effects of credit support on the monetary base can be sterilized, for example, by reducing central bank investments in other assets.

Mishkin (2010) points out that the effectiveness of credit support can be assessed on the basis of the reduced risk premium, which depends on the substitutability of different types of assets. Because substitutability changes over time, the effects of credit support on lending and aggregate demand can be unclear.

- **Forward guidance policy** is an unconventional monetary policy tool, consisting in active guidance of market expectations through communication carried out by the central bank. Campbell et al. (2012) define forward guidance as a simple statement by the central bank about how it determines the state of the economy and how it will change interest rates, as well as a decision that binds the central bank to certain conditions that must be met before it takes change in your policy.

Forward guidance consists of managing the expectations of market participants and economic agents about the future course of monetary policy through direct communication about interest rates, quantitative easing programs, or the provision of other information, such as making economic forecasts. As Coenen et al. (2017, p. 4) argue: "Communication can help making central banks transparent and thereby contribute to their accountability and to the management of expectations of economic agents." Forward guidance, *ceteris paribus*, can help fine-tune monetary policy communication and information.

Moessner & Rungcharoenkitkul (2019, p. 83) argue that "many central banks have used forward guidance in recent years to influence interest rate expectations, particularly when rates are at the effective or zero lower bound (ZLB) or close to it. Forward guidance is also seen as a useful tool for promoting a smooth adjustment when central banks are seeking to return policy rates to normal levels".

According to Woodford (2012), forward guidance and quantitative easing (large-scale asset purchases) are the two main unconventional monetary policy tools used together to provide further monetary accommodation at the Zero Lower Bound (ZLB) during the global financial crisis. These unconventional monetary policy tools have worked in complementary ways. For example, QE can convey information about the future path of the policy interest rate (i.e. the "signalling channel") (Bauer & Rudebusch, 2014), reinforcing the effect of forward guidance. Coenen et al. (2017) find that the credibility of forward guidance is strengthened if the central bank has also started an asset purchase program.

With the definitions in mind, it can be summarized that **unconventional monetary policy is a type of monetary policy that combines the use of unconventional instruments such as quantitative easing (QE), providing credit support and forward guidance and setting near-zero, zero and negative nominal interest rates**. This paper is devoted particularly to the unconventional interest rate policy of the ECB and the subsequent normalization process.

4. INTEREST RATE POLICY OF THE ECB AND THE PROCESS OF NORMALIZATION

After the deepening of the financial crisis in the autumn of 2008, the ECB undertook a permanent and consistent policy of lowering its key interest rates – the interest rate on the main refinancing operations (MROs), the interest rate on the marginal lending facility and the interest rate on the deposit facility.

The three key policy interest rates of the ECB are the following (ECB, 2023a):

- The **interest rate on the main refinancing operations (MRO)**, which provide the bulk of liquidity to the banking system;

- The **interest rate on the deposit facility**, which banks may use to make overnight deposits with the Eurosystem;
- The **interest rate on the marginal lending facility**, which offers overnight credit to banks from the Eurosystem.

The total reduction in key ECB interest rates in 2008 alone was 175 basis points. In the first half of 2009, the ECB decreased the interest rate on the main refinancing operations (MROs) by another 150 basis points. Between October 2008 and May 2009, the key ECB interest rate – the interest rate on the main refinancing operations (MROs) – was cut by a cumulative 325 basis points. The speed and extent of monetary policy loosening during this period was unprecedented, as the ECB has been responsible for the conduct of monetary policy in the Euro area since the beginning of 1999, which is admittedly a fairly short period of just over a decade. However, interest rate changes of this magnitude remained exceptional, even when looking at the much longer historical track record of other major central banks. From the start of the global financial crisis to the first quarter of 2016, the ECB lowered the key interest rate on the main refinancing operations (MROs) 11 times by a total of 400 basis points to 0.00%.

The **start of the ECB unconventional Zero Nominal Interest Rate Policy (ZNIRP)** was given by the decision of the Governing Council of the ECB on 5 July 2012 to decrease by 25 basis points to **0.00% the interest rate on the deposit facility**, with effect from 11 July 2012 (ECB, 2012a). In this way, the interest rate on the deposit facility reached the **lower bound**. By introducing one of its three key policy interest rates at zero level, the ECB has lost one of its traditional monetary policy instruments.

At the same meeting on 5 July 2012, the Governing Council of the ECB decided to lower the interest rate on the main refinancing operations (MROs) of the Eurosystem by 25 basis points to 0.75%, starting from the operation to be settled on 11 July 2012, and to lower the interest rate on the marginal lending facility by 25 basis points to 1.50%, with effect from 11 July 2012 (ECB, 2012a).

At the meeting on 2 May 2013, the Governing Council of the ECB took the decision the interest rate on the deposit facility to be remained unchanged at 0.00%, with effect from 8 May 2013 (ECB, 2013a). Thus, the zero interest rate on deposit facility of the ECB was reaffirmed. At the same meeting, the Governing Council decided to decrease the interest rate on the main refinancing operations (MROs) of the Eurosystem by 25 basis points to 0.50%, starting from the operation to be settled on 8 May 2013, and to decrease the interest rate on the marginal lending facility by 50 basis points to 1.00%, with effect from 8 May 2013 (ECB, 2013a).

At the meeting on 7 November 2013, the Governing Council of the ECB also reaffirmed the decision the interest rate on the deposit facility to be unchanged at 0.00%, with effect from 13 November 2013 (ECB, 2013b). Thus, in the period from July 11, 2012 to June 13, 2014, the ECB's interest rate on the deposit facility was permanently maintained at zero level. At the same meeting, the Governing Council decided to decrease the interest rate on the main refinancing operations (MROs) of the Eurosystem by 25 basis points to 0.25%, starting from the operation to be settled on 13 November 2013, and to decrease the interest rate on the marginal lending facility by 25 basis points to 0.75%, with effect from 13 November 2013.

For the first time on June 11, 2014, the ECB's interest rate on the deposit facility moved into a negative territory.

The **start of the ECB unconventional Negative Nominal Interest Rate Policy (NNIRP)** was given by the decision of the Governing Council of the ECB on 5 June 2014 to implement a negative deposit facility rate, with effect from 11 June 2014. The interest rate on the deposit facility was decreased by 10 basis points to -0.10%, with effect from 11 June 2014 (ECB, 2014a). The low inflation rate was the major reason for the ECB to initiate new measures intended to decrease short-term interest rates and to encourage bank lending in the Euro area (BNB, 2014, p. 22).

Negative rate was also applied to average reserve holdings in excess of the minimum reserve requirements and other deposits held with the Eurosystem, in particular to: (i) banks' average reserve holdings in excess of the minimum reserve requirements; (ii) government deposits held with the Eurosystem that exceed certain thresholds that will be set in the relevant Guideline to be published by 7

June; (iii) Eurosystem reserve management services accounts if not currently remunerated; (iv) participants' account balances in TARGET2; (v) non-Eurosystem NCB balances (overnight deposits) held in TARGET2; and (vi) other accounts held by third parties with Eurosystem central banks when stipulated that they are not currently remunerated or are remunerated at the deposit facility rate (ECB, 2014c).

When short-term interest rates reach the **Effective Lower Bound (ELB)**, central banks may introduce a policy of negative nominal interest rates (Negative Nominal Interest Rate Policy, NNIRP). In this regard, the ECB was the first central bank to set a negative nominal interest rate on its deposit facility, i.e. the interest rate at which banks deposit funds with their national central bank with an overnight maturity. This unprecedented move by the ECB since June 2014 to lower the interest rate on overnight deposits from 0.00% to -0.10% was a direct attempt to stimulate credit activity in the Eurozone.

At the meeting on 4 December 2014, the Governing Council of the ECB took the decision to further decrease the interest rate on the deposit facility by 10 basis points to -0.20%, with effect from 10 September 2014 (ECB, 2014b). At this meeting, the Governing Council decided that the interest rate on the main refinancing operations (MROs) and the interest rates on the marginal lending facility would be remained unchanged at 0.05% and 0.30% respectively (ECB, 2014b).

At the meeting on 3 December 2015, the ECB Governing Council decided that the interest rate on the deposit facility to be further decreased by 10 basis points to -0.30%, with effect from 9 December 2015 (ECB, 2015). At the same meeting the interest rate on the main refinancing operations (MROs) and the interest rate on the marginal lending facility were remained unchanged at 0.05% and 0.30% respectively.

At the meeting on 10 March 2016, the Governing Council of the ECB took the following monetary policy decisions: (1) The interest rate on the main refinancing operations (MROs) of the Eurosystem were further decreased by 5 basis points to 0.00%, starting from the operation to be settled on 16 March 2016; (2) The interest rate on the marginal lending facility were also decreased by 5 basis points to 0.25%, with effect from 16 March 2016; (3) The interest rate on the deposit facility were further decreased by 10 basis points to -0.40%, with effect from 16 March 2016 (ECB, 2016).

At the meeting on 12 September 2019, the ECB Governing Council took the decision to further decrease the interest rate on the deposit facility by 10 basis points **to -0.50%**, with effect from 18 September 2019 (ECB, 2019). **This is an all-time low for the interest rate on the deposit facility.**

At the same meeting, the interest rate on the main refinancing operations (MROs) and the rate on the marginal lending facility were remain unchanged at their current levels of **0.00% and 0.25% respectively**. In fact, **these are the lowest levels of the interest rate on the main refinancing operations (MROs) and the rate on the marginal lending facility for all years.**

The Governing Council expected the key ECB interest rates to remain at their present or lower levels until it has seen the inflation outlook robustly converge to a level sufficiently close to, but below, 2% within its projection horizon, and such convergence has been consistently reflected in underlying inflation dynamics (ECB, 2019).

Since June 2014, the ECB rate on the deposit facility has been set below zero, and the other two key ECB policy rates – the interest rate on the main refinancing operations (MROs) and the rate on the marginal lending facility, have been set very close to zero. The ECB pushed the limits of zero-bound below the numerical level and implemented negative rates to spur growth and spending in the Euro area.

In general, it can be summarized that the reductions of the negative interest rate on the deposit facility were in September 2014 to the level of -0.20%, later in March 2016 – by another 10 basis points to the negative level of -0.40% , and the reduction of the interest rate on the marginal credit facility – by 5 basis points to the level of 0.25%.

While the interest rate on the main refinancing operations (MROs) was left at 0.00%, the interest rate on the marginal lending facility rate was lowered to 0.25%, and the negative interest rate on the deposit facility was revised again from -0.40% to a record low of -0.50%. At the end of September 2021, the

levels of the ECB key policy interest rates remained unchanged, with requested for no increase at least until the end of 2022. However, this prediction is almost coming true as the ECB key interest rates are being raised in mid-2022.

The reason for the reductions in the key policy interest rates and the introduction of a negative interest rate on the deposit facility was that the published macroeconomic indicators have signaled a slowdown in economic activity in the Euro area, and at the same time as the fall in inflation, there was also a decrease in inflation expectations in the medium term. Economic data for the period led to the adoption of additional measures to lower interest rates and provide liquidity by the ECB in September 2014. The further reduction in the interest rate on the main refinancing operations (MROs) had a favorable effect on the conditions under which banks can borrow funds under the targeted credit programs announced by the ECB (BNB, 2014, p. 22).

Zero Lower Bound (ZLB) is an expansionary monetary policy tool where a central bank lowers short-term interest rates to zero, if needed, to stimulate or boost the economy. A central bank that is forced to enact this policy must also pursue other, often unconventional, methods of stimulus to resuscitate the economy (Mitchell, 2021). The zero lower bound occurs when the nominal interest rate in the economy is at zero or the nominal interest rate of a country drops to zero, which is the lowest point it can get (StudySmarter, 2023).

“The zero-bound is the lower limit that rates can be cut to, but no further. When this level is reached, and the economy is still underperforming, then the central bank can no longer provide stimulus via interest rates. Economists use the term liquidity trap to describe this scenario. When faced with a liquidity trap, alternative procedures for monetary stimulus often become necessary. Conventional wisdom was that interest rates could not move into negative territory, meaning once interest rates reach zero or are close to zero, for example, 0.01%, monetary policy has to be altered to continue to stabilize or stimulate the economy. The most familiar alternative monetary policy tool is perhaps quantitative easing (QE)” (Mitchell, 2021).

Williams (2014) argues that the central banks should be prepared for possibility that interest rates will hit zero again in the future. Central bankers should not assume that episodes in which short-term interest rates go to zero – the “zero lower bound” – would be infrequent or short-lived.

According to Schmidt (2016), the **Effective Lower Bound (ELB) on nominal interest rates** is binding so that policy rates cannot be lowered further, it becomes more difficult for central banks to stabilize inflation at its objective using conventional policy tools. This was the case not only in the Euro area where policy rates were at, or close to, the ELB, but also when the economy has been recovered and policy rates have risen above the ELB.

Coenen et al. (2017, p. 4) also speak of Effective Lower Bound (ELB) on nominal interest rates. The authors explain that: “With policy rates being constrained at the effective lower bound (ELB), communication in the form of forward guidance (FG) about policy rates has become a policy tool in itself. Once the central bank has lowered short-term interest rates to their ELB, an additional easing of monetary policy can potentially still be achieved by managing expectations about the future course of policy. This is what happens under FG, where the central bank goes beyond statements about the current setting of monetary policy and also makes explicit statements about the future path of policy” (Coenen et al., 2017, p. 4).

“Effective lower bound is a development of the Zero lower bound assumption that monetary policy interest rates should not be, or cannot be, lower than zero. The effective lower bound takes into account the storage and security costs of holding physical cash. Accordingly the effective lower bound would be negative, rather than zero. This is the rate at which it becomes profitable for financial institutions to exchange central bank reserves for cash” (wiki.treasurers).

However, zero or negative nominal interest rates have failed to stimulate the Euro area economy. Thus, the ECB decided to resort to a non-standard monetary policy measure – the Expanded Asset Purchase Programme (EAPP) or shortly Asset Purchase Programme (APP).

The ECB has implemented the following **asset purchase programmes, which over time were enriched and in effect shaped the face of QE in the Eurozone:**

1. **Asset-Backed Securities Purchase Programme (ABSPP)** – started in November 2014 with a total amount of €14,580 billion. Between 21 November 2014 and 19 December 2018 the Eurosystem conducted net purchases of asset-backed securities under the ABSPP.
2. **Three Covered Bond Purchase Programmes (CBPP) – 1, 2 and 3.** **CBPP1** was conducted during the period 2 July 2009 – 10 June 2010 in order to support the Euro area financial system after the collapse of the US bank Lehman Brothers. The direct purchases of covered bonds were amounted to the nominal amount of €60 billion. The Eurosystem held the assets bought under this programme until maturity. **CBPP2** was introduced in November 2011 in order to support the Euro area banks after the debt crisis. The nominal amount of €16,420 billion was purchased in the primary and secondary markets during the period November 2011 – 31 October 2012. The Eurosystem held the assets bought under this programme until maturity. **CBPP3** was introduced in October 2014 with a total nominal amount of €131,140 billion. The Eurosystem conducted net purchases of covered bonds under CBPP3 until 19 December 2018.
3. **Corporate Sector Purchase Programme (CSPP)** – conducted between 8 June 2016 and 19 December 2018. It included purchases of euro-denominated bonds, issued by non-bank corporations (corporate sector bonds), established in the Euro area. Corporate sector bonds were rated by investment rating.
4. **Public Sector Purchase Programme (PSPP)** – initiated in March 2015 and conducted until 19 December 2018. Its total amount was €393,640 billion. This programme covered market tradable public sector debt securities, issued by the central governments of the Euro area member-states, by certain agencies headquartered in the Euro area or by certain international or supranational institutions in the Euro area. In particular, the securities covered by the PSPP included nominal and inflation-linked central government bonds, and bonds issued by recognized agencies, regional and local governments, international organizations and multilateral development banks located in the Euro area.

All these programmes formed the so-called **Expanded Asset Purchase Programme (EAPP) or Asset Purchase Programme (APP)**, and this package of measures also included the Targeted Longer-Term Refinancing Operations – TLTRO I), launched in September 2014, as well as its second version, introduced in 2016 – TLTRO II.

In essence, the **Targeted Longer-Term Refinancing Operations (TLTROs)** were credit support programmes. Their main objective was to promote bank lending to the real sector in the Euro area. The second series of four targeted long-term refinancing operations (TLTRO II), each with a maturity of 4 years, began in June 2016. The borrowing conditions for these operations were linked to the level of the interest rate on the deposit facility. The main role of the targeted long-term refinancing operations was to provide longer-term loans to banks at favourable costs and thus to encourage them to lend to businesses and consumers in the Euro area (ECB, 2021). By encouraging bank lending, TLTROs ensured that the economy benefited from the ECB's monetary policy. Loans to businesses and households finance investments and support spending on goods and services, especially when the economy is facing major difficulties. The ECB Governing Council regularly assesses how targeted lending operations are contributing to its monetary policy stance (ECB, 2022b). During the acute phase of the pandemic, this instrument played a key role in countering downside risks to price stability (ECB, 2022c).

Other ECB programmes are the following.

Securities Markets Programme (SMP), launched in May 2010, where the Eurosystem (the ECB and the Euro area national central banks, NCBs) directly purchased bonds on the secondary public and private debt markets (mostly Euro area Treasury bonds). It was intended to ensure depth and liquidity in malfunctioning segments of the debt securities markets and to restore an appropriate functioning of the monetary policy transmission mechanism (ECB, 2010). As the purchases of debt securities

conducted in the context of the SMP were sterilized, they did not change central bank liquidity. Importantly, the SMP did not alter the stance of monetary policy as determined by the ECB Governing Council (ECB, 2010). Following a Governing Council decision on 6 September 2012 to initiate outright monetary transactions (OMT), the SMP was terminated. The existing securities in the SMP portfolio are held to maturity. With a view to leaving liquidity conditions unaffected by the programme, the Eurosystem re-absorbed the liquidity provided through the SMP by means of weekly liquidity-absorbing operations until June 2014. On 5 June 2014, the ECB suspended the weekly fine-tuning operations sterilizing the liquidity injected by the programme and the last operation was allotted on 10 June 2014.

Outright Monetary Transactions (OMT) Programme, launched in, August 2012, under which the ECB made covered unlimited purchases (“outright transactions”) in secondary, sovereign bond markets, under certain conditions, of government bonds (with different maturities, of which the maximum was 3 years), issued by Eurozone member-states. The Eurozone member-states had to be in a macroeconomic stabilization programme of the European Financial Stability Facility/European Stability Mechanism (EFSF/ESM) or in an Enhanced Conditions Credit Line (ECB, 2012b).

The Pandemic Emergency Purchase Programme (PEPP) of the ECB was initiated in March 2020 as an unconventional monetary policy measure. It was a temporary programme for the purchase of private and public securities sector in the Euro area. It was intended to counter the serious risks to the monetary policy transmission mechanism and the outlook for the Euro area posed by the coronavirus (COVID-19) outbreak (ECB, 2023g). The Governing Council of the ECB decided to increase the initial €750 billion envelope for the PEPP by €600 billion on 4 June 2020 and by €500 billion on 10 December 2020, for a new total of €1,850 billion. All asset categories eligible under the Asset Purchase Programme (APP) were also eligible under the PEPP, as well as a waiver of the eligibility requirements has been granted for securities issued by the Greek Government (ECB, 2023g).

From January to October 2019 the Eurosystem only reinvested the principal payments from maturing securities held in the ABSPP, CSPP, PSPP and CBPP3 portfolios. Purchases of securities under these four asset purchase programmes were restarted on 1 November 2019 and continued until the end of June 2022. Between July 2022 and February 2023, the Eurosystem aimed to fully reinvest the principal payments from maturing securities. From March 2023 the Eurosystem only partially reinvested the principal payments from maturing ABSPP, CSPP, PSPP and CBPP3 securities. The Eurosystem discontinued all ABSPP, CSPP, PSPP and CBPP3 reinvestments as of July 2023.

Based on the analysis made, **it can be summarized that from 11 July 2012 to 26 July 2022 or a total of 10 years, the ECB conducted unconventional monetary policy such as Zero Nominal Interest Rate Policy (ZNIRP) or Negative Nominal Interest Rate Policy (NNIRP).**

The key ECB interest rates are presented in Figure 1 and Table 1.

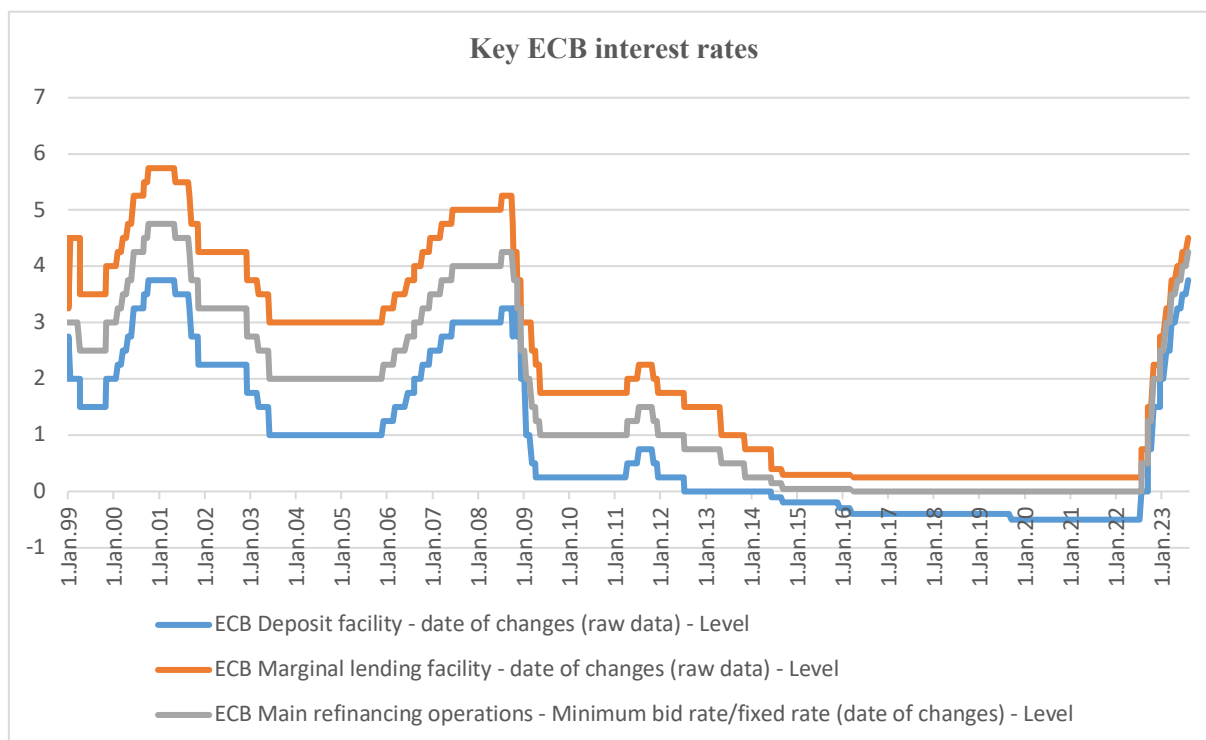


Fig. 1. Key ECB interest rates

Source: ECB, own estimations.

Date (with effect from)		Deposit facility	Main refinancing operations (MROs)		Marginal lending facility
			Fixed rate tenders	Variable rate tenders	
			Fixed rate	Minimum bid rate	
2023	2 Aug.	3.75	4.25	-	4.50
2023	21 Jun.	3.50	4.00	-	4.25
2023	10 May	3.25	3.75	-	4.00
2023	22 Mar.	3.00	3.50	-	3.75
2023	8 Feb.	2.50	3.00	-	3.25
2022	21 Dec.	2.00	2.50	-	2.75
2022	2 Nov.	1.50	2.00	-	2.25
2022	14 Sep.	0.75	1.25	-	1.50
2022	27 Jul.	0.00	0.50	-	0.75
2019	18 Sep.	-0.50	0.00	-	0.25
2016	16 Mar.	-0.40	0.00	-	0.25
2015	9 Dec.	-0.30	0.05	-	0.30
2014	10 Sep.	-0.20	0.05	-	0.30
2014	11 Jun.	-0.10	0.15	-	0.40
2013	13 Nov.	0.00	0.25	-	0.75
2013	8 May	0.00	0.50	-	1.00
2012	11 Jul.	0.00	0.75	-	1.50
2011	14 Dec.	0.25	1.00	-	1.75

2011	9 Nov.	0.50	1.25	-	2.00
2011	13 Jul.	0.75	1.50	-	2.25
2011	13 Apr.	0.50	1.25	-	2.00
2009	13 May	0.25	1.00	-	1.75
2009	8 Apr.	0.25	1.25	-	2.25
2009	11 Mar.	0.50	1.50	-	2.50
2009	21 Jan.	1.00	2.00	-	3.00
2008	10 Dec.	2.00	2.50	-	3.00
2008	12 Nov.	2.75	3.25	-	3.75
2008	15 Oct. ⁴	3.25	3.75	-	4.25
2008	9 Oct. ³	3.25	-	-	4.25
2008	8 Oct.	2.75	-	-	4.75
2008	9 Jul.	3.25	-	4.25	5.25
2007	13 Jun.	3.00	-	4.00	5.00
2007	14 Mar.	2.75	-	3.75	4.75
2006	13 Dec.	2.50	-	3.50	4.50
2006	11 Oct.	2.25	-	3.25	4.25
2006	9 Aug.	2.00	-	3.00	4.00
2006	15 Jun.	1.75	-	2.75	3.75
2006	8 Mar.	1.50	-	2.50	3.50
2005	6 Dec.	1.25	-	2.25	3.25
2003	6 Jun.	1.00	-	2.00	3.00
2003	7 Mar.	1.50	-	2.50	3.50
2002	6 Dec.	1.75	-	2.75	3.75
2001	9 Nov.	2.25	-	3.25	4.25
2001	18 Sep.	2.75	-	3.75	4.75
2001	31 Aug.	3.25	-	4.25	5.25
2001	11 May.	3.50	-	4.50	5.50
2000	6 Oct.	3.75	-	4.75	5.75
2000	1 Sep.	3.50	-	4.50	5.50
2000	28 Jun. ²	3.25	-	4.25	5.25
2000	9 Jun.	3.25	4.25	-	5.25
2000	28 Apr.	2.75	3.75	-	4.75
2000	17 Mar.	2.50	3.50	-	4.50
2000	4 Feb.	2.25	3.25	-	4.25
1999	5 Nov.	2.00	3.00	-	4.00
1999	9 Apr.	1.50	2.50	-	3.50
1999	22 Jan.	2.00	3.00	-	4.50
1999	4 Jan. ¹	2.75	3.00	-	3.25
1999	1 Jan.	2.00	3.00	-	4.50

(interest rate levels in percentages per annum)

Prior to 10 March 2004, changes to the interest rate for main refinancing operations were, as a rule, effective as of the first operation following the date indicated, unless stated otherwise. The change on 18 September 2001 was effective on that same day. From 10 March 2004 onwards, the date refers both to the deposit and marginal lending facilities and to the main refinancing operations (with changes effective from the first main refinancing operation following the Governing Council decision), unless otherwise indicated.

¹ On 22 December 1998 the ECB announced that, as an exceptional measure between 4 and 21 January 1999, a narrow corridor of 50 basis points would be applied between the interest rates for the marginal lending facility and the deposit facility, aimed at facilitating the transition to the new regime by market participants.

² On 8 June 2000 the ECB announced that, starting from the operation to be settled on 28 June 2000, the main refinancing operations of the Eurosystem would be conducted as variable rate tenders. The minimum bid rate refers to the minimum interest rate at which counterparties may place their bids.

³ As of 9 October 2008 the ECB reduced the standing facilities corridor from 200 basis points to 100 basis points around the interest rate on the main refinancing operations.

⁴ On 8 October 2008 the ECB announced that, starting from the operation to be settled on 15 October, the weekly main refinancing operations would be carried out through a fixed-rate tender procedure with full allotment at the interest rate on the main refinancing operations. This change overrode the previous decision (made on the same day) to cut by 50 basis points the minimum bid rate on the main refinancing operations conducted as variable rate tenders.

Table 1. Key ECB interest rates

Source: ECB, August 2023.

At the meeting on 21 July 2022, the Governing Council of the ECB took the decision to raise the three key policy interest rates by 50 basis points, with effect from 27 July 2022 (ECB, 2022a). This was in line with the Governing Council's strong commitment to its price stability mandate or to return inflation to its 2% target over the medium term. Accordingly, the interest rate on the main refinancing operations (MROs) and the interest rates on the marginal lending facility and the deposit facility were increased to 0.50%, 0.75% and 0.00% respectively, with effect from 27 July 2022 (ECB, 2022a). With this decision, a new stage in the implementation of the ECB's monetary policy of raising interest rates begins. This was the **first step on its policy rate normalization path**.

In addition, at the meeting on 21 July 2022, the ECB Governing Council approved the so-called **Transmission Protection Instrument (TPI)**. The TPI is designed to allow bond purchases of individual Euro area member-states under certain circumstances in order to contain unwarranted interest rate hikes (Matthes, 2023). The Governing Council's decision for rising key ECB interest rates was based on the updated assessment of inflation risks and the reinforced support provided by the TPI for the effective transmission of monetary policy. It is intended to support the return of inflation to the Governing Council's medium-term target by strengthening the anchoring of inflation expectations and by ensuring that demand conditions adjust to deliver its inflation target in the medium term (ECB, 2022a). TPI's purchases are focused on public sector securities (marketable debt securities issued by central and regional governments as well as agencies, as defined by the ECB) with a remaining maturity of between 1 and 10 years. Purchases of private sector securities are considered, if appropriate.

As the Governing Council continues normalizing monetary policy, "the TPI will ensure that the monetary policy stance is transmitted smoothly across all Euro area countries" (ECB, 2022e). The OMT is still part of the Eurosystem's toolkit – the Governing Council retains discretion to conduct the OMT for countries that fulfil the requisite criteria for the OMT (ECB, 2022e).

At the meeting on 8 September 2022, the ECB Governing Council decided to raise the three key policy interest rates by 75 basis points to 1.25%, 1.50% and 0.75% respectively, with effect from 14 September 2022. The reason was that the inflation remained far too high and stayed above the 2% medium-term target for an extended period (ECB, 2022b). According to Eurostat's estimate, inflation reached 9.1% in August 2022 due to the soaring energy and food prices, the demand pressures in some sectors owing to the reopening of the economy, and the supply bottlenecks driven by the pandemic cycle (ECB, 2022b). According to Lane (2022): "From a monetary policy perspective, the role of bottlenecks in near-term and medium-term inflation dynamics needs to be carefully assessed."

Following the raising of the deposit facility rate to above zero, the two-tier system for the remuneration of excess reserves is abolished. The Governing Council decided to suspend the two-tier system by setting the multiplier to zero (ECB, 2022b).

As concerns the Asset Purchase Programme (APP), the Governing Council intended "to continue reinvesting, in full, the principal payments from maturing securities purchased under the APP for an extended period of time past the date when it started raising the key ECB interest rates and, in any case, for as long as necessary to maintain ample liquidity conditions and an appropriate monetary policy stance" (ECB, 2022b). At its meeting on 15 December 2022, the Governing Council decided to the reinvestments, in full, of the principal payments from maturing securities purchased under the APP will continue until the end of February 2023 (ECB, 2022d).

As concerns the Pandemic Emergency Purchase Programme (PEPP), the Governing Council intended "to reinvest the principal payments from maturing securities purchased under the programme until at least the end of 2024" (ECB, 2022b). Regarding the refinancing operations, the Governing Council decided to continue to monitor bank funding conditions and to ensure that the maturing of operations under the third series of targeted longer-term refinancing operations (TLTRO III) would not hamper the smooth transmission of its monetary policy.

At the meeting on 27 October 2022, the Governing Council of the ECB took the decision to raise the three key policy interest rates by 75 basis points, with effect from 2 November 2022 (ECB, 2022c). Accordingly, the interest rate on the main refinancing operations (MROs) and the interest rates on the marginal lending facility and the deposit facility were increased to 2.00%, 2.25% and 1.50% respectively. The Governing Council bases the future policy rate path on the evolving outlook for inflation and the economy, following its meeting-by-meeting approach (ECB, 2022c).

The trend of increasing the ECB key policy rates has continued in the following months until now. It has been in line with the determination of the ECB Governing Council to ensure the timely return of inflation to the 2% medium-term target.

At the meeting on 15 December 2022, the Governing Council decided to raise the interest rate on the main refinancing operations (MROs) and the interest rates on the marginal lending facility and the deposit facility by 50 basis points and, based on the substantial upward revision to the inflation outlook (ECB, 2022d). Accordingly, the interest rate on the main refinancing operations (MROs) and the interest rates on the marginal lending facility and the deposit facility were increased to 2.50%, 2.75% and 2.00% respectively, with effect from 21 December 2022.

The same decision was taken at the meeting of the ECB Governing Council on 2 February 2023. The Governing Council declared that it would stay the course in raising interest rates significantly at a steady pace (ECB, 2023b). The interest rate on the main refinancing operations (MROs) and the interest rates on the marginal lending facility and the deposit facility were raised by 50 basis points to 3.00%, 3.25% and 2.50% respectively, with effect from 8 February 2023.

At the next meeting on 16 March 2023, the Governing Council also decided to increase the interest rate on the main refinancing operations (MROs) and the interest rates on the marginal lending facility and the deposit facility by 50 basis points to 3.50%, 3.75% and 3.00% respectively, with effect from 22 March 2023 (ECB, 2023c).

The next increase in key interest rates was decided at the meeting on 4 May 2023 of the ECB Governing Council. The three key ECB interest rates were increased by 25 basis points such as follows: the interest

rate on the main refinancing operations (MROs) – to 3.75%, the interest rate on the marginal lending facility – to 4.00% and the interest rate on the deposit facility – to 3.25%, with effect from 10 May 2023 (ECB, 2023d).

A new increase in the key ECB interest rates followed on 15 June 2023. The three key interest rates were increased by another 25 basis points to 4.00% (the interest rate on the main refinancing operations, MROs), to 4.25% (the interest rate on the marginal lending facility) and to 3.50% (the interest rate on the deposit facility), with effect from 21 June 2023 (ECB, 2023e). Eurosystem staff expected headline inflation to average 5.4% in 2023, 3.0% in 2024 and 2.2% in 2025 (ECB, 2023e). As concerns the Asset Purchase Programme (APP), the Governing Council of the ECB declared that it would discontinue the reinvestments under the APP as of July 2023. The APP portfolio was declining at a measured and predictable pace, as the Eurosystem decided do not reinvest all of the principal payments from maturing securities. The decline would amount to €15 billion per month on average until the end of June 2023 (ECB, 2023e).

The most recent increase in the key policy interest rates was made on 27 July 2023. According to the Governing Council of the ECB: “Inflation continues to decline but is still expected to remain too high for too long” (ECB, 2023f). The interest rate on the main refinancing operations and the interest rates on the marginal lending facility and the deposit facility were raised by 25 basis points to 4.25%, 4.50% and 3.75% respectively, with effect from 2 August 2023. The Governing Council also decided to set the remuneration of minimum reserves at 0% in order to preserve the effectiveness of monetary policy by maintaining the current degree of control over the monetary policy stance and ensuring the full pass-through of the interest rate decisions to money markets (ECB, 2023f).

Overall, these were some of the proofs that the **process of normalizing the ECB monetary policy had long since begun**. With this total of nine major policy interest rates increases in a row, the Governing Council of the ECB has made substantial progress in withdrawing monetary policy accommodation.

5. CONCLUSIONS

The unconventional course of monetary policy has been introduced to restore the normal functioning of financial markets and financial intermediation in both developed and developing countries after the severe shocks during the global financial crisis. Before the crisis, the key instrument of central banks’ monetary policy was the short-term interest rate. After the deepening of the crisis in the autumn of 2008, the ECB and the world’s leading central banks undertook a permanent and consistent policy of lowering their key interest rates.

Unconventional monetary policy of the leading global central banks has been in place for more than 10 years. The central banks have taken a similar course at different stage, not simultaneously. From July 2012 to July 2022 or a total of 10 years, the ECB conducted, first, a Zero Nominal Interest Rate Policy (ZNIRP), then a Negative Nominal Interest Rate Policy (NNIRP). However, zero or negative nominal key ECB interest rates have failed to stimulate the Euro area economy. Thus, the ECB decided to resort to a non-standard monetary policy measure – the Asset Purchase Programme (APP). It was a part of a package of unconventional monetary policy tools that also included Targeted Longer-Term Refinancing Operations (TLTROs). The non-standard monetary policy measures continued to operate also during the COVID-19 pandemic.

New current trends in the monetary policy of the ECB are the increases in its three key interest rates and the process of policy normalization related to the limitation and elimination of some non-traditional monetary measures. In July 2022 the ECB Governing Council began raising its key policy interest rates. The ECB has since raised the deposit facility rate by a cumulative 425 basis points to 3.75%.

With nine major policy interest rates increases in a row, the Governing Council of the ECB has made substantial progress in withdrawing monetary policy accommodation. The key policy interest rates’ increases reflects the Governing Council’s assessment of the inflation outlook, the dynamics of underlying inflation, and the strength of monetary policy transmission.

In December 2021, the ECB Governing Council announced that it would start normalizing monetary policy by reducing the pace of net asset purchases. The ECB decided to end net purchases in the first half of 2022, first under the Pandemic Emergency Purchase Programme (PEPP) and then under the Asset Purchase Programme (APP). The ECB terminated the following unconventional monetary policy programmes – the Securities Markets Programme (SMP) and the Covered Bond Purchase Programme (CBPP). The Governing Council started to reduce the APP portfolio in March 2023 by only partially replacing maturing securities held therein, and reinvestments under the programme were discontinued as of July 2023.

In July 2022, a new tool – the Transmission Protection Instrument (TPI), was introduced in order to support the effective transmission of monetary policy. The second aim of the TPI was to ensure that the monetary policy stance would be transmitted smoothly across all Euro area countries. The ECB Governing Council also decided to set the remuneration of minimum reserves at 0% in order to preserve the effectiveness of monetary policy by maintaining the current degree of control over the monetary policy stance and ensuring the full pass-through of the interest rate decisions to money markets (ECB, 2023f). “The Governing Council’s future decisions will ensure that the key ECB interest rates will be set at sufficiently restrictive levels for as long as necessary to achieve a timely return of inflation to the 2% medium-term target. The Governing Council will continue to follow a data-dependent approach to determining the appropriate level and duration of restriction” (ECB, 2023f).

Unfortunately, the ECB monetary policy is currently facing serious challenges. Inflation in the Euro area is declining, but is still expected to remain too high for too long. According to de Guindos (2023), energy prices have been the most important driver of both the previous surge and the current decline in inflation. Recovering global demand (after the COVID-19 pandemic) drove the initial rise in commodity prices over the course of 2021. Russia’s invasion of Ukraine in early 2022 pushed up commodity prices further, leading to an energy inflation rate of 44.3% year on year in March 2022, unprecedented in Euro area history. Food inflation was also affected, reaching a historic high of 15.5% in March 2023 (de Guindos, 2023). In response to the extraordinary surge in inflation since 2021, the ECB began to considerably tighten its monetary policy stance in several phases to make sure that inflation returns to our 2% medium-term target in a timely manner.

REFERENCES

1. Adrian, T & Shin, HS 2009, “Money, Liquidity and Monetary Policy”, *American Economic Review* (papers and proceedings), vol. 99, pp. 600-605.
2. AnalystNotes 2023, Subject 6. Contractionary and Expansionary Monetary Policies and the Neutral Rate, <<https://analystnotes.com/cfa-study-notes-contractionary-and-expansionary-monetary-policies-and-the-neutral-rate.html>>
3. Bauer, M & Rudebusch, G 2014, “The signalling channel for Federal Reserve bond purchases”, *International Journal of Central Banking*, vol. 10, no. 3, September 2014, pp. 233-289.
4. Bernanke, B 2017, “Monetary policy in a new era”, Prepared for Conference on Rethinking Macroeconomic Policy, Peterson Institute, Washington DC, October 12-13, 2017, Brookings Institution, <https://www.brookings.edu/wp-content/uploads/2017/10/bernanke_rethinking_macro_final.pdf>
5. Bini Smaghi, L 2009, Conventional and unconventional monetary policy, European Central Bank, Keynote lecture at the International Center for Money and Banking Studies (ICMB), Geneva, Switzerland, 28 April, <<https://www.ecb.europa.eu/press/key/date/2009/html/sp090428.en.html>>
6. Black, F 1972, “Active and Passive Monetary Policy in a Neoclassical Model”, *The Journal of Finance*, vol. 27, no. 4 (Sep., 1972), pp. 801-814.
7. BNB, 2014, “The Effect of ECB Monetary Policy Measures in 2014 on the Euro Area Financial Market and Bulgaria’s Banking System”, *Economic Review*, vol. 3/2014, Bulgarian National Bank, Sofia,

- <https://www.bnb.bg/bnbweb/groups/public/documents/bnb_publication/pub_ec_r_2014_03_en.pdf>
8. Buol, JJ & Vaughan, MD 2003, Rules vs. Discretion: The Wrong Choice Could Open the Floodgates, Federal Reserve Bank of St. Louis, January 01, 2003, <<https://www.stlouisfed.org/publications/regional-economist/january-2003/rules-vs-discretion-the-wrong-choice-could-open-the-floodgates>>
 9. Campbell, JR, Evans, CL, Fisher, JDM, Justiniano A, Calomiris CW & Woodford M 2012, "Macroeconomic Effects of Federal Reserve Forward Guidance", *Brookings Papers on Economic Activity*, (Spring), pp. 1-80, <<http://www.jstor.org/stable/23287215>>
 10. Chen, J 2022, "Credit Easing: What it Means, How it Works, Criticisms", Investopedia, 24 September 2022, <<https://www.investopedia.com/terms/c/credit-easing.asp>>
 11. Coenen, G, Ehrmann, M, Gaballo, G, Hoffmann, P, Nakov, A, Nardelli, S, Persson, E & Strasser G 2017, "Communication of monetary policy in unconventional times", *ECB Discussion Papers*, no. 2080, June 2017, European Central Bank, Frankfurt am Main, <<https://www.ecb.europa.eu/pub/pdf/scpwps/ecb.wp2080.en.pdf>>
 12. de Guindos, L 2023, "The inflation outlook and monetary policy in the euro area", Keynote speech by Luis de Guindos, Vice-President of the ECB, at King's College London, London, 7 July 2023, <<https://www.ecb.europa.eu/press/key/date/2023/html/ecb.sp230707~8f8f9debc6.en.html>>
 13. ECB, 2010, "Euro area money growth and the "Securities Markets Programme", *ECB Monthly Bulletin*, June 2010, European Central Bank, Frankfurt am Main, <https://www.ecb.europa.eu/pub/pdf/other/mb201006_focus01.en.pdf>
 14. ECB, 2012a, Monetary policy decisions, 5 July 2012, European Central Bank, Frankfurt am Main, <<https://www.ecb.europa.eu/press/pr/date/2012/html/pr120705.en.html>>
 15. ECB, 2012b, Technical features of Outright Monetary Transactions, 6 September 2012, European Central Bank, Frankfurt am Main, <https://www.ecb.europa.eu/press/pr/date/2012/html/pr120906_1.en.html>
 16. ECB, 2013a, Monetary policy decisions, 2 May 2013, European Central Bank, Frankfurt am Main, <<https://www.ecb.europa.eu/press/pr/date/2013/html/pr130502.en.html>>
 17. ECB, 2013b, Monetary policy decisions, 7 November 2013, European Central Bank, Frankfurt am Main, <<https://www.ecb.europa.eu/press/pr/date/2013/html/pr131107.en.html>>
 18. ECB, 2014a, Monetary policy decisions, 5 June 2014, European Central Bank, Frankfurt am Main, <<https://www.ecb.europa.eu/press/pr/date/2014/html/pr140605.en.html>>
 19. ECB, 2014b, Monetary policy decisions, 4 September 2014, European Central Bank, Frankfurt am Main, <<https://www.ecb.europa.eu/press/pr/date/2014/html/pr140904.en.html>>
 20. ECB, 2014c, Press Release, ECB introduces a negative deposit facility interest rate, 5 June 2014, European Central Bank, Frankfurt am Main, <https://www.ecb.europa.eu/press/pr/date/2014/html/pr140605_3.en.html>
 21. ECB, 2015, Monetary policy decisions, 3 December 2015, European Central Bank, Frankfurt am Main, <<https://www.ecb.europa.eu/press/pr/date/2015/html/pr151203.en.html>>
 22. ECB, 2016, Monetary policy decisions, 10 March 2016, European Central Bank, Frankfurt am Main, <<https://www.ecb.europa.eu/press/pr/date/2016/html/pr160310.en.html>>
 23. ECB, 2019, Monetary policy decisions, 12 September 2019, European Central Bank, Frankfurt am Main, <<https://www.ecb.europa.eu/press/pr/date/2019/html/ecb.mp190912~08de50b4d2.en.html>>
 24. ECB, 2022a, Monetary policy decisions, 21 July 2022, European Central Bank, Frankfurt am Main, <<https://www.ecb.europa.eu/press/pr/date/2022/html/ecb.mp220721~53e5bdd317.en.html>>

25. ECB, 2022b, Monetary policy decisions, 8 September 2022, European Central Bank, Frankfurt am Main, <<https://www.ecb.europa.eu/press/pr/date/2022/html/ecb.mp220908~c1b6839378.en.html>>
26. ECB, 2022c, Monetary policy decisions, 27 October 2022, European Central Bank, Frankfurt am Main, <<https://www.ecb.europa.eu/press/pr/date/2022/html/ecb.mp221027~df1d778b84.en.html>>
27. ECB, 2022d, Monetary policy decisions, 15 December 2022, European Central Bank, Frankfurt am Main, <<https://www.ecb.europa.eu/press/pr/date/2022/html/ecb.mp221215~f3461d7b6e.en.html>>
28. ECB, 2022e, Press Release, The Transmission Protection Instrument, 21 July 2022, European Central Bank, Frankfurt am Main, <<https://www.ecb.europa.eu/press/pr/date/2022/html/ecb.pr220721~973e6e7273.en.html>>
29. ECB, 2023a, Key ECB interest rates, European Central Bank, Frankfurt am Main, <https://www.ecb.europa.eu/stats/policy_and_exchange_rates/key_ecb_interest_rates/html/index.en.html>
30. ECB, 2023b, Monetary policy decisions, 2 February 2023, European Central Bank, Frankfurt am Main, <<https://www.ecb.europa.eu/press/pr/date/2023/html/ecb.mp230202~08a972ac76.en.html>>
31. ECB, 2023c, Monetary policy decisions, 16 March 2023, European Central Bank, Frankfurt am Main, <<https://www.ecb.europa.eu/press/pr/date/2023/html/ecb.mp230316~aad5249f30.en.html>>
32. ECB, 2023d, Monetary policy decisions, 4 May 2023, European Central Bank, Frankfurt am Main, <<https://www.ecb.europa.eu/press/pr/date/2023/html/ecb.mp230504~cdfd11a697.en.html>>
33. ECB, 2023e, Monetary policy decisions, 15 June 2023, European Central Bank, Frankfurt am Main, <<https://www.ecb.europa.eu/press/pr/date/2023/html/ecb.mp230615~d34cddb4c6.en.html>>
34. ECB, 2023f, Monetary policy decisions, 27 July 2023, European Central Bank, Frankfurt am Main, <<https://www.ecb.europa.eu/press/pr/date/2023/html/ecb.mp230727~da80cfcf24.en.html>>
35. ECB, 2023g, Pandemic emergency purchase programme (PEPP), last update: 08 August 2023, European Central Bank, Frankfurt am Main, <<https://www.ecb.europa.eu/mopo/implement/pepp/html/index.en.html>>
36. ECB, 2021, What are targeted longer-term refinancing operations (TLTROs)?, 30 March 2021, European Central Bank, Frankfurt am Main, <<https://www.ecb.europa.eu/ecb/educational/explainers/tell-me/html/tltro.en.html>>
37. Fawley, B & Neely, C 2013, "Four Stories of Quantitative Easing", *Federal Reserve Bank of Saint Louis Review*, Jan/Feb, pp. 51-88, <<https://files.stlouisfed.org/files/htdocs/publications/review/13/01/Fawley.pdf>>
38. Greenville, S 2018, "When is monetary policy neutral?", *TheInterpreter*, Lowy Institute, <<https://www.lowyinstitute.org/the-interpreter/when-monetary-policy-neutral>>
39. Jncollege, 2023, <<https://jncollegeonline.co.in/attendance/classnotes/files/1632134133.pdf>>
40. Kydland, FE & Prescott, EC 1977, "Rules Rather than Discretion: The Inconsistency of Optimal Plans", *Journal of Political Economy*, vol. 85, pp. 473-491.
41. Lagarde, C 2022, "Monetary policy in the euro area", Karl Otto Pöhl Lecture by Christine Lagarde, President of the ECB, organized by Frankfurter Gesellschaft für Handel, Industrie und Wissenschaft Frankfurt, 20 September 2022, <<https://www.ecb.europa.eu/press/key/date/2022/html/ecb.sp220920~c3afc1a441.en.html>>
42. Lane, PL 2022, "Bottlenecks and monetary policy", *The ECB Blog*, Blog post by Philip R. Lane, Member of the Executive Board of the ECB, European Central Bank, Frankfurt am Main, 10 February 2022, <<https://www.ecb.europa.eu/press/blog/date/2022/html/ecb.blog220210~1590dd90d6.en.html>>

43. Maćkowiak, B & Schmidt, S 2023, "Passive monetary policy and active fiscal policy in a monetary union", *ECB Working Paper Series*, No. 2781/February 2023, European Central Bank, Frankfurt am Main, <<https://ssrn.com/abstract=4359319>>
44. Matthes, J 2023, "Reforming Economic and Monetary Union: The ECB's Transmission Protection Instrument", *Policy Brief*, Konrad Adenauer Stiftung, <<https://www.kas.de/documents/252038/22161843/Das+Transmissionsschutz-Instrument+der+EZB.pdf/a66462fa-0142-02a6-a857-3ab4700e0e7a?version=1.0&t=1688648250751>>
45. Mihailova-Borisova, G 2016a, "Effectiveness of the ECB's quantitative easing", Conference Proceedings, XII International Scientific Conference of Young Scientists "The Economy of Bulgaria and the European Union: Science and Business", November 11, 2016, UNWE, Sofia, Publishing House of VUZF University "St. Gregory the Theologian", Sofia, pp. 41-54.
46. Mihaylova-Borisova, G 2016b, "Risks of the Eurozone and some EU countries falling into a deflationary spiral", *Economic and Social Alternatives*, vol. 3, Publishing complex – UNWE, Sofia, <https://www.unwe.bg/uploads/Alternatives/4_Gergana_br3_2016_bg.pdf>
47. Mishkin, F 2010, *The Economics of Money, Banking and Financial Markets*, 4th Canadian edition, Pearson Canada, Toronto.
48. Mitchell, C 2021, "Zero-Bound: Definition, Purpose, How It Works, Example", Investopedia, Updated April 06, 2021, <<https://www.investopedia.com/terms/z/zero-bound.asp>>
49. Moessner, R & Rungcharoenkitkul, P 2019, "The zero lower bound, forward guidance and how markets respond to news", *BIS Quarterly Review*, March 2019, <https://www.bis.org/publ/qtrpdf/r_qt1903h.pdf>
50. Panetta, F 2022, "Normalising monetary policy in non-normal times", Speech by Fabio Panetta, Member of the Executive Board of the ECB, at a policy lecture hosted by the SAFE Policy Center at Goethe University and the Centre for Economic Policy Research (CEPR), <<https://www.ecb.europa.eu/press/key/date/2022/html/ecb.sp220525~cef274e856.en.html>>
51. Schmidt, S 2016, The effective lower bound: some implications for inflation dynamics beyond the current low interest rate environment, ECB Research Bulletin, no. 29, European Central Bank, Frankfurt am Main, <<https://www.ecb.europa.eu/pub/economic-research/resbull/2016/html/rb161121.en.html>>
52. StudySmarter, 2023, Expansionary and Contractionary Monetary Policy, <<https://www.studysmarter.co.uk/explanations/macroeconomics/financial-sector/expansionary-and-contractionary-monetary-policy/>>
53. Trifonova, S 2006, *Monetary theory, monetary policy, European monetary integration*, University Publishing House "Stopanstvo", Sofia, ISBN 10: 954-494-686-1; ISBN 13: 978-954-494-686-9 [in Bulgarian].
54. Trifonova, V 2016, "The unconventional monetary policy of the ECB in the conditions of macroeconomic imbalances", Conference Proceedings, National Conference of the Economics Department of the UNWE "Economic challenges: Growth, imbalances, sustainable development", November 6, 2015, Publishing complex – UNWE, Sofia, pp. 176-185 [in Bulgarian].
55. Trifonova, S, Trifonova, V, Atanasov, A & Kolev, S 2017, *The unconventional monetary policy of the world's leading central banks and its effects on developed and developing countries, including and for Bulgaria*, Collective Monograph, Evdemonia Production EOOD Publishing House, Sofia, ISBN: 978-619-7209-23-5 [in Bulgarian].
56. Trifonova, V & Trifonova, S 2016, "The contemporary unconventional monetary policy of the ECB in the context of the financial crisis", *Economic and Social Alternatives*, vol. 4, UNWE, Sofia, ISSN (Print): 1314-6556; ISSN (Online): 2534-8965, pp. 5-26, [in Bulgarian] <https://www.unwe.bg/uploads/Alternatives/Trifonovi-Alternativi_4_%202016_bg.pdf>

57. Wehinger, G 2008, Lessons from the Financial Market Turmoil: Challenges ahead for the Financial Industry and Policy Makers, Financial Market Trends, OECD, ISSN: 1995-2864 <<https://www.oecd.org/finance/financial-markets/41942918.pdf>>
58. Wiki.treasurers, Effective lower bound, <https://wiki.treasurers.org/wiki/Effective_lower_bound>
59. Williams, JC 2014, “Monetary Policy at Zero Lower Bound: Putting Theory into Practice”, *Brookings*, January 16, 2014, <<https://www.brookings.edu/articles/monetary-policy-at-the-zero-lower-bound-putting-theory-into-practice/>>
60. Woodford, M 2012, “Methods of policy accommodation at the interest-rate lower bound”, Paper presented at the Federal Reserve Bank of Kansas City Jackson Hole symposium on The changing policy landscape, 31 August – 1 September.
61. Zavadzka, Z, Ivanich-Drozdovska, M & Yavorski, V 2012, Banking, Publishing complex - UNWE, Sofia.