
Visokaviciene, B., Kaklauskas, A., Galiniene, B. (2011), "Conceptual Model of Monetary Policy in Lithuania", *Transformations in Business & Economics*, Vol. 10, No 3 (24), pp.20-44.

-----TRANSFORMATIONS IN -----
BUSINESS & ECONOMICS

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CONCEPTUAL MODEL OF MONETARY POLICY IN LITHUANIA

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Received: November, 2010

1st Revision: March, 2011

2nd Revision: August, 2011

Accepted: November, 2011

ABSTRACT. *The analysis submitted in this article is on the employment of the interaction between the major monetary policy targets and macroeconomic indicators as signals to policymakers about possible changes, which may influence the macroeconomic stability. It assists in revealing monetary policy factors and their interactions, including economic, political, legal, institutional, social, traditional, cultural, philosophical, ethical, confidence – and happiness-based, religious, emotional and psychological factors. The interactions of these factors provide for recognizing future changes better than predestine monetary policy and for forecasting potential financial and economic crises more accurately. Appropriate methodological conditions are recommended for investigating the macroeconomic indicators that express primary goals in studying the influence of the measures of central banks have for monetary policy. Such methodological conditions are grounded on monetary theories and macroeconomic models that assist in discovering the most important answers to these questions: Can the formulators of monetary policy foresee future changes in the economy that lead to global crises? How can this be accomplished? This research based the development of the Conceptual Monetary Policy Model for Lithuania and a Method of multiple criteria complex proportional evaluation and defining the utility degree a monetary policy especially developed by authors for this purpose.*

KEYWORDS: monetary policy, targets, instruments, macroeconomic indicators, money supply, economic-political-social factors, multiple criteria analysis, Lithuania.

JEL classification: G28, P2.

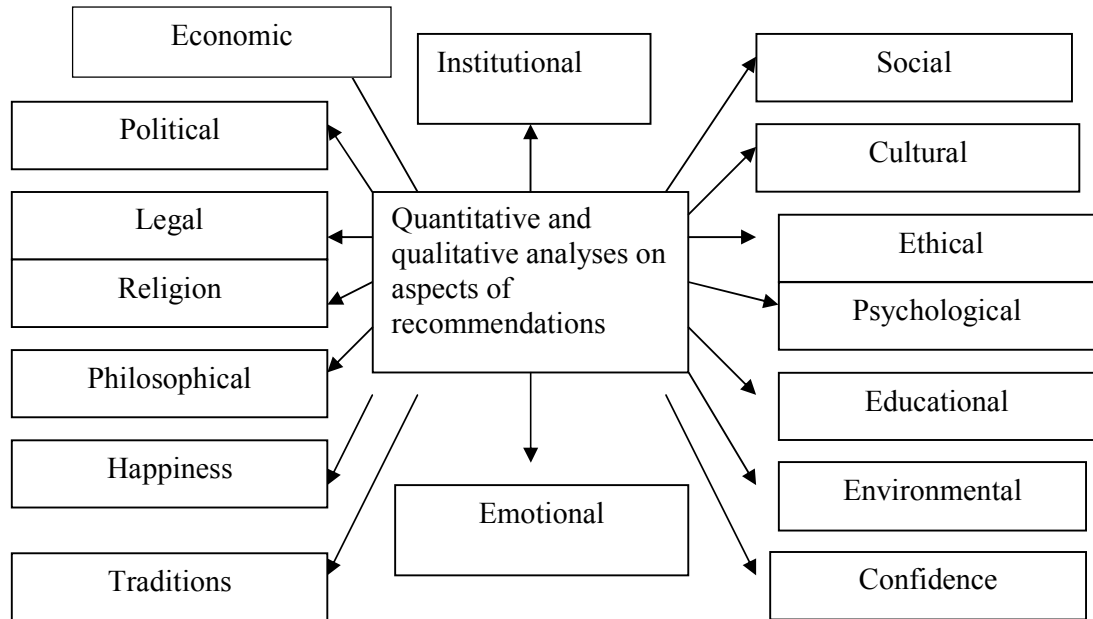
Introduction

Different countries have different priorities and adopt various approaches for monetary policy. Thus it is not surprising that different countries have widely divergent views and interpretations which signify economic, political, legal, institutional and other differences. The traditional analysis of a monetary policy is based on economic, legal/regulatory, institutional and political aspects. The social, traditions, cultural, philosophical, ethical, confidence, happiness, religion, emotional, psychological, educational, environmental of monetary policy tend to receive less attention. To perform an integrated analysis of the life cycle of a monetary policy, the cycle should be analyzed in an integrated manner based on a system of criteria (see *Figure 1*).

Culture

Understanding the constitutive relationship between currencies and citizenship suggests ways that social, cultural and political concerns need to be taken into consideration in the restructuring of monetary organization (Gilbert, 2007). By culture, different researchers (De Jong, 2002; DiMaggio, 1994; Hofstede, 1980; Inglehart, 1997) mean the collective programming of mind that distinguishes the members of one human group (country, society) from another. Culture integrates the society in terms of common goals (De Jong, 2002; DiMaggio, 1994; Inglehart, 1997). A culture is widely shared in a society and is transmitted from generation to generation. Culture is learned and the more central and early absorbed aspects of culture are resistant to change (De Jong, 2002). “Culture influence the production process, and the form and regulation of exchange and consumption (DiMaggio, 1994). In general, any stable economic system has a compatible and supportive cultural system that

legitimizes that system (Inglehart, 1997). Culture affects economic performance both directly and indirectly by the impact on formal institutions (laws) and informal institutions (codes of conduct)” (De Jong, 2002).



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Figure 1. Aspects of Monetary Policy

According to Berger *et al.* (2009), monetary policy in the euro area is conducted within a multi-country, multi-cultural, and multi-lingual context. Hayo (1998) introduces the concept of an inflation culture, which in his view leads to a national consensus on price stability and central bank independence. The inflation culture is the result of a historical feedback process where inflation aversion and central bank independence reinforce one another.

De Jong (2002) investigates whether in OECD (Organisation of Economic co-operation and development) countries the negative relation between central bank independence and inflation is related to culture, in the sense of common values and norms. It appears that inflation is lower in countries where people dislike uncertainty. Countries, where inhabitants perceive that there should be an order of inequality and a centralisation of authority, are characterised by a dependent central bank and, to a lesser extent by relatively high inflation rates. Hence, the national attitude towards inequality among people appears to be a third factor explaining the negative correlation between inflation and the degree of central bank independence (De Jong, 2002).

Social factors

Quite a number of studies have been conducted worldwide proving the interfaces between monetary and social policies. A few are briefly described further in the article.

Geographers have made significant contributions to understanding monetary relations as social relations (Gilbert, 2007). Thinking about money in terms of its territoriality not only helps to identify the strong links that have historically been forged between money and

nation-states, but also encourages an understanding of money in terms of cultural, social, political and economic forces (Gilbert, 2005).

“Green and Bauer (1998) discuss the experience of the Central Asian countries of Kazakstan and the Kyrgyz Republic since independence in 1990, providing a picture of the enormous social and economic costs resulting from the change in regimes. The attendant public sector fiscal crisis has weakened the provision of social services and social support, increasing the pressure on the family and societal networks: elderly women and women with many children have lost much of the support previously provided through an extensive social protection network; children face faltering education and health systems and declining investment in child welfare and social protection measures, etc.” (Green and Bauer, 1998).

Fuchi *et al.* (2008) quantitatively evaluate a steady-state inflation rate that is considered optimal from the perspective of social welfare, using a model describing the Japanese economy. Specifically, Fuchi *et al.* (2008) build a DSGE model capable of evaluating the effects, on social welfare, of points concerning the costs and benefits that accompany inflation: the opportunity cost of holding money, the zero lower bound on nominal interest rates, price stickiness and the downward wage rigidity. Building on this, Fuchi *et al.* (2008) conduct stochastic simulations that calculate the social loss with different steady-state inflation rates, and investigate the optimal inflation rate.

In Poland the shock stabilization programme supported by the IMF encountered a social barrier in the shape of opposition to the government anti-inflationary policies. Solarz (1992) seeks to indicate factors impeding the effectiveness of the restrictive macroeconomic policy when the social system is undergoing sudden transformation.

Kobayashi (2004) shows that the implementation of interest rate targeting will improve social welfare since it leads the central bank to make smaller interventions, which limits the scope for the central bank’s uncertain preferences to impact the economy.

Discussions regarding a possible North American Monetary Union (NAMU) between Canada and the United States exploded in 1999. Understanding the constitutive relationship between currencies and citizenship suggests ways that social, cultural and political concerns need to be taken into consideration in the restructuring of monetary organization (Gilbert, 2007).

According to Adolfson (2007), “implementing monetary policy through an exchange rate augmented policy rule does not improve social welfare compared to using an optimized Taylor rule, irrespective of the degree of pass-through. A direct exchange rate response improves welfare only if the other reaction coefficients, on inflation and output, are sub-optimal. If the exchange rate contains information about, for example, inflationary impulses, the policy maker might improve social welfare by extending her simple monetary policy rule to include a direct reaction to the exchange rate” (Adolfson, 2007).

Psychological factors

“Psychological factors, market sentiments, and shifts in beliefs are believed by many to play a nontrivial role in inducing and amplifying economic fluctuations. Yet, these forces are rarely considered in macroeconomic models. Psychological variables, in particular, were thought to play a crucial role in causing and amplifying business cycles. New Keynesian model departs from the previous literature by including a potential role for psychological forces. While economists have recognized for a long time that psychological forces, changes in market sentiments, shifts in confidence, and so forth, may exert a large influence on economic fluctuations, the current generation of macroeconomic models typically excludes them from the analysis” (Milani, 2010).

Price setters have been asked on repeated occasions to explain why their prices stay constant in nominal terms for periods of time that are vastly longer than the period over which the opportunity cost of production stays constant. The two most common answers received by Hall and Hitch (1939) involved the psychology of customers. They were, in particular, that “conventional price [is] in [the] minds of buyers” and that “Price changes [are] disliked by buyers” (Rotemberg, 2005).

“Blinder *et al.* (1998) asked price setters about the validity of various theories of sticky prices developed by economists, so they did not ask directly whether price changes were disliked by customers. Nonetheless, a majority of their respondents volunteered that changing prices would “antagonize” or “cause difficulties” with their customers” (Rotemberg, 2005; Blinder *et al.*, 1998).

“Yet, disturbances related to the formation of expectations, waves of optimism and pessimism, periods of generalized exuberance or gloom, which may be unrelated to fundamentals, may contribute in non-trivial part to economic fluctuations and, in such case, they should be taken into consideration in the formulation of monetary policy. The main contribution of this research is to propose a way to re-introduce these psychological elements in a monetary business cycle model, with the objective of investigating their contribution to economic activity” (Milani, 2010).

“While firms claim to be concerned with consumer reactions to price increases, these often do not cause large reductions in purchases. The model developed by Rotemberg (2005) fits this by letting consumers react negatively only when they become convinced that prices are unfair. This can explain price rigidity, though its implications are not identical to those of existing models of costly price adjustment. In particular, the frequency of price adjustment can depend on economy-wide variables observed by consumers. This has implications for the effects of monetary policy and can explain why inflation does not fall immediately after a monetary tightening” (Rotemberg, 2005).

Moral Philosophies

One difficulty faced by anyone exploring the moral dimensions of monetary policy is the paucity of reference material in the contemporary literature. Indeed, the issue has been systematically neglected long before our present financial difficulties arose. We must go as far back as the 15th century to the late scholastics of the Salamanca school where we find a way of economic thinking that integrated such ethical concerns in its analysis. But afterwards the separation of economics from ethics came. Hulsmann (2008) rightly observes that “we face a wide gap” when it comes to the contemporary literature on the ethics of money production (Bragues, 2009).

Various experts hold the opinion that the global and financial crisis was due to a crisis in values, due to the unbridled desires of bankers and bank shareholders to get rich quick. Such bankers and shareholders who were trying to get rich quickly upheld the laws. Perhaps this is why the President of France, Nicolas Sarkozy, stated at the 40th anniversary Davos Economic Forum that only a “moralization” will save capitalism.

In the ninety-six years since its founding, the U.S. Federal Reserve (Fed) has never been so daring, aggressive, or ground-breaking in its policymaking as it has in response to the current financial crisis brought upon by the collapse of the U.S. housing market. The Fed has slashed the interest rates under its control to practically zero, provided funds more freely and lavishly than ever before to a greater range of financial institutions and players, in addition to expanding swap lines with other central banks in order to inject liquidity into U.S. dollar markets world-wide. Most extraordinarily, it came to the rescue of various companies whose bankruptcy was deemed to pose a threat to the entire financial system (Bragues, 2009).

The question raised by the Fed's unprecedented easing of monetary conditions in the wake of the financial crisis is not simply whether it will work, but whether it is right. Yet who is to say what is right? To overcome the skepticism inherent in this oft-asked question, Bragues (2009) implements four disparate moral theories that have stood the test of time, namely Aristotle's virtue teaching, Locke's concept of property rights, Kant's deontology, and Bentham's utilitarianism. What each of these moral frameworks will have to say must depend, to one extent or another, on the projected impact and consequences of the Fed's tactics. These essentially amount to a significant increase in the money supply. Since the Fed is likely to find it politically difficult to reverse this flooding of liquidity once the economy gains some traction, the likely outcome is a substantial increase in the rate of inflation. As such, none of the moral theories sanction the Fed's efforts: the Aristotelian view, because the Fed's actions threatens to undermine the virtues of liberality and justice; the Lockean, because property rights are violated; the Kantian, because the practice of copiously printing money to deal with economic difficulties cannot be logically conceptualized as a universal law and, moreover, it leaves individuals liable to being used as means to satisfy the ends of others; and the utilitarian, because the flooding of liquidity overstates the threat of deflation and understates that of delaying the necessary reorganization of the economy. The bottom line is that the Fed is proceeding on an immoral basis (Bragues, 2009).

Religion

God told the Israelites that economic transactions should take place with honest weights. Leviticus 19:35—37 instructs, "You shall do no wrong in judgment, in measure of weight, or capacity. You shall have just balances and just weights." This was long before the followers of Keynes revealed to us the dangerous "liquidity trap" that might result from such "outdated" morals. Again, Proverbs 11:1 announces, "A deceitful balance is an abomination before the Lord: but a just weight is his will." But, of course, this was before we discovered the mysterious "magic" of debt monetization. Proverbs 20:10 says, "Diverse weights and diverse measures, both are abominable before God." Would that Solomon had known about the trade off between inflation and employment, as revealed by the Phillips curve, now back in vogue. It is true that Isaiah (1:22) warned that "faithless princes" can turn silver "into dross." But that was before we knew how much debtors can gain from paying back dollars that are cheaper than those they borrowed. I will grant that the prophets Amos (8:5) and Micah (6:10) condemned deceitful balances when selling wares. But neither knew much of the balance of trade with Japan. Actually, all these scriptural references make an important moral and economic point. The long history of inflation reveals the tragic consequences of excessive money creation. It can, literally, turn a society upside down. It did in Germany, in the famous hyperinflationary period of 1921—23. It did in this country in the late 1970s. It has in innumerable developing countries. Control of the printing presses is probably a first-order condition to a solid economy and stable social order. So much for the magic of credit expansion (Sirico, 2001).

Happiness

A variety of biological, psychological, religious, and philosophical approaches have striven to define happiness and identify its sources. Happiness economics suggests that measures of public happiness should be used to supplement more traditional economic measures when evaluating the success of public policy. Happiness economics is the quantitative study of happiness, positive and negative affect, well-being, quality of life, life satisfaction and related concepts, typically combining economics with other fields such as psychology and sociology. It typically treats such happiness-related measures, rather than wealth, income or profit, as something to be maximized (Happiness, 2011). Becchetti *et al.*

(2010) extend the happiness literature on the welfare costs of inflation and unemployment by looking at age and job market characteristics. Becchetti *et al.* (2010) findings show that the relative welfare cost of unemployment versus inflation is higher than one, and much higher in intermediate age cohorts and in low job protection countries.

Using subjective well-being survey data for Latin America, Ruprah and Luengas (2010) present evidence that both inflation and unemployment reduce well-being; where the cost of inflation in terms of unemployment, hence the relative size of the weights in a social well-being functions, is about one to eight, almost double of that found for OECD countries. The trade-off, and therefore the misery index, differs across subgroups. For example, the young and left-leaning citizens are more concerned with unemployment than inflation. Monetary policy professionals argue that central banks in Latin America should adopt inflation targeting. They assume a social loss welfare function dependent only on inflation (Ruprah and Luengas, 2010).

Blanchflower and Oswald (2008) present evidence that psychological well-being is U-shaped through life. A difficulty with research on this issue is that there are likely to be omitted cohort effects (earlier generations may have been born in, say, particularly good or bad times). Using data on 500,000 randomly sampled Americans and West Europeans, the research designs a test that can control for cohort effects. Holding other factors constant, Blanchflower and Oswald (2008) show that a typical individual's happiness reaches its minimum – on both sides of the Atlantic and for both males and females – in middle age. Evidence is provided for the existence of a similar U-shape through the life-course in East European, Latin American and Asian nations (Blanchflower and Oswald 2008).

Traditions

Monetary policy traditions (symbols, ideas, images, customs) historically established and entrenched in various culture forms of monetary policy. Berger *et al.* (2000), Eijffinger and De Haan (1996) analyse tradition of monetary stability.

Tavlas (1981) paper investigates the doctrinal link underlying differences between Keynesian and monetarist approaches regarding the transmission mechanism of monetary policy. Consideration of the post-*General Theory* literature reveals that a key aspect of that link concerns the velocity of circulation of money. The Keynesian emphasis on compartmentalizing the demand for money into active and idle components resulted in a mechanical interpretation of velocity and the associated view that money does not matter. The monetarist tradition illustrates the behavioral perspective adduced to velocity via adaptive price expectations by earlier quantity theorists leading to a capital-theoretic reformulation of the quantity theory in terms of a stable demand function for money (Tavlas, 1981).

Fourçans and Vranceanu (2007) analyse the European central bank (ECB) monetary policy over the period 1999–2006, with a special emphasis on the recent years. Policy recommendations follow, built on a renewed monetarist tradition: the reduction of the weight of real activity in the conduct of monetary policy, while further emphasising money *via* a money growth intermediate target (Fourçans and Vranceanu, 2007).

Lothian (2009) describes Milton Friedman's monetary economics and the quantity-theory tradition. Lothian (2009) provides a selective review of Milton Friedman's contributions to monetary economics focusing on five areas in particular: the demand for money, the joint historical and empirical work with Anna J. Schwartz, the theoretical and empirical analyses of the Phillips Curve, monetary policy and monetary dynamics.

Emotional factors

Real estate buyer and seller behaviors during the crisis depend on different psychological factors. Emotional stress almost always follows financial problems which can lead to more complicated psychological effects.

One aspect must be noted. All the above-mentioned researchers, who are from various countries, analyzed monetary policy. However, they did not consider the research object that the research presented here analyzes (see section “Conceptual Model of Monetary Policy in Lithuania”). This research object may be described as a life cycle of the monetary policy that includes the stakeholders involved and the environment which impact a life cycle in some particular manner, thusly forming an integral, whole entity. This formulated research object underwent complex analysis performed with the help of the multiple criteria project analysis, a new method “A method of multiple criteria complex proportional evaluation and defining the utility degree a monetary policy” especially developed by authors for this purpose. The method is directly related with utilitarianism moral philosophy.

This paper is structured as follows: the Introduction; Section 1 describes the Conceptual Model of Monetary Policy in Lithuania; Section 2 analyses the application of the traditional monetary policy in advanced economies; Section 3 presents some macro-level global development trends; Section 4 presents a method of multiple criteria complex proportional evaluation and defining the utility degree a monetary policy developed by authors; and finally some concluding remarks on future research in Section 5.

1. Conceptual Model of Monetary Policy in Lithuania

Successful strategies for monetary policy should be more or less compatible with societal situations (economic, political, legal, institutional, social, traditions, cultural, philosophical, ethical, confidence, happiness, religion, emotional, psychological, educational, environmental and other situations) as well as confidence in the country under consideration. A varied spectrum of strategies can be launched; however, any strategy must bear in mind the mix of influencing factors and the relative emphasis such factors. These will depend on overall local conditions.

Therefore the best monetary policy strategy in the state cannot be merely copied from another country. Strategies may only be adapted in the actual economic, political, legal, institutional, social, traditions, cultural, philosophical, ethical, confidence, happiness, religion, emotional, psychological, educational, environmental situation of a resident country. There is no such thing as a single management strategy to suit all societies and/or one that is applicable in all countries.

The Conceptual Model of Monetary Policy in Lithuania suggested by this research is based on the presumption that the efficiency of monetary policy depends on many variables. The presence of specific variable factors immediately imposes objective limitations for efficient monetary policy. The functions of monetary policy must be performed within the bounds of these objective limitations with utmost efficiency. This study involved performing a complex analysis of the factors affecting monetary policy in Lithuania with the aim of producing a Conceptual Model of Monetary Policy in Lithuania.

The research was performed by studying the expertise of advanced industrial economies and by adapting such to Lithuania while taking into consideration its specific history, development level, needs and traditions.

The level of efficiency and the scope of activities in the Conceptual Model of Monetary Policy in Lithuania depend on many variable factors and on the possibility of

optimizing all these variable factors. The main objective of this Model is to analyze the best experiences in the field of monetary policy, to compare it to the present situation in a particular country and, thereby, to present specific recommendations. This particular case analyzed the development perspectives of Lithuania. The word, Model, implies “a system of game rules” by which monetary policy could be used to its best advantage for Lithuania’s development. Parties interested in the monetary policy cannot correct or alter the variables. However, they can delve into the essence of such effects and take these into consideration in their operations. Interested parties can organize their present and future activities more successfully by knowing the environment that affects their projects.

This research includes the following six stages.

Stage I. A comparative description is written on traditional monetary policy in developed countries and some aspects in Lithuania which includes:

- Traditional monetary policy pattern including the Central bank monetary policy functions, monetary policy instruments, targets and goals.
- Monetary Policy Pattern in advanced economies during the global crisis in 2007-2010
- A system of criteria that characterizes monetary policy efficiency as established by relevant literature and expert methods.
- A description based on this system of criteria in conceptual (textual, graphical, numerical, etc.) and quantitative forms on the present state of monetary policy in developed countries and in Lithuania. Notable is that a currency board mechanism precludes the Bank of Lithuania from implementing monetary policy.

Stage II. A comparison and contrast of monetary policy in developed countries and in Lithuania are performed which include:

- An identification of global development trends (general regularities) in monetary policy.
- An identification of monetary policy differences between developed countries and Lithuania.
- A determination of the pluses and minuses of these differences for Lithuania.
- Establishment of the best monetary policy practice for Lithuania based on actual conditions.
- An estimation of the deviation between the knowledge that stakeholders have about the best practices worldwide and their practices-in-use.

Stage III. Some general recommendations are developed on how to improve efficiency levels for stakeholders and firms.

Stage IV. Certain recommendations are submitted for stakeholders. Each general recommendation proposed in Stage III contains several specific alternatives.

Stage V. A multiple criteria analysis is performed on the components of monetary policy, and the most efficient version of the life cycle of monetary policy is selected. Next the obtained compatible and rational components of one type of monetary policy are joined into a full, monetary policy management process.

Stage VI. Transformational learning is performed, and the mentality and actual behavior in practice are redesigned as follows:

- Stakeholders (firms) become aware and conceptualize their practice-in-use.
- Stakeholders (firms) become aware and conceptualize their knowledge of the best practices worldwide.
- Stakeholders (firms) estimate the deviation between their knowledge of best practices worldwide and their own practice-in-use; thereby best practice learning takes place.

- Best practice actions are implemented (understanding what recurring motives caused the initial stakeholder behaviors and redesigning their core thought and behavioral patterns).

- Transformational learning takes place (acquiring new patterns of social, ethical and other behaviors and a better understanding of how to interact with the environment); thereby behavior is redesigned.

The Model, developed by the authors of this paper, has already been adapted and applied for conceptual modelling of ethical problems, crisis issues, sustainable cities, construction and real estate sectors, etc. (Kaklauskas *et al.*, 2009a, 2009b, 2010, 2011; Zavadskas *et al.*, 2008, 2009).

To demonstrate the components of the Model under discussion in more detail, application of the traditional monetary policy in advanced economies and some macro-level global development trends identification can serve as examples.

2. Application of the Traditional Monetary Policy in Advanced Economies

The application of monetary policy theory assists in finding the interaction between the major targets of the monetary policy and fundamental macroeconomic indicators. The interaction among the main monetary instruments, proximate targets of the monetary policy and macroeconomic indicators should be constantly examined using the empirical methods of analysis, multicriteria analysis which enable more clear and correct forecasts of future macroeconomic instabilities.

The empirical investigations, however, bring us to the conclusion that the main problem still exists in finding the effective combination of monetary and regulatory tools. In order to achieve the macroeconomic growth and drive the recovery from the recession in the current global economic crisis, much more was needed than just to regulate the fluctuation of inflation because deflation was caused mainly by the credit fall in 2008 and weak activity of the private sector.

The analysis of the implications of monetary policy instruments applied during current global crisis shows the significant expansion of money supply for achieving liquidity as a proximate target as well as ensuring simultaneous interest rate cuts.

Unfortunately, all efforts of monetary policymakers to achieve the long-term macroeconomic stability by providing a huge financial infusion during current crisis cannot help to predict unwelcome developments in future. Despite some acceptable macroeconomic indicators such as GDP growth, lower inflation, exchange rate stability as well as improved balance of payments in selected advanced economies, there is an unacceptable unemployment rate, which would have been even higher without such monetary interventions. The credit growth in the private sector and the growth of credit demand point to the recovering activity of the nonfinancial private sector, which was encouraged by the interest rate cuts and other favourable credit conditions as well as increasing liquidity of banks. However, it is too early to talk about the long-term stability.

Money supply should be analysed from the perspective of the quantity theory of money. If money supply increases faster than domestic national product, this means a potential growth of prices and depreciations of the national currency. In this respect, money supply should be controlled by central banks.

According to the suggested monetary policy pattern and the main theoretical approach, the proper combination of monetary and regulatory tools could help to improve the

forecasting of future macroeconomic situation as well as the effectiveness of monetary policy actions.

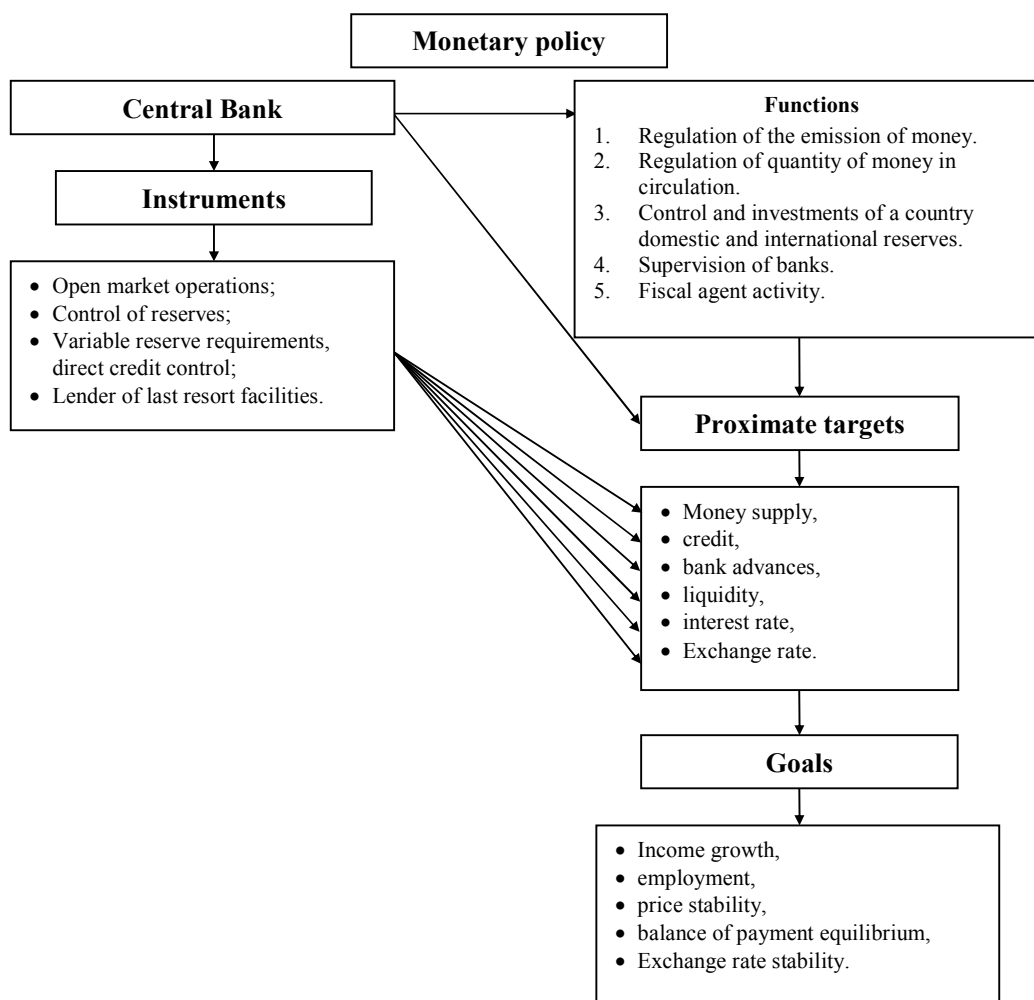
An analysis of the functions, instruments, targets and pursued goals of the monetary policy that a central bank executes provides the best depiction of a system for the formation and implementation of a monetary system. The reason is that central bank functions are implemented by employing monetary policy instruments, which regulate the respective monetary policy leverages and help to pursue goals for macroeconomic stability.

A central bank is an important institution because it forms monetary policy and has responsibility for it, as well as because banking is not a market prerogative, and commercial banks require supervision due to their exceptional operations: banks increase the amount of money in circulation, whereby a groundless, great amount of money can initiate inflation, depreciate property, decrease real income and such. There are also moral as well as economic aspects, because commercial banks use the money of the private sector and of individuals as credit resources. Meanwhile it is not the market that guarantees private sector and individual rights and the freedom of choice to invest or to hold money in a bank account—a state government entrusts its central bank with the supervisory role over commercial banks. The diagram found below, drawn by this author, on the formation and implementation of monetary policy shows the direct dependencies between the central bank's actions, functions, monetary policy instruments, pursued goals and leverages.

Such a model of a central bank and classical, world monetary policy, which is described in theory and tested in actual life, formed over the course of the evolvement of banking. The most distinguished experts on monetary policy in Western countries and bankers recognized the importance of a central bank and the monetary policy it formulates and their significance to the country. Scholarly discussions are only on considerations about the impacts of rates, amounts and the sequential succession of one or another means or economic leverages but not about the necessity of central bank functions or the importance of the means for regulating financial markets. Famed scholars researching monetary policy, such as Milton Friedman, Paul Krugman, Charles Goodhart and others, do not doubt the advantages of a free-floating currency exchange rate in the independent monetary policy of a country and they refute the model of a fixed exchange rate linked to one currency by grounding their theory on the impact of a monetary policy on the economy. The essential, theoretically grounded argument proving the advantage of a free-floating exchange rate becomes a monetary policy in and of itself, one which cannot exist by employing the regime of a fixed exchange rate (Friedman, 1990; Krugman and Obstfeld, 2006; Goodfriend, 2001).

Notable is that the Central Bank of Lithuania has been operating since 1994 in accordance with the currency board model, and the country has been tied to the national Euro currency since 2002. Such a currency mechanism precludes the Bank of Lithuania from implementing monetary policy. Therefore, the offered Monetary Policy Model could be and was (in 1993) put into practice. There is no other alternative as long as Lithuania is not accepted into the Euro zone (the Single Currency Union).

The Monetary Policy Model (Visokaviciene, 1995) submitted below (*Figure 2*) illustrates a central bank's main monetary policy functions, employed instruments and targets and goals in formulating and executing the classical monetary policy, which is recognized and corroborated in the world today. The functions of a central bank, which utilize applicable instruments and leverages for pursuing economic growth and financial stability goals, reveal the essence of a monetary policy.



Source: created by the authors.

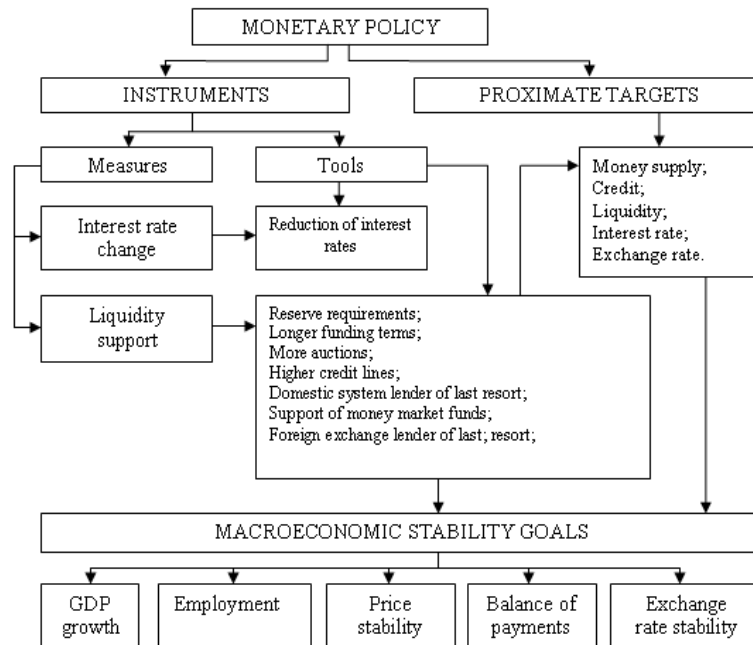
Figure 2. Monetary Policy Framework

During the current crisis, monetary policy manifests itself as huge infusions of money to maintain banking liquidity. When exploring traditional monetary policy tools, all monetary remedies can be classified into interest rate changes and liquidity support.

Although market reaction shows that the countries which implemented monetary policy interventions indeed fared better in the current crisis as far as the GDP growth is concerned, the results should not be taken as anything more than suggestive correlations. Money supply growth supported liquidity and stimulated output growth during the recession, since central bank reserves and interest rate reduction created macroeconomic stability by providing facilities for lending and future credit growth in the private sector. At the same time, all advanced economies encouraged investment as well as consumption. Therefore, the real GDP growth was observed, as figures show, in all advanced economies.

The main goal of such interventions, however, was to restore the market's confidence and prevent the collapse of the financial system. The analysis of the effectiveness of intervention in markets should include the study of the long-term sustainable growth of an economy. We should examine future changes of different variables and indicators of monetary targets as well as macroeconomic stability indicators. Taking this attitude, monetary

proximate targets should be re-examined later when the money supply infusions will decrease and the impact of interventions in money markets diminishes.



Source: Visokaviciene (1995, 2008).

Figure 3. Monetary Policy Pattern

The impact of the huge long-term support of central banks of the selected countries (the intervention of the U.S. Federal Reserve Bank was the most substantial and amounted to 1000 billion U.S. dollars) will become apparent later because it is too early to assess the effectiveness of such interventions as the estimations of capital flow changes or future interest rate changes are still to follow. The monetary policy pattern developed by Visokaviciene (1995, 2008) is presented in *Figure 3*.

In future, central banks should play a stronger role in macroeconomic changes. The appropriate policy response should be shaped subsequent to the systematic analysis of the interaction between monetary policy instruments, targets and macroeconomic indicators following the suggested monetary policy pattern. Thus, according to the monetary policy pattern, central banks, by exploiting all main monetary instruments, can control proximate targets and macroeconomic variables.

The monetary policy pattern indicates the current monetary policy instruments implemented during the recent crisis of 2007-2010, and proximate targets of the traditional monetary policy as well as macroeconomic stability goals, which can be achieved duly combining the monetary policy and the fiscal policy.

As figures show, in 2010 the real GDP growth is expected to rise by 1.7% percent from – 4% in 2009. Inflation remains low; the core inflation fell below 2% over the world in 2009 (Global Financial Stability Report, 2009); consumer prices in the advanced European economies fell below 0.7% in 2009; the annual change of 1.8% in consumer prices is expected in 2010 (World economic outlook, 2010).

The exchange rate (as U.S. dollars per euro) increased from 1.3 dollar per euro at the end of 2008 to 1.4 dollar per euro in 2009 in the euro area. The decline of the exchange rate was observed during the first three quarters of 2008; the fluctuations of the euro will continue within the limits of 1%, but generally the euro will appreciate and this sustainable trend will be maintained throughout 2010, according to the IMF expectations (Global financial stability report, 2009). In nominal effective terms, the U.S. dollar depreciated about 10 percent during 2009. The exchange rate as a proximate target simultaneously serves as a monetary indicator for the estimation of future price changes, especially in case of the inflation in the country of import trading partners, since the domestic currencies of other countries appreciate as compared to the currency of the country experiencing inflation.

Central banks made use of the traditional monetary policy tools such as support for liquidity of commercial banks and lender of last resort, thus increasing deposits and decreasing interbank lending interest rates. The market took advantage of the favourable borrowing terms and increased investment; therefore, the credit demand began to rise in the non-financial sector. Market, in its turn, started increasing its output, prompting GDP growth. The statistics show GDP growth from -3.4% to 1.3% in all advanced economies.

Assuming the basic macroeconomic indicators and monetary policy targets which were achieved by huge financial support provided by central banks and governments in advanced economies, we can conclude that the recovery from the crisis began in 2009, as the above-mentioned indicators show. Unfortunately, the high level of unemployment (about 10 percent) is still the main problem of these countries. Blanchard (2010) has made the conclusion that an interest rate as a monetary tool is too weak to deal with excess leverage, excessive risk, etc. "We need a combination of monetary and regulatory tools". 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. Such position should help to achieve more successful implementation of the main monetary tools for the future macroeconomic expectations.

When analyzing the interaction between monetary policy and its regulatory tools in his research study about a new macroeconomic policy, Blanchard (2010) has made the conclusion that "We need a combination of monetary and regulatory tools". 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. Such position should help to achieve more successful implementation of the main monetary tools for the future macroeconomic expectations including all above mentioned aspects in *Figure 1*.

3. Some Macro-Level Global Development Trend Identification

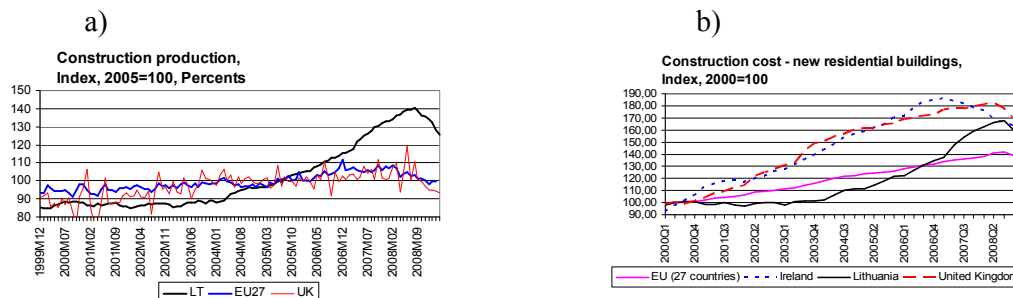
The research under discussion has helped to determine various, macro-level global development trends related to monetary policy. Such trends include economic, political, legal, institutional, social, traditions, cultural, philosophical, ethical, confidence, happiness, religion, emotional, psychological, educational, environmental aspects. Macro-environments directly impact monetary policy challenges. They may facilitate monetary policy or, on the contrary, they may create constraints. The comparative quantitative and conceptual analysis of monetary policy carried out in developed countries and in Lithuania allowed an identification of areas where the situation in Lithuania is comparable to, partly comparable to or quite different from the levels attained in foreign developed countries. The data from this quantitative and conceptual analysis was employed for identifying monetary policy trends in Western Europe and the USA as well as for providing certain recommendations for Lithuania.

The U.S. economy was experiencing a low interest rate environment, both because of large capital inflows from abroad, especially from Asian countries, and because the Federal Reserve had adopted a lax interest rate policy. Asian countries bought U.S. securities both to peg the exchange rates at an export-friendly level and to hedge against a depreciation of their own currencies against the dollar, a lesson learned from the Southeast Asian crisis of the late-1990s. The banking system underwent an important transformation. The traditional banking model, in which the issuing banks hold loans until they are repaid, was replaced by the “originate and distribute” banking model, in which loans are pooled, trashed, and then resold via securitization. The creation of new securities facilitated large capital inflows from abroad (Brunnermeier, 2008). Lithuania was in an equivalent situation. Scandinavian banks provided very favourable lending conditions for real estate development.

Taylor (2008) shows that the decisions on the actual interest rates fell well below what historical experience would suggest policies should be. This study thus provides an empirical measure that the monetary policy was too lax between 2002 and 2004 or too “loose fitting”, as The Economist puts it. This was an unusually big deviation from the Taylor rule. There was no greater or more persistent a deviation in the actual Fed policy since the turbulent days of the 1970s. So there is clearly evidence that there were monetary excesses during the period leading up to the housing boom and its subsequent collapse (Taylor, 2008). The experience in Lithuania shows that, by linking the national currency to the euro, borrowing increased significantly on the local market due to rather low interest rates which, in turn, caused the real estate bubble to expand.

The mortgage crisis is a highly volatile problem. EU laws anticipate the risk of irresponsible moves by consumers who know little about financing. Thus all banking documents include a limit on risk. Loans that circumvent such a risk are unlawful offenses. Therefore the young families in Lithuania who lost their homes due to foreclosures could have grounds for legal suits against the banks, and banks are very afraid of this.

Figure 4 shows the changes in construction production and in construction costs for new residential buildings in EU 27, UK and Lithuania over time.

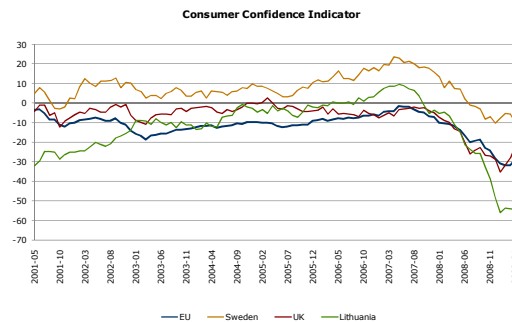


Source: Eurostat, 2010; Contract Journal, 2009; Building, 2010.

Figure 4. New Residential Building Construction Production (a) and Construction Costs (b) in EU 27, Lithuania and the UK

The consumer confidence index turned around in the second half of 2007 after the first signs of overheated economies in most countries following a long period of increase in the EU. The absolute majority of Lithuania’s consumers purchase homes on credit. Mortgage loans are taken for a 30–40-year payback period. Each family must weigh its possibilities, attempt to predict its future income and assess the risk of job loss prior to taking such a loan. The consumer confidence index wonderfully illustrates the expectations of consumers. The

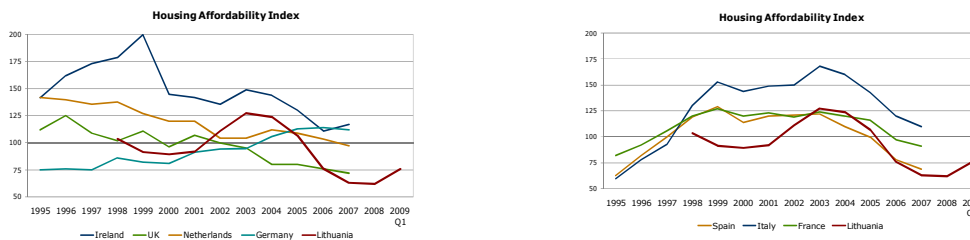
research on consumer confidence in Lithuania has been performed since 2001; however, the index has never been lower since the study began. From 2001 consumer confidence had only improved. In 2006, as Lithuania's economy had gained momentum, the consumer confidence index became positive. However, barely a year later, during the latter half of 2007, it began unceasingly plummeting downward until as long as the start of 2009, when it reached a -55 significance, the lowest ever over the entire period of research. The confidence index has begun rising little by little over the past twelve months. The cause for this was not only the improving macro-economic situation globally but, as much, the conviction held by Lithuania's people that "it can't get any worse" (*Figure 5*).



Source: Eurostat 2010.

Figure 5. Change of Consumer Expectations over Time in EU, Sweden, UK and Lithuania

Lithuania's housing affordability index was nearly always the lowest in comparison with Western European countries. It was not until 2001–2004, when credit conditions improved and homeownership prices had not begun to rise sharply yet, that it crossed the limit of 100 (whereby 50% of disposable income per one average household member was sufficient to service a mortgage loan) as was described by Ivanauskas (2008) and other authors. In 2005, when home ownership prices began rising sharply, the Affordability Index began to drop. In 2007 it was only 63, the lowest among all eight countries under comparison. However, in 2008, when home prices began decreasing and incomes were still rising, the Housing Affordability Index took an "upward" turn. By the end of 2009, the significance of this index equalled 79.5. The index is expected to continue growing in Lithuania due to falling home prices and decreasing interest rates in stages despite the decreasing incomes of residents (*Figure 6*).



Source: UniCredit group, 2010.

Figure 6. Housing Affordability Index Changes over Time in Ireland, UK, Netherlands, Germany, Spain, Italy France and Lithuania

Figures 4-6, which provide a comparison of the new residential building construction production, construction costs, change of consumer expectations over time and housing affordability index in various countries obviously show the same trend.

Key factors for the Swedish financial crisis in 1992 were (Lu and So, 2005):

- Fixed exchange rate caused an overvalued krona due to high inflation.
- Liberalized credit market generated competition in the credit market that eventually started to lead to weakly controlled credits.
- Changed tax reform dramatically increased loan costs, forcing many to sell property.
- High inflation mainly hampered Swedish exports which have been declining.

Housing prices in affluent countries rise constantly for about 6 years expanding by 50% on average and then they fall for approximately 5 years by 24% on average in comparison with the prices reached during the period of the greatest rise. This time the calculations are even more impressive. First of all, the upward trend and rise in prices in the affluent countries lasted not 6 years but about twice as long, and the actual rise in the cost of housing was not 50% but 60–70%. Meanwhile the average fall in prices in 2009 reached 7% on average in comparison to the highest prices for housing during the boom period. Prices did not deflate in any of the affluent countries to the point that they would be lower in 2009 than they were in 2000, even though salaries paid to people are now higher than they were back then. In other words, housing is now more accessible for people, because it is necessary to work fewer years to acquire housing than it was a decade ago (IMF 2009).

4. A Method of Multiple Criteria Complex Proportional Evaluation and Defining the Utility Degree a Monetary Policy

This method is directly related with utilitarianism moral philosophy. For example, for Bentham (1948), conduct is to be judged by its consequences to the community. Actions are moral to the extent that they promote the community's utility, and immoral to the extent that these lessen it. Utility is understood in subjective terms as the net balance of whatever a person finds to be pleasurable and painful, with the former obviously increasing that balance and the latter decreasing it. Rather than being conceived holistically as an entity in its own right, the community is nothing more than the name we give to a collection of individuals. Accordingly, Bentham holds that the community's utility is the sum of individual utilities. It can be calculated by placing the number of those positively impacted by an action, weighted by the intensity and duration of their net pleasure, in the positive column and then doing the same in the negative column for those negatively affected by net pain. If the positive side of the ledger exceeds the negative, communal utility rises and the action passes the moral bar; and vice versa if the negative column outweighs the positive (Bentham, 1948).

“The determination of the utility degree and value of the alternative under investigation and establishment of the priority order for its implementation does not present much difficulty if the criteria numerical values and weights have been obtained and the multiple criteria decision making methods are used” (Zavadskas *et al.*, 2001).

All criteria are calculated for the whole alternative. The process of determining the system of criteria, their initial weights and qualitative criteria numerical values of the alternative under investigation is based on the use of various expert methods. The determination of quantitative criteria numerical values is based on the use of various statistical methods, analysed alternatives, recommendations and other documents.

The results of the comparative analysis of the alternatives are presented as a grouped decision making matrix where columns contain n alternatives being considered, while all quantitative and conceptual information pertaining to them is found in lines (see *Table 1*).

Table 1. Grouped decision making matrix of monetary policy life cycle multiple criteria analysis

Quantitative information pertinent to alternatives									
Criteria describing the life cycle of a monetary policy	*	Weight	Measuring units	Compared alternatives					
				a_1	a_2	...	a_j	...	a_n
Quantitative criteria	Z_1	q_1	m_1	X_{11}	X_{12}	...	X_{1j}	...	X_{1n}
	Z_2	q_2	m_2	X_{21}	X_{22}	...	X_{2j}	...	X_{2n}

	Z_i	q_i	m_i	X_{i1}	X_{i2}	...	X_{ij}	...	X_{in}
	Z_t	q_t	m_t	X_{t1}	X_{t2}	...	X_{tj}	...	X_{tn}
Qualitative criteria	Z_{t+1}	q_{t+1}	m_{t+1}	$X_{t+1 1}$	$X_{t+1 2}$...	$X_{t+1 j}$...	$X_{t+1 n}$
	Z_{t+2}	q_{t+2}	m_{t+2}	$X_{t+2 1}$	$X_{t+2 2}$...	$X_{t+2 i}$...	$X_{t+2 n}$

	Z_i	q_i	m_i	X_{i1}	X_{i2}	...	X_{ij}	...	X_{in}
	Z_m	q_m	m_m	X_{m1}	X_{m2}	...	X_{mj}	...	X_{mn}
Conceptual information pertinent to alternatives (i.e. text, drawings, graphics, video tapes)									
C_f	C_z	C_q	C_m	C_1	C_2	...	C_j	...	C_n

Notes: * - The sign z_i (+ (-)) indicates that a greater (less) criterion value corresponds to a higher significance for stakeholders.

Quantitative and conceptual description of the research object provides the information about various aspects of a monetary policy life cycle (i.e. economical, legal/regulatory, institutional, political, social, traditions, cultural, philosophical, ethical, confidence, happiness, religion, emotional, psychological, etc.). Quantitative information is based on the criteria systems and subsystems, units of measure, values and initial weights as well as the data on the alternatives development.

Conceptual description of a monetary policy life cycle presents textual, graphical (schemes, graphs, diagrams, drawings), visual (videotapes) information about the alternatives and the criteria used for their definition, as well as giving the reason for the choice of this particular system of criteria, their values and weights. This part also includes information about the possible ways of multivariant design. Conceptual information is needed to make more complete and accurate evaluation of the alternatives considered. It also helps to get more useful information as well as developing a system and subsystems of criteria and defining their values and weights.

In order to perform a complete study of the research object a complex evaluation of its economic, legal/regulatory, institutional, social, traditions, cultural, philosophical, ethical, confidence, happiness, religion, emotional, psychological and other aspects is needed. The diversity of aspects being assessed should follow the diversity of ways of presenting data needed for decision making. Therefore, the necessary data may be presented in numerical, textual, graphical (schemes, graphs, charts), formula, videotape and other forms.

“The grouping of the information in the matrix should be performed so as to facilitate the calculation process and to express their physical meaning. In our case the criteria system are formed from the criteria describing the life cycle of a monetary policy which can be expressed in a quantitative form (quantitative criteria) and the criteria describing the life cycle

of a monetary policy which cannot be expressed in a quantitative form (qualitative criteria)” (Zavadskas *et al.*, 2001).

The researchers from various countries engaged in the analysis of monetary policy life cycle and its stages did not consider the research object being analysed by the authors of the present investigation. However, they did not consider the research object that the research presented here analyses (see section “Conceptual Model of Monetary Policy in Lithuania”). This research object may be described as a life cycle of the monetary policy that includes the stakeholders involved and the environment which impact a life cycle in some particular manner, thusly forming an integral, whole entity. This formulated research object underwent complex analysis performed with the help of the multiple criteria project analysis, a new method especially developed for this purpose: a method of multiple criteria complex proportional evaluation and defining the utility degree a monetary policy.

This method assumes direct and proportional dependence of significance and priority of investigated versions on a system of criteria adequately describing the alternatives and on values and weights of the criteria. The system of criteria is determined and the values and initial weights of criteria are calculated by experts. All this information can be corrected by interested parties taking into consideration their pursued goals and existing capabilities. Hence, the assessment results of alternatives fully reflect the initial data jointly submitted by experts and interested parties.

The determination of significance and priority of alternatives is carried out in four stages.

Stage 1. According to Zavadskas *et al.* (2001), the weighted normalized decision making matrix D is formed. The purpose of this stage is to receive dimensionless weighted values from the comparative indexes. When the dimensionless values of the indexes are known, all criteria, originally having different dimensions, can be compared. The following formula is used for this purpose:

$$d_{ij} = \frac{x_{ij} \cdot q_i}{\sum_{j=1}^n x_{ij}}, \quad i=1, \overline{m}; \quad j=1, \overline{n}. \quad (1)$$

where x_{ij} - the value of the i -th criterion in the j -th alternative of a solution; m - the number of criteria; n - the number of the alternatives compared; q_i - significance of i -th criterion.

The sum of dimensionless weighted index values d_{ij} of each criterion x_i is always equal to the significance q_i of this criterion:

$$q_i = \sum_{j=1}^n d_{ij}, \quad i=1, \overline{m}; \quad j=1, \overline{n}. \quad (2)$$

In other words, the value of significance q_i of the investigated criterion is proportionally distributed among all alternative versions a_j according to their values x_{ij} .

Stage 2. The sums of weighted normalized indexes describing the j -th version are calculated. The versions are described by minimizing indexes S_{-j} and maximizing indexes S_{+j} . The lower value of minimizing indexes is better (price of the plot and monetary policy, etc.). The greater value of maximizing indexes is better (comfortability and aesthetics of the monetary policy, etc.). The sums are calculated according to the formula:

$$S_{+j} = \sum_{i=1}^m d_{+ij}; \quad S_{-j} = \sum_{i=1}^m d_{-ij}, \quad \overline{i=1,m}; \overline{j=1,n}. \quad (3)$$

In this case, the values S_{+j} (the greater is this value (alternative ‘pluses’), the more satisfied are the interested parties) and S_{-j} (the lower is this value (alternative ‘minuses’), the better is goal attainment by the interested parties) express the degree of goals attained by the interested parties in each alternative. In any case the sums of ‘pluses’ S_{+j} and ‘minuses’ S_{-j} of all alternatives are always respectively equal to all sums of significances of maximizing and minimizing criteria:

$$S_{+} = \sum_{j=1}^n S_{+j} = \sum_{i=1}^m \sum_{j=1}^n d_{+ij},$$

$$S_{-} = \sum_{j=1}^n S_{-j} = \sum_{i=1}^m \sum_{j=1}^n d_{-ij}, \quad \overline{i=1,m}; \overline{j=1,n}. \quad (4)$$

In this way, the calculations made may be additionally checked.

Stage 3. The significance (efficiency) of comparative versions is determined on the basis of describing positive alternatives (‘pluses’) and negative alternatives (‘minuses’) characteristics. Relative significance Q_j of each alternative a_j is found according to the formula:

$$Q_j = S_{+j} + \frac{S_{-\min} \cdot \sum_{j=1}^n S_{-j}}{S_{-j} \cdot \sum_{j=1}^n \frac{S_{-\min}}{S_{-j}}}, \quad \overline{j=1,n}. \quad (5)$$

Stage 4. Priority determination of alternatives. The greater is the Q_j the higher is the efficiency (priority) of the alternative.

The analysis of the method presented makes it possible to state that it may be easily applied to evaluating the alternatives and selecting most efficient of them, being fully aware of a physical meaning of the process. Moreover, it allowed formulating a reduced criterion Q_j which is directly proportional to the relative effect of the compared criteria values x_{ij} and significances q_i on the end result (see *Table 2*).

Significance Q_j of monetary policy a_j indicates satisfaction degree of demands and goals pursued by the interested parties - the greater is the Q_j the higher is the efficiency of the monetary policy. In this case, the significance Q_{max} of the most rational monetary policy will always be the highest. The significances of all remaining monetary policies are lower as compared with the most rational one. This means that total demands and goals of interested parties will be satisfied to a smaller extent than it would be in case of the best monetary policy.

The degree of monetary policy utility is directly associated with quantitative and conceptual information related to it. If one monetary policy is characterized by the best economic and political aspects, while the other shows better social, philosophical and ethical characteristics, both having obtained the same significance values as a result of multiple criteria evaluation, this means that their utility degree is also the same. With the increase

(decrease) of the significance of a monetary policy analysed, its degree of utility also increases (decreases).

Table 2. Monetary policy life cycle multiple criteria analysis results

Quantitative information pertinent to alternatives							
Criteria describing the life cycle of a monetary policy	*	Weight	Measuring units	Compared alternatives			
				a ₁	a ₂	... a _n	
X ₁	Z ₁	q ₁	m ₁	d ₁₁	d ₁₂	... d _{1n}	
X ₂	Z ₂	q ₂	m ₂	d ₂₁	d ₂₂	... d _{2n}	
X ₃	Z ₃	q ₃	m ₃	d ₃₁	d ₃₂	... d _{3n}	
...	
X _i	Z _i	q _i	m _i	d _{i1}	d _{i2}	... d _{in}	
...	
X _m	Z _m	q _m	m _m	d _{m1}	d _{m2}	... d _{mn}	
The sums of weighted normalized maximizing (alternatives 'pluses') indices of the alternative				S ₊₁	S ₊₂	... S _{+j}	... S _{+n}
The sums of weighted normalized minimizing (alternatives 'minuses') indices of the alternative				S ₋₁	S ₋₂	... S _{-j}	... S _{-n}
Significance of the alternative				Q ₁	Q ₂	... Q _j	... Q _n
Priority of the alternative				P ₁	P ₂	... P _j	... P _n
Utility degree of the alternative (%)				N ₁	N ₂	... N _j	... N _n

Notes: * - The sign z_i (+ (-)) indicates that a greater (less) criterion value corresponds to a greater significance for stakeholders.

The degree of monetary policy utility is determined by comparing the monetary policy analysed with the most efficient monetary policy. In this case, all the utility degree values related to the monetary policy analysed will be ranged from 0% to 100%. This will facilitate visual assessment of monetary policy efficiency.

The degrees of utility of the monetary policy considered as well as the market value of a monetary policy being valuated is determined in seven stages.

Stage 5. The formula used for the calculation of monetary policy a_j utility degree N_j is given below:

$$N_j = \left(\frac{Q_j}{Q_{max}} \right) \cdot 100\% \quad (6)$$

here Q_j and Q_{max} are the significances of the monetary policy obtained from the equation 5.

The degree of utility N_j of monetary policy a_j indicates the level of satisfying the needs of the parties interested in the monetary policy. The more goals are achieved and the more important they are, the higher is the degree of the monetary policy utility. Since stakeholders are mostly interested in how much more efficient particular monetary policy are than the others (which ones can better satisfy their needs), then it is more advisable to use the concept of monetary policy utility rather than significance when choosing the most efficient solution.

A degree of monetary policy utility reflects the extent to which the goals pursued by the interested parties are attained. The more objectives are attained and the more significant they are the higher will be monetary policy degree of utility.

The multiple criteria decision-making method, developed by the authors of this paper, has already been adapted and applied for resolving various ethical, construction and real estate sector issues (Kaklauskas, 1999; Kaklauskas *et al.*, 2005; Zavadskas *et al.*, 2004).

Conclusions

The objective of this article is to ground the influence of monetary policy on macroeconomic stability scientifically. The research object is the accurate modelling of monetary policy means and instruments and their interactions. The research object may also be described as the life cycle of a monetary policy that includes involved stakeholders and the economic, political, legal, institutional, social, traditional, cultural, philosophical, ethical, confidence- and happiness-based, religious, emotional and psychological environments that impact a life cycle in some particular manner, thusly forming an integral, whole entity. This formulated research object underwent complex analysis performed using the multiple criteria project analysis and a new multiple criteria analysis method especially developed for this purpose.

The objective of the traditional monetary policy being executed by modern central banks is more than merely pursuing price stability by regulating the supply of money. It is also meant to guarantee the stability of the entire economy and constant economic growth trends. More and more often, monetary policy specialists, experts and scholars underscore in their studies the responsibility of monetary policy formulators for the changes ongoing in all capital and goods production sectors, not only in financial markets. It is important to discover the interface points between means of influence and the macroeconomic indicators that would point out timely signals about future changes.

The offered conceptual model of potential monetary policies covers nearly all social and economic aspects, which reflect public and market reactions to the outcomes of a monetary policy (interest rate changes, currency exchange rate changes, prices and others).

This way the aforementioned model permits monetary policy formulators to foresee public and market behaviours better, not only during crises and states of shock but also during stably operating periods.

A central bank has moral hazard responsibility for people's property and money because the bank uses them in its operations.

The conceptual monetary policy model for Lithuania is hypothetical and covers the world-recognized, traditional monetary policy with all its aspects of social consequences. It is offered for Lithuania to find the alternative to break out of a complicated situation. Lithuania has no monetary policy; it has the currency board model in effect. There is no alternative economic model developed for the survival of a country, which has no national monetary policy of its own, is not part of the Euro zone and has not its monetary policy executed by the European Central Bank. Added to this, the commercial bank branches in the country, which are dominated by foreign capital, make no efforts to help the market in Lithuania during the crisis. They cease lending, hold surplus reserves and maintain high interest rates; i.e., they act entirely differently than commercial banks do in other countries. Over the nearest future, it will not be possible to join a united currency system, i.e., to enter the Euro zone. An alternative way out of the situation must be found, a way to restore the chance for the country's central bank to execute monetary policy in consideration of the country's structure, sectors and growth trends.

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KONCEPTUALUS PINIGŲ POLITIKOS MODELIS LIETUVAI

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SANTRAUKA

Centrinio banko kuriamos pinigų politikos pritaikymui ir įgyvendinimui visada turi įtakos visuomenės ir finansinių institucijų elgsena. Šios elgsenos pobūdį, tendencijas lemia tam tikri socialiniai veiksniai. Straipsnio tikslas yra moksliskai pagrįsti pinigų politikos įtaką makroekonominiam stabilumui. Tyrimo objektas yra pinigų politikos priemonių, instrumentų ir tikslų tarpusavio sąveikos modeliavimas. Šiuolaikinių centrinių bankų vykdomos tradicinės pinigų politikos tikslas yra ne tik siekti kainų stabilumo reguliuojant pinigų pasiūlą, bet garantuoti visos ekonomikos stabilumą, tvarias ekonomikos augimo tendencijas. Vis dažniau pinigų politikos specialistai, ekspertai, mokslininkai pabrėžia savo studijose pinigų politikos formuotojų atsakomybę dėl pokyčių, vykstančių ne tik pinigų, finansų rinkose, bet ir viso kapitalo, prekių gamybos sektoriuose. Svarbu rasti sąlyčio taškus tarp poveikio priemonių ir makroekonominių indikatorių, kurie parodytų ir laiku signalizuotų apie būsimus pokyčius.

Pasiūlytas konceptualus galimas pinigų politikos modelis apima beveik visus socialinius ir ekonominius aspektus, kurie atspindi visuomenės ir rinkų reakciją į pinigų politikos padarinius (palūkanų pokyčius, pinigų keitimo kurso pokyčius, kainų ir kt.).

Tokiu būdu minėtas modelis leidžia pinigų politikos formuotojams geriau numatyti visuomenės ir rinkų elgseną ne tik krizės, šoko būsenose, bet ir pastovioje veikloje.

Centrinis bankas atsakingas morališkai už žmonių turtą, pinigus, nes bankai jais naudojami savo veikloje.

Konceptualus pinigų politikos modelis Lietuvoje yra hipotetinis ir apima tradicinę pasaulyje pripažintą pinigų politiką su visais socialines pasekmes turinčiais aspektais. Tai pasiūlymas Lietuvai rasti alternatyvą ir išeitį iš sudėtingos situacijos, nes Lietuvoje nėra pinigų politikos, veikia valiutų valdybos modelis ir nėra sukurtas alternatyvus ekonomikos modelis, kuris parodytų, kaip gyventi valstybei, neturinčiai savo nacionalinės pinigų politikos, nebūnant Euro zonos dalimi, kurioje pinigų politiką vykdo Europos centrinis bankas, be to ir dominuojantys užsienio kapitalo komercinių bankų filialai nesistengia padėti Lietuvos rinkai krizės metais, stabdo skolinimą, laiko perteklinius rezervus, aukštas palūkanų normas t.y. veikia visai skirtingai, negu kitų šalių komerciniai bankai. Negalėdami artimiausių metų bėgyje prisijungti prie vieningos valiutos sistemos, patekti į Euro zoną turime rasti išeitį, kaip alternatyvą t.y. grąžinti centriniam bankui galimybę vykdyti pinigų politiką atsižvelgiant į šalies struktūrą, sektorius, ir augimo tendencijas.

REIKŠMINIAI ŽODŽIAI: pinigų politika, svertai, instrumentai, makroekonominiai indikatoriai, pinigų pasiūla, socialiniai veiksniai, daugiakriterinė analizė, Lietuva.