

MONETARY POLICY IN ADVANCED ECONOMIES DURING THE GLOBAL FINANCIAL CRISIS: LESSONS FOR LITHUANIA

Birutė Visokavičiienė*

Vilnius University, Lithuania

Abstract. *The main goal of the research is to develop monetary policy tools and measures enabling to achieve macroeconomic goals of integration into the euro area in the immediate future. It is noted that until the introduction of the euro Lithuania does not have a monetary policy and applies the currency board regime pegging the litas invariably to the euro (hard peg regime). Therefore, it is not only difficult but also risky to try to achieve financial and economic stability in accordance with the relevant Maastricht criteria through fiscal policy measures alone. Monetary policy instruments are necessary to achieve price stability and the overall financial stability. Currently, Lithuania should address the problem of balancing the currency board regime and the Maastricht criteria as a macroeconomic objective through monetary policy tools and measures.*

The analysis of monetary policies of advanced economies and, first of all, of the euro area reveals the main features of transmission of the monetary policy to a real economy, which can contribute to the successful integration into the euro area. A systemic analysis of the monetary policy is based on monetary and economic theories, laws and patterns, scientific literature and empirical studies. The method used is the logical analysis and systemising of academic literature and modelling of the monetary policy. Such a methodological position enables the justification of the influence of the euro and monetary policy on the future development of the national economy.

Key words: *monetary policy, euro, exchange rate, inflation, indicators*

Introduction

The analysis of the effect of the monetary policy on the real economy with view to establishing the interaction among monetary policy measures, direct targets and macroeconomic indicators is a subject for research when carrying out the monetary policy of today. This research subject is particularly important to Lithuania's integration into the single currency system of the European Union. Today, the main task of the Bank of Lithuania and the Lithuanian Government is to achieve the necessary level of integration into the euro area so as to meet all the criteria of the Maastricht Treaty, the compliance with the criteria being reflected by macro-economic indicators of inflation, finance, exchange rate and long-term interest rate stability.

** Corresponding author:*

Faculty of Economics, Department of Economic Policy, Vilnius University, Saulėtekio Ave. 9, LT-10222, Lithuania;
e-mail: birute.visokaviciene@ef.vu.lt.

The monetary policy is an integral part of the national economic policy as the state manages changes in money supply and tries to regulate inflation through a sustainable and timely economic growth in a targeted way to ensure a balance between money supply and demand.

The global monetary policy, which is described in theory and tested in actual life, formed over the evolvement of banking. The most distinguished experts on the monetary policy recognized the importance of a central bank and the monetary policy it formulates, as well as their significance to the economy. The essential and theoretically grounded argument proving the advantage of monetary policy measures, tools and proximate targets for controlling inflation remains the primary responsibility of the central bank (Friedman, 1990; Krugman and Obstfeld, 2006; Blanchard, 2010).

Milton Friedman, Paul Krugman, Charles Goodhard and others do not doubt the advantages of a free floating currency exchange rate in the independent monetary policy. The regulation of money supply is the most effective instrument of the monetary policy held by the central bank, which is always necessary, in particular when dealing with the challenges of instability (asset liquidity, unemployment, fall in GDP, consumption and investment). The impact of money supply on inflation was proved by Frederic Mishkin (Mishkin, 1992). By means of the monetary policy, central banks need to control money supply as a proximate target in regard with money demand because the main target of the monetary policy is the output close to potential and low inflation (Blanchard, 2010).

In this respect, the main goal of this article is to develop the framework for monetary policy instruments and proximate targets in combination with macroeconomic indicators of macroeconomic stability according to the Maastricht Treaty before the introduction of the euro in Lithuania.

For this purpose, the following tasks are set:

- to analyse the monetary policy carried out by central banks of advanced economies and, first of all, of the euro area;
- to work out a model of the monetary policy showing implementation tools and measures of the monetary policy and macroeconomic goals;
- to put forward recommendations on applying monetary policy measures in Lithuania before introducing the euro according to the criteria of the Maastricht Treaty.

The method used is the analysis of monetary theory, macroeconomics, scientific literature, statistics, as well as documents and modelling of the monetary policy.

Monetary policy possibilities can be analysed from the perspective of the fundamental principles, in particular those related to assigning policy instruments to targets. The first principle is that each instrument should be assigned to a specific target. The second principle is that the assignment should be based on efficiency. In this respect, the main role of the monetary policy in the preparation for the euro introduction should be the

implementation of policy instruments targeting inflation in a fundamental way as the basic analytical framework for the monetary policy. At the same time, the real exchange rate (Krugman, 2006) should be achieved as one of the most important targets of the monetary policy before introducing the euro. The implementation of policy instruments aimed at the real exchange rate should be based on the monetary policy framework, especially in the case of Lithuania, because only the real exchange rate can indicate the reality of the nominal exchange rate under the hard peg regime. These two hypotheses should be tested in view of interaction between monetary targets and macroeconomic goals related to the Maastricht criteria.

The analysis of monetary policy instruments, targets and macroeconomic goals in the light of the EU Monetary Union requirements could predict future changes and risks for macroeconomic stability.

The paper is organised as follows. The next section deals with the analysis of the monetary policy of the European Central Bank (ECB) in respect of the euro and price stability in 1999–2013.

The ECB monetary policy was characterised by conventional or standard measures during 1999–2007, while during the global financial crisis in 2008–2013 the priority in the monetary policy was given to unconventional measures. The institutional framework for the euro was implemented for establishing essential elements aimed at reducing fiscal expansion. Macroeconomic implications are investigated as desirable results achieved by exploring monetary policy tools. The third section deals with the new stage of the monetary policy in advanced economies during the turbulent years of the global crisis. A significant role of unconventional measures of the monetary policy provided by central banks in regard to inflation and exchange rate support the main priority of the decision made for the introduction of the euro in Lithuania. The third section ends with a new approach to monetary policy possibilities implemented in the particular advanced economies.

The fourth section deals with the preparation of the fundamental framework of the monetary policy before the euro introduction. The power of a central bank to regulate money supply, thus influencing inflation and exchange rate, depends on the independent monetary policy. Monetary policy measures and tools exert a more fundamental effect on the market than does the fiscal policy. Therefore, the influence of monetary policy instruments on macroeconomic indicators is methodologically investigated. The fourth section ends with the suggestions for the authorities in regard to monetary policy implementation before introducing the euro in Lithuania. The article ends with the conclusions.

Monetary policy of the European Central Bank in 1999–2013

The European Central Bank has price stability and single currency stability as its primary goals. The monetary policy framework created for the main goal of price stability, including the stability of the euro as a single currency, does not need any changes if monetary policy instruments, measures and tools would exert a direct influence on the main targets of the monetary system. Unfortunately, the current financial crisis changed the approach towards the possibilities of monetary policy transmission to the stability of the single currency. A significant reason for uncertainty (Visokavičienė, 2012) is the distribution of central bank functions between the ECB and national banks because the responsibilities for fiscal policy, economic policy and supervision remain located at the national level (Mersch, 2013). Usually, a central bank has to act as a fiscal agent responsible for the public and private debt, (as private bonds), government debt and fiscal balance. When shaping the monetary policy, the central bank performs the function of a fiscal agent. Therefore, its impact on public debt control and has financial stability is significant and extremely increased during the global crisis in all advanced economies. Fiscal agents (Purposes & Functions, 2013) provide services to the treasury account, process payments, and transfer securities ensuring their safety. Central banks as fiscal agents have played a significant role during the current global crisis by providing financing and buying government securities, treasury bills, etc. At the same time, central banks as fiscal agents control the government debt, including public debt, because of its impact on money supply. Central banks will never finance government debt without controlling money supply.

Transmission of monetary policy tools to monetary policy targets is impossible if safeguarding the euro stability depends on the decisions of national governments in the single currency union.

The monetary and fiscal consolidation is needed now for the European monetary system as well as for the future structural reforms. There is also the need to rethink the institutional structure of the decision making process. The institutional framework for the euro in the euro area includes six main measures (Table 1) as trends of the centralisation of risk management, supervision and fiscal supervision provided by the ECB.

The monetary policy characterised by money supply intervention during the crisis period aspired to stabilise the economy, maintain workplaces and ensure production growth. When examining changes in money supply, makers of the monetary policy assess the increase and decrease in the rates of monetary aggregates and compare them with the factual status in the market. An increase of the deposits together with an increase of redundant reserves in the central bank might be explained by the insufficient market demand, an increased risk in the market or the excessively strict monetary policy. The

TABLE 1. Monetary policy of the European Central Bank (ECB) for the euro and price stability goals in 1999–2013.

Main goals of the monetary policy pursued by the ECB	Monetary policy measures and tools	Macroeconomic indicators achieved as results in the euro area
<p>Long-term goals from 1999:</p> <ul style="list-style-type: none"> • euro stability; • price stability; • holding of inflation at less than 2% but close to 2% of the annual rate. 	<p style="text-align: center;">1999–2007</p> <p>Conventional Conventional monetary policy measures and tools held by the ECB:</p> <ul style="list-style-type: none"> • open market operations; • reserve control; • arrangement of interest rates, etc. 	<p style="text-align: center;">1999–2007</p> <p>Euro stability against USD – Nominal effective exchange rate appreciated by 2–3% in 1999–2004, and from USD 1 to USD 1.47 for the euro in 2007. Price stability: 1.1% inflation (HICP) in 1999; 2.2% in 2007.</p>
<p>1. Long-term goals:</p> <ul style="list-style-type: none"> • euro stability; • price stability; • holding of inflation at less than 2% but close to 2% of the annual rate. <p>2. Credit flows to economy;</p> <p>3. Reduction of financial market volatility;</p> <p>4. Improvement of credit conditions for the market.</p>	<p style="text-align: center;">2008–2013</p> <p>Conventional monetary policy measures and tools held by the ECB:</p> <ul style="list-style-type: none"> • open market operations; • reserve control; • arrangement of interest rates, etc. <p>Unconventional measures:</p> <ul style="list-style-type: none"> • liquidity provider of last resort to monetary counterparties, markets and the real economy during the crisis; • reduction of interest rates; • reduction of main interest rates for refinancing operations from 4% in 2008 to 1% in 2009 and at the end of 2009 to 0,25%; • longer funding terms, more auctions, higher credit lines, domestic system lender of last resort, wider collateral rules; • longer terms of refinancing operations from 3 months to 1 year in 2009; • wider list of collateral assets; • foreign exchange lender of last resort; • forex swap lines; • purchasing of covered bonds on the market. 	<p>Exchange rate stability: nominal effective exchange rate of the euro depreciated by 8% in 2012 and at the end of 2012 the euro cost USD 1.32. Price stability: 3.3% inflation (HICP) in 2008; 1.7% in 2013 (expected). All unconventional measures seek to balance the benefits and possible effects of what the monetary policy can do and what other policies can do.</p> <ul style="list-style-type: none"> • reduced differences of money market leverages; - credit growth; • improvement of credit conditions; • inducement of issuance of securities; • reduced interest rates in the money market.
<p>Institutional framework for the euro</p>	<p>Consolidation of the monetary policy and fiscal policy</p>	<p>Crisis prevention in future</p>
<p>Establishment of the essential elements for the fiscal expansion reduction; stimulation of reduction of imbalances of finance and economy- Stimulation of structural reforms of the real economy and finances as well as banking sector reforms; stimulation of innovations and investments for employment growth</p>	<ul style="list-style-type: none"> • the European Council decision entrusts the ECB with a single supervisory mechanism (SSM); • introduction of the Board for systemic risk responsible for the supervision on the macroeconomic level; • the European Council decision to introduce a single resolution mechanism (SRM); • creation of new capital requirements for the banking system; • improvement of accounting rules and agreements for the financial crisis management; • creation of the TARGET 2 for making use of the support provided by central banks to the banking system. 	<p>Fiscal expansion reduction for the euro stability; risk reduction in the banking system; monetary and financial stability.</p>

Source: Prepared by the author according to the ECB annual reports of 1999–2012.

empiric studies of money compounds by Frederic Mishkin (Mishkin, 2007) serve as informative signals only when certain conditions are present:

- when the relation between the money amount within a respective monetary aggregate and the macroeconomic criteria is sufficiently strong;
- when the monetary aggregate changes comply with macroeconomic changes, for example, changes in inflation and income.

The empiric analysis of Mishkin and Estrella (2007) shows a connection between monetary aggregates, income, and inflation. A close connection between monetary aggregates, income and inflation, examined applying the vector auto-regression (VAR) method, shows whether the monetary aggregates expressing the scope of money supply can be applied as significant signals sent to the monetary policy makers concerning the leverages of the monetary policy or in the field of macroeconomic criteria. The analysis of the influence of the money base and separate monetary aggregates shows that monetary aggregates can always serve as a source of information about changes taking place within them; nevertheless, monetary aggregates as the sole indicators dedicated to money amount regulation cannot be trusted without verifying their interconnection with leverages of the monetary policy and the macroeconomic criteria expressing the goals, such as income, inflation, etc. Assessment of inflation only in accordance with the consumption price index cannot be trusted due to its narrow scope which does not allow evaluating all the changes in property prices. The empiric analysis (Mishkin, 2007) shows that growth in money supply, brought about by accumulation of the central bank reserves, without an adequate economic response and impact on macroeconomic indicators cannot guarantee the expected economic growth.

Unconventional measures of the monetary policy in advanced economies during 2008–2013

Major central banks in advanced economies have implemented a series of unconventional monetary policies during the global financial crisis. Exceptionally low interest rates and bond buying by central banks reduced the risk of deflation and stabilized the financial system, while the response from the real economy was too weak, including the money demand side. The monetary demand analysis shows the risk between changes in money supply and money demand. The International Monetary Fund has indicated that unconventional monetary policies may continue to be warranted if economic conditions do not improve (IMF Survey, 2013).

An analysis of a new round of the monetary policy during the turbulent years of 2008–2012 shows that unconventional measures and tools of the monetary policy used by central banks create favourable conditions for the economic and financial stability. Through exceptionally low interest rates and large-scale bond purchases, central banks

TABLE 2. Major crisis interventions made by central banks in 2008–2012

	2008	2009	2010	2011	2012	Goals and reasons
Bank of England, billions of pounds						
Liquidity, longer term ¹	170	24	17	10	11	Provide adequate bank refinancing
Asset Purchase Facility:						
gilts	...	188	198	249	375	Raise nominal spending in order to meet inflation targets by affecting the level of the yield curve
corporate bonds	...	1.55	1.12	0.65	0.03	
commercial papers	...	0.43	0.00	0.00	...	Improve liquidity in corporate credit
funding for lending	...	...	...	...	4.4 ²
<i>Memorandum items:</i>	Encourage lending to the real economy
total assets	238	238	247	290	414	
GDP	1.441	1.402	1.467	1.516	1.548	
Bank of Japan, trillions of yen						
Liquidity (new stimulus)	24.8	32.0	29.0	Ease financing conditions
Other outstanding loans and repo	39.9	42.3	18.8	7.5	3.7	Ease financing conditions
Asset purchases:						Reduce market rates and risk premiums across various types of financial assets and combat deflation risks
commercial paper	...	...	0.1	2.0	1.5
corporate bonds	...	...	0.1	1.5	2.9
government bonds and bills	...	...	1.2	5.6	28.4
ETFs, REITs	...	...	0.02	0.9	1.6
<i>Memorandum items:</i>	
total assets	123	123	129	143	150	
GDP	501	471	482	471	477	
European Central Bank, billions of euros						
Short-term liquidity	226	81	249	160	117	Maintain sufficient bank intermediation and provide longer-term bank financing
Long-term liquidity	617	669	298	704	1059	
Asset purchases	...	...	...	...	...
Covered bonds (CBPP)	...	29	61	62	70	
Government bonds (SMP)	...	...	75	213	208
<i>Memorandum items:</i>	Maintain/restore the European Central Bank policy rate transmission
total assets	2.043	1.852	2.004	2.736	3.047	
GDP	9.242	8.922	9.176	9.421	9.503	
Federal Reserve, billions of US dollars						
Short-term liquidity						Provide adequate short-term bank funding. Provide adequate funding for foreign exchange operations.
Loans and repo	274	86	45	9	1.2	
US dollar swaps	554	10	0,08	100	12.5	Provide adequate funding for foreign exchange operations.
Long-term liquidity						Provide adequate long-term bank funding against MBS and ABS collateral
TALF	...	0.30	0.67	0.81	0.86	
Asset purchases						Support housing finance
Agency MBS	...	908	992	837	852	
Agency dept Treasury securities	20	160	147	104	82	
<i>Memorandum items:</i>	476	777	1016	1672	1651	Support GSEs Affect the level and shape of the yield curve
total assets	2.241	2.237	2.423	2.928	2.832	
GDP	14.292	13.974	14.499	15.076	15.653	

Sources: Global Financial Stability Report (2013), Balance Sheets of the Bank of England, Bank of Japan, US Federal Reserve, and European Central Bank.

Note: ABC (asset-backed securities); CBPP (Covered Bond Purchase Programme); ETFs (Exchange rate traded funds); GSEs (government sponsored enterprises; MBS (mortgage-backed securities); REITs (Real estate investment trusts); SMP (securities market programme); TALF (Term Asset-Backed Securities Loan Facility).

¹ Zero short-term liquidity provision over the sample period outstanding at the end of December 2008.

² Includes use of Extended Collateral Term Repo and Long-Term Repos.

in advanced economies have reduced the risk of deflation, stabilised the financial system, reassured financial markets as to the reliability of financial intermediaries and thus achieved financial stability. However, the money demand side is dominated by unemployment and slow economic growth. The International Monetary Fund (Global Financial Stability Report, 2013) considers this state of the market and the real economy as a future risk for both the irresponsible borrowing and the low efficiency preventing the adequate return on capital. Karl Habermeier argues that monetary policy tools have contributed to the financial and economic stability during the global crisis, but states and banks must make use of this favourable environment created by unconventional policies for carrying out fiscal, structural, and financial reforms (IMF, 2013).

The major features of the new monetary policy:

- unconventional measures of the monetary policy carried out by central banks stabilised the financial system of developed economies;
- the impact on the transition economies was diverse;
- the timing and scope of unconventional measures and tools can result in unforeseen risks for the real economy.

Adopted by the European Central Bank in respect of the euro area in 2010, unconventional measures and tools of the monetary policy of central banks had to be short-lived, but they have been applied up to the present day. According to the ECB reports for 2009 and 2010, the interest rate of the main refinancing operations was only 1%, and the interest rate of deposit lending options was merely 0.25%. Moreover, the trend towards lower interest rates continues without any foreseeable change.

Another unconventional measure for increasing liquidity in the financial sector is central bank intervention, which is reflected by the statistical data of central banks' assets during the implementation of the non-standard measures of the monetary policy (Table 2).

Analysing the central bank assets set aside for implementing non-standard monetary policy measures and including all memorandum items and the relationship of the assets with changes in GDP, we notice a different response of countries to the change in the composition of monetary policy measures, instruments, and central bank assets. The largest return on the capital transferred to markets was achieved by the Federal Reserve Bank as USD 1 billion transferred generated USD 2.3 billion of GDP in 2008–2012; EUR 1 billion transferred by the European Central Bank to markets has produced EUR 0.3 billion of GDP.

A detailed analysis of non-standard measures of the monetary policy shows the lack of adequate response of the real economy and money demand to the favourable conditions for economic growth, as reflected by macroeconomic indicators such as the

employment and unemployment rates, the balance of payments, current account, income growth, and others.

The policy carried out by the countries around the world and called by the International Monetary Fund the new monetary policy (IMF Survey, 2013) may be generally described as the monetary policy aimed at reducing interest rates, improving crediting, i.e. lending conditions, increasing financial liquidity and using non-standard measures of the monetary policy for central bank intervention (Table 2). In the context of the present global crisis, the performance of the current monetary policy is evaluated in terms of financial stabilisation and restoration of confidence in the banking system and creation of favourable conditions for the development of the real economy. Through monetary policy efforts made by central banks, advanced economies have brought the inflation under control; despite the global fluctuations in energy and food prices, they managed to keep the inflation rate within a target range by improving conditions for monetary, financial and product markets and reducing their costs. In advanced economies, consumer prices varied from 2.2% in 2007 to 1.1% in 2010. The European Central Bank tries to maintain the annual inflation rate within the 2% limit; the euro area currently has the net annual average inflation of 1.7% (Global Financial Stability Report, 2013).

However, spending cuts in the real economy and the money market have not helped to boost the economic growth, to significantly reduce unemployment, revive the global demand for consumption and investment and create growth-friendly money and financial markets. Therefore, during a new round of the monetary policy beginning with the global crisis, monetary policy makers already see new challenges for the global economy, associated with the risk of capital use. The risk is linked to the overly favourable crisis-era monetary policy measures which, according to the analysis of the International Monetary Fund, may be divided into the following four groups:

- long-term low interest rates (from 2008 to 2013 without a foreseeable increase);
- quantitative easing (QE);
- indirect credit easing (ICE);
- direct credit easing (DCE).

The monetary policy of central banks has undoubtedly contributed to increasing the price and financial stability over the medium term. However, different responses from the real economy, as reflected by sustainable growth criteria, draw attention to the risks that arise in markets due to their own conduct when easily accessible financial resources prevail, as well as the structure of the real economy and finances in many of advanced and transition economies. Therefore, the continuing low interest rates aimed at maintaining low interest rates in the markets can stimulate, in future, the growth of money for purely different reasons related to the absence of reforms and structural changes in the money market and the real economy. For example, the low interest rates of deposit

lending may encourage other forms of investment which guarantee higher interest rates. The current downward trend in deposits will make central banks review and modify their monetary policy instruments.

Overly favourable lending conditions may spur the issuance of government securities, bank loans, stock and real estate securities thus creating risks in respective markets because later central banks will have to pursue restrictive policy measures which will require a higher return on capital in the absence of the corresponding market opportunities. Therefore, it is not a coincidence that the need for structural reforms in the financial and non-financial sectors is regularly highlighted.

The prompted long-term liquidity of financial intermediaries may decrease in future due to the market response to favourable borrowing conditions enabling to channel investment into the sectors that guarantee a short-term profit and contribute to the growth of asset prices. The growth in revenue, accompanying the growth in investment, as well as an increase in the gross domestic product and national income would boost the return on capital and illustrate economic liquidity and stability in the conditions of a favourable monetary policy.

Changes of the assets on the balance sheet of the central bank show how the central bank influences money supply and increases liquidity aiming at the GDP, investment and employment growth. The variations of the latter reveal the economic response to non-standard measures of the monetary policy.

Unconventional measures of the monetary policy were taken aiming at both macroeconomic and financial stability. Monetary policy measures, tools and targets have changed in the size and composition of central bank balance sheets. Total assets have increased mostly in the form of government securities, bank loans, equities, and mortgage-backed securities (Table 2). Total assets of central banks, indicating transmission of money according to all memorandum items, have supported the liquidity of the governmental sector, public finances, the banking system and other financial intermediaries.

Implementation of the monetary policy seeking the establishment of the euro as a single currency in the euro area as well as in Lithuania also creates new possibilities for the macroeconomic stability which helps to stimulate the non-financial sector growth in the real economy on the micro level.

Financial and macroeconomic stability depends on the exchange rate regime followed by countries and on the monetary policy rules implemented by authorities and policymakers. The introduction of the euro creates the floating exchange rate regime as well as offers new opportunities on the macro and micro level of the real economy in Lithuania (Visokavičienė, 2012):

- purchasing power parity in regard of the main trading partners;
- reduction of the influence made by fluctuations on other currencies;

- inflation reduction by employing the tools pertaining to the monetary policy of the European Central Bank;
- optimal fluctuations in prices;
- balance of the current account;
- the domestic market proofed from outside inflation;
- indication of the danger of monetary and fiscal change;
- indication of the danger of changes on the macro and micro levels of the economy.

The new monetary policy in advanced economies shows a significant role of central banks in influencing the economy by monetary measures during the turbulent years 2008–2013. The floating exchange rate regime applied by the European Central Bank also creates new possibilities of the most appropriate environment for the economic growth and stability in Lithuania.

Monetary policy lessons for Lithuania before the introduction of the euro

When integrating into the EU Monetary Union, it is important to adapt to the European Central Bank's methodology of developing the monetary policy and thereby to achieve and ensure the financial and economic stability. Although the monetary policy will be shaped by the European Central Bank following the introduction of the euro, the success of the monetary policy and the response of the real economy to it depend on money demand or on the aggregate demand. Therefore, the alignment of monetary policy tools and measures with macroeconomic targets and the compliance of these targets with the criteria of the Maastricht Treaty can only be ensured by meeting the methodological conditions of the monetary policy.

Like other central banks in advanced economies, the European Central Bank further meets the following methodological conditions of the monetary policy:

- A balance between money supply and demand under the law of the money quantity; (Friedman, 1969)
- encouraging money demand by balancing the aggregate demand and changes in money supply (Krugman, 2006; Mishkin, 1992);
- regulation of money supply under the Taylor rules (Taylor, 1993; (Visokavičienė, 2012);
- preserving the purchasing power parity and real exchange rate, etc. (Krugman, 2006).

The main challenge for Lithuania is to answer the question what economic policy, monetary policy and fiscal policy efforts are needed before introducing of the euro. The hard peg regime of the national currency does not indicate any stability because the real exchange rate presently indicates the difference between the pegged exchange rate and the exchange rate which is actually determined by inflation. Moreover, the monetary

policy does not exist as a possibility to influence the exchange rate and price stability. The ECB monetary policy during the crisis (Fig 1) reveals the potential of the monetary policy to stimulate the economy, bring about price stability, and restore the monetary and financial stability in the market.

The monetary policy used to be constructed by the central bank (Bank of Lithuania) before the introduction of the euro as a single currency of the euro area, because only such a monetary policy can transmit its effect on macroeconomic indicators, in particular the inflation and the real exchange rate of the national currency in regard to the euro by 2015. If the real exchange rate would have been equal to 1, the nominal exchange rate would actually be LTL 3.45 for EUR 1.

The main problem of the integration into the euro area could be the interaction among related targets of the monetary policy in Lithuania because the Bank of Lithuania, abandoned its monetary policy altogether in 1994. Monetary policy possibilities were implemented only in 1993 during the introduction of the national currency litas and later in 1993.

Since 1994, we have not fully clarified the real exchange rate of the litas because the hard peg regime (currency board regime according to the fixed or peg exchange rate to the USD, later to the euro) does not reflect even such targets as inflation which makes a significant influence on the exchange rate of the national currency. At the same time, the EU Monetary Union requirements according to the Maastricht Treaty, as the criteria of macroeconomic stability should be successfully implemented before entering the euro system. Two years before the introduction of the euro, Lithuania has to be in line with the Maastricht criteria of stability. In this respect, the fundamental framework of the monetary policy before the introduction of the euro consists of two monetary policy transmission channels:

- transmission of the monetary policy to inflation;
- transmission of the monetary policy to the real exchange rate.

The transmission mechanism of the monetary policy from instruments to proximate targets such as money supply, exchange rate and liquidity in Lithuania's case can be achieved only by implementing the monetary policy.

The implementation of the monetary policy possibilities could:

- provide for liquidity in the economy ;
- ensure price stability according to the Maastricht Treaty;
- ensure the stability of the real exchange rate;
- act as the lender of the last resort to the banking system;
- support the monetary transmission mechanism via banks and markets;
- preserve the unity of the monetary policy;
- take responsibility and credit;
- stimulate money demand in the real economy;
- ensure the equilibrium between money supply and demand.

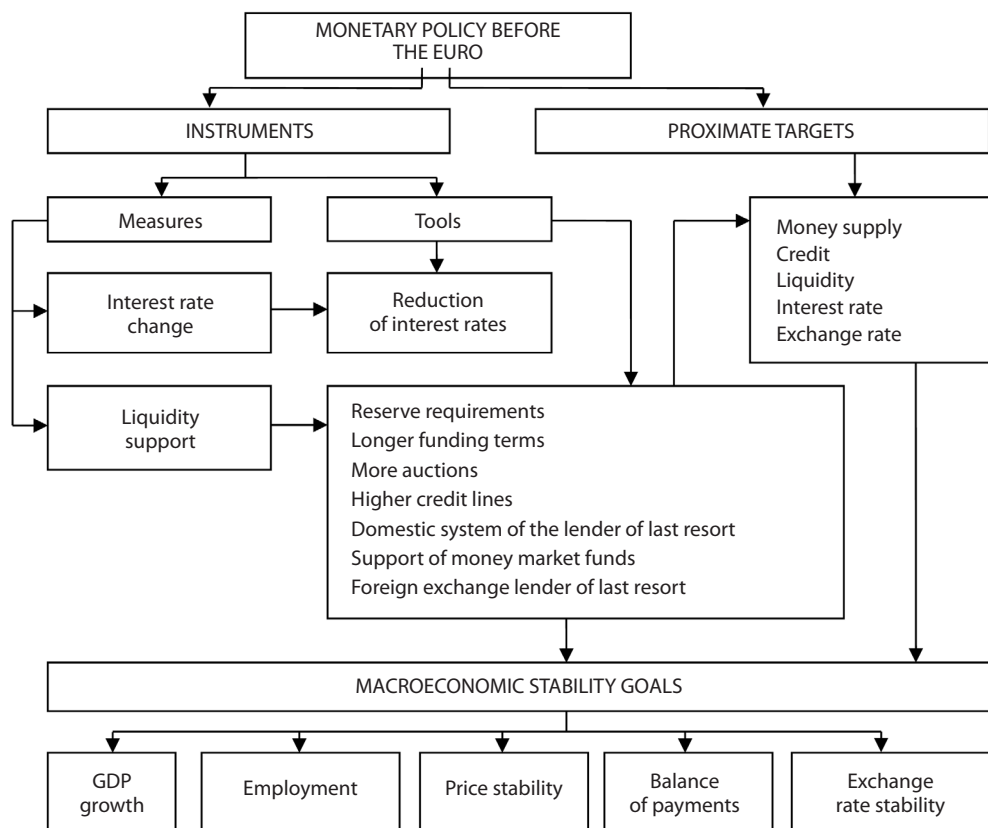


FIG. 1. Monetary policy pattern for the euro

Source: prepared by the author (Visokavičienė, 2010).

This applies in particular to the main elements needed for Lithuania according to the Maastricht Treaty, including price and real exchange rate stability. The monetary transmission mechanism via banks and markets, as Fig. 1 shows, would be provided by conventional measures and tools according to money supply regulation. The monetary policy transmission to the real exchange rate stability is more complicated because the ratio of inflation between the euro area and Lithuania, according to the pegged constant exchange rate EUR 1 = LTL 3.45, should be held as the nominal exchange rate according to the purchasing power parity in regard to the euro area countries as trading partners. In this respect, the target of inflation needs to be achieved by the monetary policy transmission to the real economy via the banking sector.

The nominal exchange rate stability of the national currency could be held at the exchange rate pegged to the euro since 2002 if the real exchange rate, according to the purchasing power parity, is equal to 1. At the same time, inflation changes in both sides should be held equal.

According to the theory of the monetary policy and economics, both money supply and demand depend on the consolidation of monetary and fiscal policies. The inflation target is the primary goal and responsibility of the monetary policy.

According to the Maastricht Treaty:

1. Price stability: inflation should not exceed 1.5% as compared to the average inflation (CPI) of the three countries with the lowest inflation in the EU during the last 12 months. In 2012, inflation was 1.3% in Sweden, 1.3% in Ireland, and 2.1% in Slovenia.
2. Fiscal stability: the government budget deficit should not exceed 3% of GDP, and the government debt should not be more than 60% of GDP.
3. Exchange rate stability: during the two years before the introduction of the euro, the national currency should not depreciate in respect of the euro, and the exchange rate fluctuation should not overstep the estimated range according to the exchange rate regime. The Lithuanian hard peg regime according to the currency board regime requires keeping the real and nominal exchange rates.
4. Long-term interest rate stability: nominal long-term interest rates cannot be more than 2 points higher than the average of interest rates of the three countries with the lowest inflation in the EU.

Over the reference period from April 2011 to March 2012, the 12-month average rate of the HICP inflation in Lithuania was 4.2%, i.e. well above the reference value of 3.1% for the criterion of price stability. The latest available forecasts from major international institutions project inflation to decline in 2012–2013 and range between 2.7% and 3.1% in 2012 and between 2.5% and 2.9% in 2013. Risks to inflation are tilted to the upside and relate mainly to higher than expected increase in global commodity prices, as well as to a stronger increase in wages, particularly if labour productivity growth turns out weaker than currently expected, putting an upward pressure on unit labour costs (Convergence Report, 2012).

In the reference year of 2011, the general government budget balance showed a deficit of 5.5% GDP, i.e. well above the 3% reference value.

The risk to the stability of the real and the nominal exchange rates would depend on the domestic inflation as compared to the euro area inflation. Lithuania's hard peg regime according to the currency board regime requires keeping to the real and the nominal exchange rate.

Long-term interest rates were 5.2% on average over the reference period from April 2011 to March 2012, thus below by 5.8% of the reference value for the interest rate convergence criterion (Convergence Report, 2012).

The analysis of the monetary policy of the European Central Bank shows that even during the global financial crisis it was succeeded to restore the lost confidence in banks and to achieve financial stability through monetary policy measures.

In view of the key methodological conditions of the monetary policy and the instruments of monetary policy transmission to the real economy, developed by central banks, the monetary policy makers – Bank of Lithuania and Lithuanian Government – can be recommend the monetary policy tools and measures to introduce the euro and to successfully integrate into the EU Monetary Union.

The monetary policy measures to achieve price stability and real exchange rate stability are the following (Fig. 1):

- open market operations;
- reserve requirements;
- longer funding terms;
- higher credit lines;
- wider collateral rules.

These instruments have a direct impact on money supply and thus on the amount of money in circulation.

The policy of the currency exchange rate should aim at:

- maintaining the real exchange rate of the euro to the litas through monetary policy measures at least one year before the euro introduction (LTL 3.45 for EUR 1);
- increasing the money demand for national currency through monetary policy measures by promoting exports and foreign investment and, if necessary, by using reserves to maintain price stability and exchange rate;
- inducing the reduction of interest rates for borrowing in the national currency litas (due to the market demand, VILIBOR);
- inducing the credit growth in the national currency for the purposes of investment by extending the list of collateral assets, easing the financing conditions, and improving the credit conditions;
- ensuring a dual display of prices (the litas and the euro) in the market in the short term, as prescribed by the currency board regime.

Combining the methodological conditions of the monetary policy and the criteria of the Maastricht Treaty by using monetary policy measures developed by central banks worldwide can guarantee the balance between the core inflation and the real exchange rate and other financial stability criteria during the euro introduction in Lithuania.

Conclusions

In this challenging environment of the global economy, the introduction of the euro for Lithuania means a relative stability achieved through the monetary policy of the European Central Bank. At the same time, it means the real exchange rate (purchasing power parity) and price stability.

The essential elements of the ECB monetary policy give possibilities supported by the institutional framework for the euro providing liquidity and stability, supervision by a single supervisory mechanism (SSM) and a single resolution mechanism (SRM). The latter two possibilities were not applied as efficient functions even by the ECB before the euro crisis.

The damaging impact of inflation is apparent, and it costs a lot to the state. The priority mechanism for cutting inflation by employing monetary instruments proved to be successful and necessary for ensuring financial stability which is the basis for the potential growth of the economy. Monetary policies carried out by central banks of advanced economies have generally aimed to support the macro-economy by avoiding deflation, depression, and financial stability risks.

The introduction of the euro according to the Maastricht Treaty is impossible without stable finances, a real exchange rate, and price stability in Lithuania.

The analysis of central banks' monetary policy measures, tools and behaviour during the crisis indicates a significant role of the unconventional measures in national economies. Implementation of the monetary policy according to the introduction of the euro as a single currency in the euro area as well as in Lithuania also creates new possibilities for the macroeconomic stability which helps to stimulate the non-financial sector growth in the real economy on the micro level.

Introduction of the euro leads to the floating exchange rate regime and offers new opportunities on the macro and micro levels of the real economy in Lithuania. The financial and macroeconomic stability depends on the exchange rate regime applied by countries as a monetary policy rule which encourages maintaining the purchasing power parity with the main trading partners on the macro-and micro-economic levels, including optimal fluctuations in prices, the balance of payment on the macro-economic level, and indications of the danger of changes in the real economy.

It is obvious that the introduction of a single currency – the euro – in Lithuania is to be understood as part of integration into the European Union, its common market and the real economy composed of multiple parts such as, for example, common energy, common railways, roads, banking, the financial and monetary system.

REFERENCES

- Adolfson, M. (2007). Incomplete exchange rate pass-through and simple monetary policy rules. *Journal of International Money and Finance*, Vol. 26 (3), pp. 468–494
- Argy, V., De Grauwe, P. (1990). Choosing an exchange rate regime: the challenge for smaller industrial countries. *International Monetary Fund*, p. 391.
- Blanchard, O. (2010). Rethinking macroeconomic policy. *IMF Staff Position Note*. IMF, Washington.
- Charalambos, T. (2010). Crisis and recovery. Role of the exchange rate regime in emerging market countries. *IMF Working Papers*. International Monetary Fund, Washington.

- Classification of Exchange Rate Arrangements and Monetary Policy Frameworks (2004). IMF Working Papers. International Monetary Fund, Washington.
- Convergence Report, May 2012. European Central Bank, Frankfurt, Germany.
- ECB metinė ataskaita (2009–2013). Europos centrinis bankas, Pinigų sistema, Vokietija.
- Friedman, B.M., Hahn, F.H. (1990). Handbook of Monetary Economics. Elsevier Science Publishing Company INC.
- Friedman, M. (1969). The Optimum Quantity of Money. Macmillan.
- Goodhart, C.A. (1988). The Evolution of Central Banks. MIT Press. Cambridge.
- Goodfriend, M., King, G. (2001). Why Price Stability? First ECB Central Banking Conference. European Central Bank.
- Global Financial Stability Report (2013). IMF publication. International Monetary Fund, Washington.
- Habermeier, K. (2013) IMF Assesses New Era of Monetary Policy. IMF Working Papers. International Monetary Fund, Washington.
- IMF Survey (2013). IMF Assesses new era of monetary policy. IMF Working Papers. International Monetary Fund, Washington.
- Kahn, D.S. (2011). Macro and Growth Policies in the Wake of the Crisis. A Conference on Macro and Growth Policies in the Wake of the Crisis. Washington, March 7–8. International Monetary Fund.
- Krugman, P.E., Obstfeld, M. (2006). International Economics. Theory and Policy. Harper Collins Publ.
- Mishkin, F.S. (2007). Monetary Policy Strategy. The MIT Press Cambridge, Massachusetts London, England.
- Mishkin, F.S. (1992). The economics of money, banking, and financial markets. Harper Collins Publishers Inc. US, p.739.
- Purposes & Functions (2013). The Federal Reserve System, www.federalreserve.gov.
- Visokavičienė, B. (2010). Monetary policy creates macroeconomic stability. *Ekonomika*, Vol. 89 (3), pp. 55–68.
- Visokavičienė, B., Kaklauskas, A., Galinienė, B. (2011). Conceptual model of monetary policy in Lithuania. *Transformations in Business & Economics*, Vol. 10 No. 3, Vilnius: Vilnius University.
- Visokavičienė, B. (2012). Pinigų politika valstybės ekonomikoje. Vilnius, Vilniaus universiteto leidykla. 230 p.