National Bank of the Republic of Macedonia

Research activities program
2014 - 2016

May, 2013
Research activities program within 2014 - 2016 period

The research activities of the National Bank of the Republic of Macedonia (NBRM) within 2014 - 2016 period will be directed towards areas important for the attainment of its basic and other goals and mainly, strengthening of the institutional capacity. The main legal objective of the NBRM is the price stability, while its' other objectives, subordinated to the main goal, are to contribute to the maintenance of stable and competitive market-oriented financial system, and to support the development of the open market economy and free competition. The researches envisaged for the following three-year period should support the decision-making process and contribute towards more successful functioning of NBRM and coping with the future challenges. The envisaged researches and analyses should contribute to modernization of the NBRM operating and preparation for future participation in the European System of Central Banks (ESCB). The Research Activities Program within 2014 - 2016 period defines the priority research areas, not excluding the possibility for other researches, if required.

The researches in the following three-year period are grouped into individual areas that integrate realization of one or several research issues or projects. Those main areas are as follows:

1. Monetary policy;
2. Interaction between the main macroeconomic sectors;
3. Macroeconomic modeling and development of quantitative research techniques;
4. Financial stability and banking system;
5. Research in the EU integration area;
6. Other areas.

Compared to the previous three-year program, the program for the period 2014 - 2016 envisages additional projects in the area of monetary transmission and operational implementation of the monetary policy, interaction between the main macroeconomic sectors, financial stability and banking system. Detailed elaboration of the scope of the individual research areas follows.

1. Monetary policy

Monetary policy and strategy and monetary transmission

The attainment of the monetary objectives assumes comprehension and functionality of the monetary transmission channels. In that context, it is necessary to ensure research continuity in the domain of estimation of the intensification and the speed of the monetary signals transmission to the economic activity and inflation. This understands estimation of the changes in the already empirically researched monetary transmission channels, as well as researches in the domain of already non-examined monetary signals transmission channels. The changes in the monetary transmission domain can be caused by different factors, such as the globalization, structural changes in the economy, and even the changes in the monetary set of instruments itself. A special focus will be given to the factors influencing inflation as well as the way of setting prices by the agents in the economy in terms of intensity and frequency of the changes. The strategy of de facto fixed exchange rate of the Denar imposed a need for the NBRM to assess the equilibrated exchange level also in the following period, by applying not only the current approaches, but also through
the introduction of new techniques and analysis concepts. Also, permanent assessment of the monetary policy rule and the manner of its determining is required, through preparation of analysis of the adequate foreign reserves level, as the main monetary operational objective.

The statistical data are basis for scrutinizing the movements in the economy and the decision-making in the everyday working. Hence, the analyses for statistics quality improvement are of enormous significance for the macroeconomic policies makers. Within the domain of balance of payments statistics, the priority research will be focused on the private transfers. Based on the conducted private transfers survey, analysis and assessment of the sources of these inflows will be made, as well as suggestions for their recording within the balance of payments statistics. The export activity of the domestic entities in the services sector represents special analysis area, in order to give assessment of the current sources of data and to perceive the possible contribution of the export of services to the improvement of the balance of payments position in the country.

**Monetary operations and foreign reserves management**

Within the following three-year period, in the domain of operational monetary policy conduct, activities for improving the preciseness of the currency in circulation projections are planned, which are the input component in the liquidity planning process of the banking system. Additionally, a research on the determinants of the demand for currency in circulation in the domestic economy is planned, aiming towards improving the currency in circulation forecasting process in a long run.

The changes in the domestic economy, the development of the financial markets, as well as the changes in the international environment have adequate influence on the monetary instruments setup and the conditions for foreign reserves management. As a result, in this area, preparation of analyses related to the NBRM monetary instruments setup has been planned. The objective of these analyses is to enable adjustment of the monetary instruments set to the macroeconomic movements in the economy and the latest trends in the developed economies and the economics with similar macroeconomic environment for the monetary policy conduct. Analysis of the movements on the financial markets in the country will also be produced, aiming at monitoring and promotion of the financial markets development in the Republic of Macedonia, particularly of the money market. In this view, the analysis of the money market interest rates variability is important, considering this market as significant mediator in the transmission of the monetary policy signals to the banking system. The preparation of the analyses for the movements and NBRM interventions on the foreign exchange market will enable monitoring and foreign exchange market development promotion, and especially the interbank segment, where the NBRM interventions are carried out. The empirical analysis, which will focus on the interlink and degree of implicit variability of some market segments within the foreign exchange market, will contribute to better understanding of the functioning and mechanisms of shock transmission between different segments of the foreign exchange market. The analyses of the foreign reserves management of the Republic of Macedonia are aimed at improvement and larger flexibility in the foreign reserves management. In this area, a special attention will be given to the activities for considering the role of the futures agreements within foreign reserves' interest rate risk management and control over portfolio risks. The regular monitoring of the developments on the international financial markets is an important precondition for making decisions on foreign reserves investments in secure, liquid and yield bearing instruments.
Communication and transparency in the monetary policy domain

The expectations of the economic entities are important link in the monetary transmission process. The manner of communication and transparency degree of the central bank may have significant role in the creation of the economic agents’ expectations and thus have critical role in the effectiveness of the fulfillment of the monetary objectives. For these reasons the central banks in more developed economies pay bigger attention to the communication improvement and bigger transparency, in order to increase the effectiveness of the monetary transmission. Lately, bigger attention has also been paid to the assessment of the effects of the change in the manner of communication of the central banks on the policy effectiveness. The researches mainly refer to two segments. The first one is the communication effect on the financial markets expectations. If acting on the expectation successfully, in that instance, the monetary policies are more effective. The second segment is estimation of the effects of the different communication methods on the economic performances. Having in mind the significance of the communication for the monetary policy effectiveness, it is potential field for analytical and research activity. At the beginning, the activity of this domain could mean systemic analysis of the central banks' experience in the domain of communication, manner of communication and effects, as well as identification of communication segments of NBRM that can be promoted.

2. Interactions between the basic macroeconomic sectors

How fast and powerful the monetary signals will be transmitted largely depends on the structural characteristics of the economy. Hence, the empirical researches within the real economy domain impose as priority area. In that context, the labor market is one of the key macroeconomic segments, the behavior of which will largely depend on the effectiveness of the undertaken changes in the policies. The structure of the labor market, the supply and demand, the institutional limitations, the labor market flexibility are elements requiring special attention. Hence, several areas impose as research hurdle, such as analysis of the institutional characteristics of the labor market, the empirical assessment of the wage determinants in the Macedonian economy, the assessment of the labor market flexibility in the Macedonian economy. The better understanding of the labor market functioning can give picture for the rigidity in the economy, the presence of which means more powerful reaction of the economy to different shocks, in absence of self-corrected mechanisms. The fiscal policy is additional area, the knowledge of which is necessary to provide optimal monetary-fiscal coordination. In this context, the research of the volume of the fiscal policy effects on the real economy, the cyclical behavior of the fiscal policy, the sustainability of the public finance are part of the important research issues. In context of the real economy, and the last financial crisis, the channels and the intensity of the external shocks on the domestic real economy are also priority areas. In such a manner, in case of possible emergence of new shocks, it should be easier to envisage the reaction of the economy and to design the policies for mopping-up or mitigating the consequences. As for the external indebtedness of the domestic economy, the external debt sustainability will be analyzed on a regular basis. The foreign direct investments are an important source of growth funding, especially for small developing countries. In the recent period, the presence of foreign investors in domestic economy has been growing, which imposes a need of further assessment of the effects of their "entrance" on the performances of the Macedonian economy, as another important research area.
The establishing of the financial accounts statistics as new macroeconomic statistics is of special importance to better perceive the cash flows movements between the domestic sectors in the economy. In this context, analyses focused on certain methodological issues for establishing financial accounts statistics of NBRM (parallels between the European accounts system ESA 95 and the domestic accounting standards, the financial standings and flows derivation methods for the "non-financial trade companies" sector, the manner of balancing of the capital and financial accounts within the national accounts system, the possibilities for harmonization of the quarterly with annual sources of data, the possibilities for application of the estimations for certain unavailable data etc.) will be carried out. The establishing of the financial statistics is in favor of better understanding of the interaction between the institutional sectors in the financing of their activities.

3. Macroeconomic modeling and development of the quantitative research techniques

Getting answers on some previously raised questions, or execution of the current analytical and projection activities in NBRM is not possible without the existence of various models explaining the Macedonian economy. The structural policy analysis model MAKPAM is the basic projection model of the NBRM. However, the constant changes in the economy, as well as the development of new econometric approaches and techniques impose a need of its constant updating and development, activities that will be placed in the focus of the research activities in future, as well. Beside the improvement of the current model, the NBRM should undertake activities for preparation of diversified portfolio of models for monetary policy decision-making. The development of new, more sophisticated monetary policy model based on micro fundament, i.e. the so-called DSGE model (dynamic stochastic general equilibrium model) is one of the approaches that would enrich the analytical framework of the NBRM. The activities related to the introduction to the DSGE methodology and the building techniques of these models, except for monetary projections, would be used also for the large number of research projects. Another field the NBRM should pay attention to the following period is the application of the specific econometric techniques, such as the so-called Bayesian approaches, intended for short time-series and structural changes. Having in mind the dynamical character of the research operations, development of new econometric approaches and techniques in the following period would be expected. Studying the novelties, the NBRM will decide what techniques to be implemented in the models portfolio and with what dynamics.

4. Financial stability and banking system

Financial stability

Within the financial stability domain, the main objective will be the improvement of the analyses of the banking sector stability and creation of conditions for projecting the future movements of the individual categories of the banks' balance sheets. One of the key research areas will be the development of models for the financial stability needs. This activity should represent a framework encompassing various satellite econometric models, where different indicators for the banks' operating and their exposure to certain risks will occur as dependant variables (model for non-performing loans - separately by households and enterprises, ROAA model, or model for net interest income, credit model, etc.). The
The development of these satellite models will be followed by preparation of a methodology for macro-stress testing, which will contain the stress-test framework, with special accent being put on the manner of interconnection of the developed satellite models. In addition, one of the possible research areas will be the development of techniques for envisaging the variability of the stock exchange indices.

The latest world crisis was caused, to large extent, by distortions in the financial system, which were afterwards transmitted to the real sector of the economy. The movements in the global economy in the last years show possible negative recurrent effects of the real to the financial system, as well as still present risks for the real sector arising from the process of the financial system recovery. In line with such trends, one of the main focal points is the relations between the macroeconomic categories and the financial system. This imposes a need of defining primarily of projects for assessment of the influence and the transmission channels of the economic cycle effects on the growth and stability of the financial system, as well as for estimation of the opposite relation. The good knowledge in the reverse relation between the real economy and the financial system is of key importance for the monetary policy, having in mind that those are the two important links in the monetary transmission. Within these frames, very important segment for the NBRM is also the influence of the monetary policy instruments on the financial stability. In this segment, the effects of the undertaken measures of the central banks' monetary policy on the financial stability will be tested empirically. Additionally, the linkage between monetary and macro-prudential policy would be considered by analysis of the central banks' experiences regarding the effects of combine implementation of monetary and macro-prudential policy instruments, aiming at improvement of their efficiency.

**Banking system**

The analyses from the area of banking system functioning are directed towards elaboration of key banking operations issues that should serve as a basis for deciding in the policy and regulation designing process. One of the research themes of higher importance in this area is analysis of the foreclosed property (collateral) by the banks, in order to collect the claim, the period up to its sale, the reached price relative to the one recorded in the accounting records. Upon completion of activities in this area in 2012, a regular analysis of the effects of the foreclosure and sold foreclosed property on the banks' balance sheets will be done in the next period, based on the data provided by the banks on the foreclosure and sold foreclosed property compiled on a regular basis. Within the researches of the competitiveness of the banking system, the already applied competitiveness measurement indices will be encompassed, but the research will include also other indices and current indices modifications from the aspect of the factor expenses, applied within other researches. The objective of these researches, beside the measuring of the competitiveness degree in the banking system, is to include also the effects on the interest rate spread, i.e. the interest rates, the mediation and other variables. The latest researches in this field point out that the banking system competitiveness influences the banks' efficiency, the access to financial services and the financial stability. Further upgrade of the research for the competitiveness of the Macedonian banking system by the analysis for the link between competitiveness and the three abovementioned dimensions will result in more comprehensive analysis of the potential effects of higher competitiveness in the banking system. One of the possible issues for analysis is the possibilities for attracting of the savings deposits from the foreign entities in the domestic banks, which can be significant channel for increasing the domestic deposit potential. The research would focus on the attractiveness of the domestic currency and the domestic interest rates for the foreign depositors.
Macro prudent regulations

Among the key issues within the macro prudent regulations domain is the preparation of a detailed analysis of the new Basel standards for the capital requirement and liquidity, as well as determining of the possibilities for their implementation and effects thereof in the Republic of Macedonia. This research assumes determining of the indicators structure, collection of the necessary information and bank data and determining of the effects of the introduction of these standards in the Republic of Macedonia. Also, starting from 2013, research (self-assessment) of the harmonization degree of the banking supervision with the revised Basel principles for efficient banking supervision will be made. This self-assessment will show the potential need for improvement in the banking regulations and supervision in comparison with the indicated principles.

5. Researches in the EU integrations area

The EU integration process imposes a variety of challenges to the institutions, and thus the central bank. Having in mind the complexity of the issues and its comprehensiveness, detailed analyses directed to individual segments of the central bank operations and preparation for future membership in the European System of Central Banks (ESCB) are required.

Within this area, special attention will be paid to the role and the participation of the central banks in the negotiation process for EU membership. In addition, comparative analysis of the experiences of the central banks of individual Central and Eastern European countries will be prepared that are related to the negotiations process and structure, their duration, defining of the negotiation positions, the need of transition periods, the largest challenges from the aspect of the central banks for ESCB membership. Furthermore, the analyses of the European legislation and the possibilities for their incorporation in the national legislation and their implementation by the NBRM will pursue (defining of the liabilities, the financial consequences, necessary resources, implementation effects, etc.). All these analyses will be in the focus of the interest also of the technical assistance of ECB (Needs assessment project, which commenced in October 2012). On these bases, recommendations for efficient and effective participation of the NBRM in the negotiation process and the fulfillment of the requirements arising from the membership will be given.

Special attention shall also be paid to the analysis of the influence of the supranational rights in EU on the macro economic policies in the Republic of Macedonia. Within these frames, a survey of the supranational rules in the area of macro economic policies within EU will be prepared (Growth and Stability Pact, Fiscal compact, etc.), making also an analysis on the fulfillment degree in the Republic of Macedonia, assessment of the possibilities for full implementation of the rules in the Republic of Macedonia (expenses, need of structural reforms, real convergence etc.). In addition, it will also be pursued with the regular updating of the analyses of the fulfillment degree of the Maastricht criteria.

In this context, on a medium run, the analyses will also be directed towards the challenges of the national central banks in the process of joining to the European Monetary Union (EMU), which is long-term goal of the monetary policy of the NBRM. Within these frames, an overview of the stages the EU member-states went through before joining EMU will be
prepared, as well as comparative analyses of the experience of part of the member states of EMU, having similar characteristics with Macedonia. Also, assessment of the possibilities of Macedonia for membership in the European monetary union will be made.

6. Other areas

Analysis of the balance sheets of the central banks

The latest financial and economic crisis had adequate reflection also on the monetary policy and the central banks' balance sheets, thus imposing a need for analysis of the balance sheets of the central banks in EU and in the South Eastern European countries, including also the Republic of Macedonia. It is aimed at perceiving the trends with the basic items within the balance sheets of the central banks and their effects on the central banks operations. Special attention should be paid to the analysis of capital, general and special (revaluation) reserves, their relations with other assets and liabilities, as well as the movements of the monetary assets and liabilities.

Analyses of the individual aspects of the central banking operations

The analyses in the domain of the future development of the role of the central banks are of immense importance for the central banking operations. Within this issue, researches of the role of the central banks in the post crisis period and some trends clearly announcing that the role of the central banks is changing will be made. The improvement in the legal framework regulating the National Bank functions is one of its strategic objectives. The comparative analyses made during the research could serve as a basis for suggestions and attitude in the further development of the role of the National Bank of the Republic of Macedonia. The analysis of the role of the NBRM as an active party in the money laundering prevention combat will further be focused on the role of the NBRM and the place in the legislation, as well as strengthening of the authority of the highest monetary institution in the money laundering prevention combat. In future, analyses also in the part of the classified information in the country will be made, with special attention being put to the classification of the information in the National Bank of the Republic of Macedonia.

Numismatics

The research activities of the NBRM Museum in the next three years will focus on issues related to numismatics, monetary and economic history, with special emphasis on the studies of circulation, distribution and use of cash denominations of the political units that encompassed the territory of Macedonia in the pre-Roman, Roman imperial and medieval period. Moreover, a part of the research will aim towards analyzing the coin iconography of money issues of the ancient Macedonian state. Research in the area of application and research conservation will focus on the identification of the composition of metals used to make minting products in Paonia, the Roman Empire and the Byzantine State. Furthermore, research activities will include analyzes of the indoor adverse atmospheric effects (depots, museum exhibition etc.) on the physicochemical properties of the samples of the NBRM's numismatic collection.