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MONETARY POLICY AFTER THE CRISIS. EVALUATION OF THE EUROPEAN CENTRAL BANK PRACTICE.

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1. Background of Research

The years before the financial crisis of 2007-2008 can be seen as the golden age of monetary policy. Monetary policy in the developed world was conducted by independent central banks operating on solid theoretical fundamentals and a mature institutional system, pursuing clear objectives and using well-developed toolset. Their results in maintaining price stability and smoothing business cycles confirmed the adequacy of monetary policy thinking. Most economists agreed that monetary policy could serve long-term growth and social welfare by maintaining price stability, defined as a positive but close to zero inflation rate. Central banks achieved this goal by using indirect instruments, i.e. interest rate policy. As a result of their success and the consensus on the role of monetary policy, the leading central banks achieved outstanding credibility. However, the challenges of the crisis has forced academic researchers, central bankers and policymakers to rethink the earlier comfortable consensus.

In addition to the debate on instruments and objectives, strong expectations have arisen requiring central banks to contribute and to provide solutions through their monetary policy and instruments, to addressing the real economic problems caused by the crisis. The debates have arisen along the following issues:

- Whether and to what extent are central banks responsible for the crisis?
- Is it possible or necessary to change central banks' objectives?

— How should financial stability be implemented through monetary policy?
— What kind of instruments can central banks use to address the effects of the crisis, and what outcome and risks are expected from their application?

These issues deeply undermine previous theoretical consensus and practice and influence the future of monetary policy. The choice of the topic of the research is the result of this rare situation where a sudden change in a mature area has occurred and the topic has thus come into the focus of both academia and the central banks. Moreover, this was not only about a particular aspect of monetary policy, but about issues affecting it as a whole and in a substantive way. That is why the research has not been confined to a narrow segment, instead it deals comprehensively with the changes in monetary policy objectives and instruments after the crisis, and with the debates and experiences about those, in order to draw conclusions on the future of monetary policy.

Thematically, the dissertation deals with three main issues. Firstly, the possibility of revising monetary policy objectives is discussed. Prior to the crisis, the renewal of the neoclassical synthesis, and inflation targeting from its emergence to the 2000s, received the attention of academia and of central banks. By the pre-crisis years, a consensus emerged regarding monetary policy objectives, while inflation targeting was a successful and widely-used regime in the advanced world. However, in the years following the crisis, debates have arisen about the objectives and the adequacy of inflation targeting has been questioned. The impact of the crisis on the real economy was so strong that it called into question even the results achieved earlier. Central banks thus have to face social and political expectations that require them to take effective action to economic recovery and support the government's economic policy. This does not mean that the principle of central bank independence in monetary policy should be given up or questioned, however, this cannot be an argument either for refusing a debate on a possible change of monetary policy objectives.

The dissertation addresses financial stability issues in relation to monetary policy objectives. Due to what is happened, it is a widely accepted view that financial stability must be treated as a priority. After the crisis, the renewed micro-prudential supervision continues to play a leading role in securing financial stability, but the need to set up a macroprudential protective framework, that is aimed at addressing the stability of the financial system as a whole, has also arisen. The question is, in which form this should be achieved: integrated in, or separately from, monetary decision-making. The institutional reform that has been completed and the emerging new practice have resulted in separate management of the two objectives, where the price stability objective is the mandate of monetary policy while financial stability is that of macroprudential policy. However, it cannot be affirmed that this division is a final consensus and that this is the future way to achieve the two goals at the same time.

The other main direction of the dissertation is to comprehensively analyze how monetary policy instruments have changed after the crisis. As a result of the crisis, the framework for the monetary toolset was altered and expanded significantly. The outbreak of the crisis challenged the „lender of last resort" role of central banks, while its macroeconomic consequences threatened the central banks' main objectives. At the same time, once the zero lower bound was reached, monetary policy lost its traditional room for maneuver. Thus, in recent years, central banks used a number of non-conventional instruments, namely: quantitative easing, forward-looking guidance, credit easing and negative interest rates. The examination of their effectiveness and risks is the focus of academic and central bank research. Non-conventional instruments changed the monetary policy framework for the long term and influenced its possible path in the future.

The third part of the dissertation is an analysis of the policy of the European Central Bank (ECB) following the crisis. The ECB's extended asset purchase program, with the simultaneous use of additional monetary policy measures, started several years later and under circumstances different from those of similar programs of other leading central banks after the financial crisis. In addition to the causes and consequences of the delay, the heterogeneity of the euro area also makes this issue interesting. After the crisis, euro area divergence was not only a unique challenge for the common European monetary policy, but also provided additional experience of using non-conventional instruments.

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2. Objectives

The dissertation set aims for all the three areas mentioned previously: i) the objectives of monetary policy, ii) the use of non-conventional instruments, and iii) the ECB practice after the crisis:

1. It addresses to the question whether revising monetary policy objectives is really necessary as a consequence of the crisis. Based on the proposals that have emerged, it discusses why there has been no substantial change in the previous consensus on the objectives, what are the still open issues and whether any change is likely in this area.

The severity of the crisis, the magnitude of central bank and government interventions, and the resulting impact on the real economy, the depletion of conventional monetary policy instruments were the reasons why the previous consensus on monetary policy objectives had to be revised. The first element of this debate was how to reduce the likelihood of recurrence of the liquidity trap and of hitting the zero lower bound. Next a revision of objectives was suggested in order to ensure that monetary policy remains an effective economic policy tool even in the case of a liquidity trap. Initial criticisms that inflation targeting was a flawed monetary practice ceased relatively quickly. The focus was on the numerical change of the inflation target or on setting up alternative objectives.

Although no change has been either in the objectives or in the inflation target number, the case cannot yet be finally closed. That is why it is worth analysing the proposals and the debate around them.

2. It examines the real possibility of integrating the financial stability objective into monetary decision-making. Based on the analysis of arguments and criticisms of the new practice applied following the crisis, it draws attention to its shortcomings.

There was, already previously, a debate on how monetary policy should react to asset price bubbles and financial cycle developments. One option would be to directly integrate the stability objective into central bank decision-making. This is the so-called "Leaning against the wind" policy. The central bank, when taking into account the financial cycles in monetary policy decisions, typically intervenes in the opposite direction to the movement of the markets when this is justified by the stability objective. Although there was no complete consensus on it, pre-crisis practice preferred the so-called "clean up" or "mop up" strategy which handles market disturbance arising from a bursting bubble that hampering monetary objectives and / or the proper functioning of the transmission mechanism. In doing so, the central bank provided the liquidity expansion necessary for market clean-up.

However, the 2007-2008 financial crisis has drawn attention to the risks and costs of this strategy. After the crisis, financial stability was clearly given a priority in financial reforms, re-launching the debate. In addition, the mainstream view newly formed on the relationship between monetary policy and financial stability needs to be analyzed in order to see its adequacy and its shortcomings.

3. It collects and categorizes the non-conventional instruments used by central banks and suggests its comprehensive definition.

Even before the financial crisis, there was some literature on the search for possible room for maneuver and for instruments of monetary policy at the zero lower bound. Thus, central banks were not completely unprepared in the sense that there was a theoretical basis for the applicable instruments and their supposed working mechanism, even though there was insufficient experience in using those measures. Actually, the instruments themselves were not unknown in the potential central bank toolset either. The way central banks thought about them, the reasons for their use, and the way they were used reflected differences in practice. Also, in some cases, the boundary separating them from conventional instruments is narrow. That is why the categorization of these instruments is recommended.

4. It analyzes the pros and cons of the use of non-conventional instruments applied, and offers an opinion on their expected use during and after the normalization.

In recent years, the greatest attention to the use of non-conventional instruments was given. The focus was primarily on their effectiveness in the way they work theoretically and in empirical evidence. There are many criticisms of their side effects and risks, too. These instruments became dominant in recent years in the toolset of leading central banks, and in addition, they modified central banks' balance sheets for a long time. Therefore, returning to conventional instruments will be neither a simple nor a short process. Thus, on the one hand, it is worth to weigh up and to evaluate criticisms of non-conventional instruments, and, on the other hand, it is important to find an answer to the question of what kind of lasting impact of the non-conventional instruments make on the future operation of the central banks.

5. The dissertation explores the challenges the ECB faced during and after the crisis and the causes and the consequences of delays of the European quantitative easing. It analyzes and evaluates the ECB's program in light of the expected impact, the experience, and the special aspects of the euro area, and expresses an opinion on the criticisms on it.

The ECB's response to the crisis has been different that of other leading central banks, right from the beginning. The differences between member states in their economic and financial sectors have led to divergence and fragmentation of the financial intermediation system. Consequently, the ECB faced serious problems other than those encountered by the other central banks. The heterogeneity and divergence within the euro area had an impact on the effect of the non-conventional instruments used, on their effectiveness and ultimately on the success and risks of the ECB's program. The quantitative easing of the ECB started with a significant delay compared to the other leading central banks, with again, several consequences. The examination of these consequences as well as the criticisms against the ECB add value to the evaluation of non-conventional instruments too.

3. Materials and methods of the research

The research relies basically on information from three areas. The basis for examining central bank objectives and tools is an extensive review of the literature. This includes papers on the pre-crisis consensus, primarily from the academia, and central banks. The challenges monetary policy confronted following the crisis, the renewal of monetary policy, the examination and the criticism of the central banks' measures were undoubtedly accompanied by a high attention of the profession. Literature was widely consulted: research by international institutions, central banks, and conference papers, in order to provide a full picture of the most important directions of research in recent years and professional opinions. Conceptual and empirical studies were both available in significant numbers. The latter mainly examined the effectiveness of non-conventional instruments and the measures connected to financial stability. The research relies on a number of essays summarizing a large numbers of empirical studies. In the case of criticisms of the use of non-conventional instruments and of monetary policy practice, central bank opinion is also analyzed.

The review and analysis of the measures implemented by the leading central banks (ECB, the Federal Reserve, the Bank of Japan and the Bank of England) from 2007 to date is the second pillar of the discussion and the analysis of non-conventional instruments and ECB practice. These were typically programs covering a series of time-formed, successive packages of measures that are commonly designed by different names by the profession or the media (such as QE1, QE2, and QE3 in the US). The relevant central bank materials (announcements, protocols, press conference materials, technical and content manuals, data on their use, etc.) available on the central banks' websites were collected and processed in the course of the research.

The dissertation collects and processes monetary, market and economic data in a wide range, giving the third base of the analysis. The data published by the central banks, including the ECB, is the core of these. Several series of data are presented in the dissertation for the purpose of international comparison, for which the official data of countries or region had to be collected from not only central banks but also other national institutions (eg, statistical office, treasury, etc.). In addition, data provided by supranational organizations and data suppliers (eg, IMF, OECD, Eurostat) have been used. Some European datasets are available as a result of innovation or initiative originating outside the formal reporting institutions, typically by academia, and which was partly disclosed later by the ECB due to their importance. The data processed in the dissertation were occasionally based on such unique data services, but it should be noted that these data are also based on reliable euro area data services in the Member States. Market information, was of course, collected occasionally from data published by a market actor or alliance or by a market data provider institute. In connection with the objectives of the dissertation, analyzes of time series, graphical presentation and international comparison are carried out.

4. Conclusions and suggestions

The challenges facing monetary policy during and after the financial crisis in 2007-2008 brought radical changes to central bank practice. Overcoming the crisis and the bail-out of the financial intermediary system needed the „lender of last resort „role of central banks and even the intervention of governments to an extent that had not been anticipated before. After the crisis, a major economic downturn occurred, the output was permanently lagging behind potential, deflation threatened, and the achievement of the objectives of monetary policy was compromised.

As a result, radical changes occurred in thinking about financial stability and institutional system. A debate arose also about the changing of central bank objectives, but it has not led to either in the reformulation of the objectives or in the numerical change of the inflation target. The reasons were the strength of the previous consensus and the disagreement of academia about the new proposals. Thus, central bankers were not open to make changes in these. However, they were far less opposed to changes in the instruments. Following the crisis, each of the leading central banks introduced an arsenal of non-conventional instruments, although the theoretical background of the use of these instruments was rather vague, and practical experience was only marginally available. The assessment of these instruments is not unambiguous in the light of events. Although, due to the results, the advocates of using non-conventional instruments are in majority, criticisms are also numerous and not unfounded, because of the risks and negative side effects of the measures.

Based on the results of the areas examined, the following conclusions can be drawn and the following suggestions can be made:

1. No significant change can be expected in the central banks' monetary policy objectives, and the case for flexible inflation targeting has been even strengthened. An increase in target rate of inflation is unlikely, but it is advisable to continue the discussion about the optimum target rate and pursue further research.

From a theoretical approach, history-dependent strategies emerged as alternatives to inflation targeting because they provide the central bank with a more flexible framework to conduct a more effective and sustained monetary policy at the zero lower bound. This could help also short-term macro stability. In an inflation targeting regime, expectations about a central bank's credible strategy are difficult to shape in the direction, that the extremely loose monetary policy persists for a long-term, without creating doubts around anti-inflationary commitment. The main uncertainty about history-dependent strategies is whether central banks using them would be able to anchor inflation expectations as successfully as they did during the current regime. Furthermore, the flexible inflation targeting regime has two important roles in the zero interest period, reinforcing the arguments for its application. On the one hand, based on the operational logic of the regime and its impact on expectations, it is capable of acting effectively against the formation of a deflationary spiral. It does not tolerate deviations from the inflation target and helps in keeping expectations not to turn deflationary. On the other hand, inflation targeting, as a guarantee, also protects against the inflationary risks of non-conventional instruments, partly by anchoring expectations. To finetune the regime and to take greater account of growth risks, pursuing research can bring new results.

While there seems to be a clear direction to keep the current regime, the opinions on the numerical inflation target are more divided. Raising the inflation target would have benefit, regarding in particular the avoidance of hitting the zero lower bound in the future. A higher target may assist in smoothing macro adjustments within the Eurozone, too. However, at a higher inflation target, it is uncertain whether inflation expectations could be kept anchored. Furthermore, it is not likely that different inflation target can be defined for each of the macro-regions, given international financial implications. Although the debate on this has not been closed definitively, even if the resistance of central bankers weakens over time, the practical significance of and the motivation for increasing the inflation target from its current 2 percent value, will be reduced. Thus, for the time being, it is likely that the current target remains unchanged.

However, there is a number of reasons why it is worthwhile to keep open the issue of the inflation target value. The outcome of a debate on the causes and the persistence of a low-interest rate environment is important to determine the appropriate target value. If theories claiming that there is a sustained slowdown in growth and that cyclical factors have impact on potential growth, advance, then this will have an impact on the rules and strategy of monetary policy. This means that, in addition to the risk of inflation, the central bank must take into account the growth risks, in a different way and with greater weight than it did before. The estimates for the frequency and the macroeconomic costs of the occurrence of a zero lower bound are depend heavily on parameters (such as real interest rates), the changes of which can be interpreted differently, in light of the debate mentioned above. All of these factors can reinforce the arguments that support an increase in the target rate of inflation.

2. The direct integration of financial stability objectives into monetary policy decision-making is not expected. However, the issue cannot be regarded as definitively closed, even in light of the recent institutional reform following the crisis. Based on experience, future research will have the task of exploring and understanding conflicts and cross-effects between the objectives of monetary and macroprudential policy.

In light of the recent financial crisis, it is beyond doubt that financial stability objective should be given greater priority in the future than was the case before. At present, neither the theoretical background nor empirical experience provide sufficient evidence or reference for central banks to move substantially away from their previous monetary policy framework and adopt a „leaning against the wind" policy. In sum, the use of macroprudential instruments seems to be more promising and more acceptable by the central banks. In the end, the post-crisis reform did not cause a radical change to monetary policy, but the previous consensus was supplemented by placing the stability issues under a newly established macroprudential mandate besides microprudential supervision. Of course, financial stability issues do not disappear from the tasks of central banks, their priority even increases. In several cases, macroprudential and microprudential supervision are placed within the organization of the central bank, but operate separately from monetary policy decision-making. However, the issue cannot be considered as definitively closed, despite the currently prevailing practice.

On the one hand, there are open questions the application of macroprudential policy as well. There is uncertainty in the selection of instruments and in the appropriate numerical calibration of macroprudential rules. Consequently, their efficiency can only be concluded from the experience gained during their use. On the other hand, bringing macroprudential and monetary policy in proper harmony is a future task. If both areas work well they reinforce each other. However, there is yet no practice and thus no experience whether and how they will endanger each other's performance if a conflict arises between the two separate mandates. This issue will emerge especially in the euro area where monetary policy is supranational, while the macroprudential mandate is largely within the competence of the member states. Monetary policy decision-making itself does not lack financial stability considerations. Such considerations must be taken into account not only when the central bank's „lender of last resort" role is activated, but also in all cases where central bankers think that monetary policy objectives are threatened by stability problems.

Future experience relating to this and the theoretical development of „leaning against the wind" can bring new results, too. Therefore, research should continue analysing the effectiveness of macroprudential instruments and their interactions with monetary policy.

3. The use of non-conventional instruments during and after the financial crisis resulted in sustained changes in monetary policy practices that may remain after the period of normalization too. However, although the negative side effects of non-conventional instruments did not occur to such an extent so far that would call into question their use, those cannot *be ignored. Therefore, building on the ongoing experience, it is necessary to pursue research in this area.*

As a result of central banks' actions to overcome the financial crisis, the „lending of last resort" role was broadened, and to a wider range of financial intermediaries became eligible to use central bank funding instruments. The events highlighted the importance of longer-term central bank funding, resulting in the lengthening of central bank liquidity providing facilities.

The implemented and the ongoing central bank quantitative easing programs also caused a lasting change in monetary policy. These programs resulted in changes in central bank balance sheets to such an extent, that they cannot be resized back soon. However, holding these assets in the central bank balance sheet for a prolonged period, does not rule out the effective application of the traditional interest rate tool. Thus, in normal times, conventional central bank instruments may be dominant. The lasting transformation of central bank balance sheet and the sustained low-interest rate environment together indicate that, if necessary, nonconventional measures can be used as tools of monetary easing in the future as well. An important factor behind this is that, according to experience, these instruments were effective and no serious damage was seen as a side effect of their use.

However, the cost-benefit analysis of non-conventional measures needs to be pursued. Considering the diminishing positive effect of asset purchases, it cannot be affirmed with any certainty, that the expected returns from their use will exceed the costs of their side effects in the future too. The market distortions they cause, the profitability pressures on the financial sector they generate, and their negative consequences that may occur in central bank profits in the future, may later pose real problems.

Whether and how the transmission mechanism of interest rate policy changes, as a result of changes in the central bank toolset, needs to be addressed in the future too. The increase in the role of long-term liquidity providing facilities among central bank instruments and the lasting changes of central bank balance sheets have an impact on how traditional interest rate policy functions. Growing the quantity of the long-term central bank instruments, increases the importance of the interest rate on those, and lengthens the time period for which the central bank's interest rate is decisive. As the central bank balance sheet changes, the significant holdings of free reserves must be taken into account, putting the deposit side of the standing facility and interest on deposits into the main role. These, in turn, result in changes in the impact of traditional interest rate policy, and that furthermore, the can be influenced by the interaction between these two instruments.

The assessment of forward guidance is much more clear. Forward guidance reinforced the effectiveness of asset purchase programs. The widened and more detailed communication of central banks contributed to preserve the credibility and generally bolstered the transparency of monetary policy. The success and increased transparency make it likely that forward guidance will persist in some form. This will also be needed if quantitative easing is continue to be a part of the applied toolset in the future.

4. Although the ECB launched its quantitative easing program with a delay compared to other leading central banks, so far it has been effective. Due to the delay, however, the non-conventional instruments had to be selected and calibrated so that they were sufficiently effective, which, in turn, increased the risks. The diminishing return of the program and the lasting fragmentation of the Eurozone financial markets draw attention to the limits of the possibilities of the ECB and of monetary policy in general, and to the particular importance of continuous analysis of side effects.

There is a consensus that the ECB's quantitative easing program has substantially lowered interest rates, supported the improvement of the real economy and contributed to avert the danger of deflation. However, its effectiveness is decreasing, the risks are considerable and can significantly influence the ultimate success of and judgment on the program.

In particular, the negative impact on the long-term profitability of the banking sector, the distortion of the government securities'markets and the factors that indicate the fragmentation of the Eurozone financial markets have to be highlighted. This latter points to the fact that monetary policy is not appropriate to remedy fundamental differences existing between the member states. Thanks partly to this, the ECB's program, implemented since 2015, has had limited success in rendering monetary transmission to one direction in the euro area.

Furthermore, the progress of the Fed's normalization program has led to new circumstances. It is unavoidable to examine what was the cause of the increase in European yields in 2017 and whether a revision of ECB's policy is needed due to this. If results are lagging despite the program continuing and negative side-effects are deepening, criticisms may mount against ECB policy. The disturbance in member state unity supporting the ECB would cause a weakening of the credibility of the common monetary policy and of the ECB. This itself jeopardizes the effectiveness of monetary policy, and can easily lead to divergent processes in the euro area, a deterioration of financial stability and, in a serious case, a euro crisis. This is why it is important to monitor the effectiveness and risks of the program in the euro area and pursue research on this issue.

5. New and novel scientific results

1. During the financial crisis of 2007-2008, and after the normalization of markets, now for about a decade, the practice of monetary policy is dominated by non-conventional instruments instead of the conventional ones. Their use is attributed in the literature primarily to the zero lower bound, and second, to the restoration of monetary transmission and to the elimination of the financial crisis. The dissertation made a detailed analysis of the instruments used by the central banks in its "lender of last resort" role, and the instruments applied following the crisis. On the basis of this, **it gave a definition for non-conventional instruments in novel approach: not in the usual form by type or by enumerating tem, but in the way as they differ from the conventional practice and in the character of their non-conventional nature.** To sum up, central bank measures that do not fit into the conventional practice is broadly referred to as non-conventional. Included here cases, when the central bank:

— implements radical changes in its conventional instruments and/or uses them to an extraordinary extent;
— applies non-operative instruments in an operative manner;
— extends its operations beyond traditional market agents and markets;
— applies innovative instruments with an effect that departs from conventional logic;
— defines unconventional operating or intermediate objectives;
— substantially alters its communication.

2. The impact of non-conventional instruments on monetary policy cannot be regarded as temporary. The dissertation collected the changes that can be assumed remain determinative in monetary policy for a longer period. On the basis of an analysis of crisis management experience and its consequences on monetary policy, as a new result, **it identified two lasting effects**. On the one hand, due to the interconnection of markets and the mutual interdependence of financial intermediaries, **the central bank's "lender of last resort" role cannot be strictly limited to only the banking system. This entails the expansion of the group of central bank's eligible counterparties**, resulting in a wide range of central bank instruments becoming accessible for many financial actors outside the banks too. On the other hand, instead of the traditional short-term central bank liquidity facilities, the weight has shifted to longer term funding. Because this is important in avoiding and managing crisis situations, **longer-term liquidity providing instruments can lastingly be part of the toolset in the future.**

3. Concerning **quantitative easing instruments used in the zero interest rate environment**, as a new finding, the dissertation concludes that **these instruments are expected to continue to be involved in the central bank practice in the future.** These instruments have changed central bank balance sheets for the long term and downsizing them is not possible in the short term. However, their presence in the balance sheet does not rule out the use of the conventional interest rate policy. Furthermore, most probably, the low-interest rate environment will persist. Therefore, **in normal times, the slow decline of the central bank balance sheet and the use of the traditional interest rate policy**

are likely to prevail, while during periods requiring monetary easing, the instruments recently used will be applied again.

4. The dissertation evaluated the proposals for changing monetary policy objectives. Based on the analysis of their benefits and disadvantages, it came to new conclusions. N**o change expected in the objectives; on the contrary, the flexible inflation targeting regime has been reinforced**. In terms of the quantified inflation target, although strong arguments support an upward movement from the current 2 percent value, **rather it is likely, that debate calms down, and the initiative will be given up** because of the risks of its impact on inflation expectations, and of the international implications of the modification. A **change in this issue can be expected only if, as a result of a debate on a sustained slowdown in growth, a change of the quantified target value**, as a possible response of monetary policy, **would be reassessed.**

5. An important consequence of the crisis was the appreciation of financial stability issues, that led to a comprehensive reform of the financial sector's regulation and, in general, of the institutional system of supervision. The dissertation did deal with the question of how financial stability objectives can be implemented in monetary policy. It was discussed, why the previous consensus was modified, instead of the adoption of the opposing "leaning against the wind" policy, leaving the mandate of monetary policy unchanged while financial stability strengthened and, based on the reform, the management of systemic risk was given to a separate macroprudential authority. The dissertation concluded newly that, despite this, **there are several factors - the question of the coordination of macroprudential and monetary policy**

objectives, the effectiveness of macroprudential policy and instruments and the theoretical development of "leaning against the wind" policy - whose future development may influence the relationship between financial stability and monetary policy.

6. The dissertation discusses in detail the ECB's practice in recent years. Numerous opinions and criticisms have emerged about the ECB's program. In addition to evaluating these thoroughly, the dissertation, in its novel approach, seeks to find out the effects of the European delay. It analyzes why the ECB started its QE program years later than the other leading central banks. Besides discovering the reasons for this, the main focus was to reveal the consequences of the delay. Accepting the consensus that the program has been successful so far, it has also examined the criticisms and their merits. On the one hand, it was concluded that - due to the delay – **the ECB had to compile and quantify its program in such a manner that it be sufficiently effective despite the delays, but this increased the risk due to the undesirable side effects.** However, success is hampered by a number of factors, the impact have also diminished recently. On the other hand, analyzing the risks, the dissertation argues that **the fragmentation of the Eurozone market in several respects has not improved, the possibilities of the program are limited in this area. The inadequacy of results can easily lead to the deterioration of the unity behind the common monetary policy, which is a major threat.**

6. Scientific disclosures, publications on the topic of the dissertation

1. PÁL, Tamás „Az európai mennyiségi lazítás jellemzői és perspektívái” *Köz-gazdaság* ISSN: 1788-0696; Accepted for publishing

2. PÁL, Tamás; LAMANDA, Gabriella „What next? – In search of monetary policy objectives and toolset after the crisis” *Közgazdász Fórum (Forum on Economic and Business*) ISNN: 1582-1986; Accepted for publishing

3. PÁL, Tamás; LAMANDA, Gabriella „Needed but Rejected: How to Implement the Financial Stability Objective into Monetary Policy?” *Periodica Polytechnica Social and Management Sciences*, [S.l.], June 2017. ISSN 1587-3803. Available at: <https://pp.bme.hu/so/article/view/10706>

4. PÁL, Tamás „Prés alatt az Európai központi Bank” *Nemzeti Érdek*, Új folyam11-12. sz. 2015/1, pp. 230-237. ISSN 1788-7356 [2015]

5. PÁL, Tamás „Jegybankok tűzvonalban” In: Veress József (szerk.) Gazdaságpolitikák világválság idején 280 p., Budapest: Typotex Kiadó, pp. 95-154. ISBN: 978-963-279-319-1 [2013]

6. PÁL, Tamás „A pénzügyi kormányzás intézményrendszere” In: Veress József (szerk.) Gazdaságpolitika a globalizált világban. 442 p. Budapest: Typotex Kiadó, pp. 117-151. ISBN: 978-963-279-066-4 [2009]

7. PÁL, Tamás „Fáziskésésben Európa” portfolio.hu, http://www.portfolio.hu/gazdasag/faziskesesben_europa.209960.html, downloaded: 2015. 02. 09. [2015]