THE EFFECTS OF THE CHANGES IN THE INTERNATIONAL BANKING REGULATION ON THE OPERATION OF THE BANK SYSTEM AND THE DEPOSIT GUARANTEE SYSTEM OF HUNGARY AND THE EUROPEAN UNION

Doctoral (PhD) thesis

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1. OBJECTIVES, HYPOTHESES

There are lessons to learn from every crisis, and the latest crisis must be considered as a possibility offering information via proper processing of data, which may help regulators make preparations for and prevent another crisis (Borio, 2013).

The economic crisis of 2008 affected all areas of the financial sector, and influenced the lives of many people who had deposited their savings at credit institutions. Bank failures taking place at various points of the world drew the attention to the interconnection of operators, the speed of spread of the financial problems from one institution to other ones, in general, the deficiencies of banking regulation. The events have confirmed that regulation at national level is not sufficient during a crisis, and more comprehensive, global regulation reaching beyond the country borders is necessary, which can help the states prevent the problems, or, if they are unavoidable, then solve the problems. The thesis has taken into account regulatory changes affecting also the banking regulation of our country and made by the European Union after the crisis. To achieve the results in the most rapid and efficient way, the regulators introduced first of all more stringent capital rules as well as provisions ensuring the liquidity of banks, which are summarised in a single rule book mandatorily applicable to the banks of the member states of the EU. During the interconnectedness of the banking systems of the member states of the EU, a common bank supervision and resolution system has been also established.

The crisis has affected also the operation of the national deposit guarantee systems, as a result of which changes have been made also in this field of the financial sector in the recent years. Deposit guarantee is an important part of our everyday life, even though it is rarely mentioned. The vast majority of the public become aware of its existence when a bank account is opened or credit is raised by them at a credit institution, or via information compulsorily sent by the bank to them by mail each year. In the worst scenario, focus of public interest is on it when the credit institutions bankrupts. This why they say, that the deposit guarantee system is some sort of invisible safety net between the credit institution and the depositors. The view of plenty of credit institutions closed due bank failures as a result of the crisis and of the depositors queuing up in front of them will be remembered by many. In countries, where the deposit guarantee system operated, its presence significantly hindered the further deepening of the crisis and the further spread of the panic situation caused by the failures of the credit institutions.

In general, the main objective of the doctoral thesis was to present how the banking system of the European Union (its capital situation, liquidity, profitability) has changed in response to the new bank capital and liquidity rules introduced after the crisis of 2008/2009), if its operation has become more stable, and how the social judgement of the deposit guarantee system moving to the forefront due to the increase of the number of bank failures has changed in the recent period.

The final hypothesis was set up by the author on the basis of the researches previously made in connection with the topic and after studying the literature. The assumptions may seem clear and evident from some aspect, while the author wanted to find answers to the followings

- if the changes taking place in the banking regulation have positively affected the operation of the banking system,
- if certain rearrangement or concentration was observed among the operators of the sector, and
- if there are social groups differentiated from certain aspects in connection with the awareness of the deposit guarantee system.

Based on this, the following hypotheses were developed during the research:

H1: The more stringent rules introduced in the field of the European banking regulation have improved the capital situation and liquidity positions of the banking systems in the member states.

H2: The tightening of the regulatory system following the 2008/2009 crisis, among other factors, has contributed to changes in the profitability of credit institutions, albeit to varying degrees, in the countries of the European Union.

H3: The positive effects of the more stringent Basel and national requirements appear also in the economic parameters of the national credit institutions and in the reduction of the credit risk.

H4: In the years following the economic crisis of 2008/2009, the banking sector became more concentrated both in the EU and in our country.

H5: Certain well distinguishable groups of the society possessing differentiated information have more knowledge of the national deposit guarantee system.

2. CONTENT AND METHOD OF RESEARCH

Two central topics of the thesis are banking regulation and deposit guarantee, which areas are closely interconnected, both are necessary for the economic stability of the member state and of the EU. If the rules are sufficiently stringent, then the deposit insurer has no duty, as the system safely operates. Otherwise, an unfavourable economic situation or the irresponsible behaviour and excessive risk taking of the owners may cause bankruptcy of the credit institution, and thereby indemnification of the depositors becomes unavoidable. The thesis make several references to the crisis of 2008/2009, which was a turning point from the aspect of banking regulation. It was obvious that only stringent and uniform rules could contribute to the avoidance of bankruptcies of the credit institutions. However, if a bank cannot be rescued, than the role of the deposit insurer as a final resort is important.

The major features of the European and the national banking systems are presented in the thesis with quantitative data. The quantitative data of the research apply to the 12-year period following the economic crisis of 2008, but in certain cases, data are available only for a shorter period due to the subsequent introduction of the regulation.

The composition of the member stations of the EU changed in the years following the crisis. Croatia joined the EU on 1 July 2013, and therefore certain data related to the banking system of the country is limited. The EU membership of the United Kingdom was terminated on 31 January 2020, however, it was a member state of the EU during the period in question, and therefore all data related to it was taken into consideration. In general, the research contains an analysis of the data of 28 member states of the European Union in the period between 2008 and 2019. The calculations are based on the aggregated bank data of the member states, and therefore each country was taken into account as a separate unit.

To present the topic of the research from a theoretical viewpoint, a wide range of literature was processed, including national and foreign publications, studies, and analyses. This secondary information offered help in explaining the practical part of the research and finding correlations. Data necessary for the analysis and the drafting of the new research results was provided by the databases of the National Bank of Hungary and the European Central Bank on credit institutions, by the analyses of the European Banking Federation, and the inner documents made available by the National Deposit Guarantee Fund. The questionnaire for the primary research was drawn using the Survio questionnaire editing program. The questionnaire was completed online and on a paper base. The SPSS (Statistical Package for the Social Sciences) statistical program package (IBM SPSS Statistics 19) and the Sajtos – Mitev data analysis manual were used for the statistical analysis, and the data was processed using Microsoft Office Excel spreadsheet.

To support **hypothesis H1**, the thesis used the data of the statistical database of the European Central bank and the analyses of the European Bank Supervision. The capital situation was analysed using capital adequacy, leverage, credit/deposit and liquidity coverage indicators.

To prove **hypothesis H2**, the author calculated the indicators specifying profitability, and examined the correlation between the size of non-performing loans and the profitability level.

Data used in **hypothesis H3** derive fro the databases of the European Central Bank and the National Bank of Hungary. The author used the profitability data of the Hungarian banking system to support the statement.

During the study of **hypothesis H4**, the hypothesis was confirmed with numeric data suitable for measuring the concentration (change of the number of credit institutions) and with indicators (concentration measure, HHI-index).

To confirm **hypothesis H5**, the thesis used the results of the primary questionnaire-based research. The data was processed by means of cross-tabulation analysis. The correlation between the factors was specified by means of a chi-squared test, and the strength of the connection by means of Cramér's V measure.

The purpose of the research was to study how the crisis had formed and changed the banking system in the European Union. The question is that whether on the basis of the stringent capital rules and the currently known data, the effect expected by the legislators has been achieved, and the operation of the system is considered safer. By using stress tests, the Financial Stability Board, the Basel Committee, the EU and the national central bank try to predict what consequences would be caused by the occurrence of an unfavourable event in the banking system, while each crisis is different, and therefore its confirmation involves many uncertainties (Banai et al., 2013). The accurate answer can be given only in the case of a new crisis, however, it is reasonably assumed that the decisions made in response to the crisis of 2008 have made the banking system more prepared and resistant against the economic shocks.
Among the elements of the banking union, special priority was given to the system of deposit guarantee in the thesis, and using a questionnaire-based research related to the basic features of the institution, the objective was find the answer as to how people know the system, if they are aware of the fact that this element of the financial safety net is available in our country if it is necessary.

3. RESULTS OF THE RESEARCH

More than ten years have lapsed since the economic crisis. This time frame was already suitable for the examination of the effects of the introduced rules, while the process has not finished yet at all. The hypotheses may seem logical and clear, since the decision-makers drew and introduced the rules in order to make the operation of the banking system safer. The main purpose of the analysis was to find if these changes effectively improved the operation of the system and thereby made the banking system safer for the operators.

During the study of the hypotheses set up in the thesis, the author achieved the following general results.

Confirmation of Hypothesis H1

The thesis examined the economic situation of the banking system of the European Union, during which the capital and liquidity indicators of the individual member states were analysed. Based on the capital adequacy, leverage and liquidity indicators, the member states achieved the minimum values expected by the legislators in the period in question.

T1: Though to different extents, the capital and liquidity situations of the banking system of the EU member states improved in the period following the crisis, and it was due to the new regulatory measures.

Despite the tendency of improvement, it is still doubtful, if the specified values will be sufficient in the case of a new crisis.

Confirmation of Hypothesis H2

During the study of hypothesis H2, the profitability situations of the banks were analysed by means of the RoA, RoE, credit/deposit ratio and NPL indicators. By means of the statistical analysis, it was proved that there is a negative correlation between the increase of the number of non-performing loans and the profitability of the banks, i.e. the profitability reduces as a result of a higher NPL rate.

T2: Banks 'profitability declined in the post-crisis period, but non-performing loan write-downs and other local measures were able to offset this negative effect, leading to an increase in banks' profitability in most Member States. The formation of regulatory capital and liquidity reserves deprives the sector of resources, which has a negative impact on profitability. The profitability is affected by several factors, including also banking regulation, however, we cannot definitely state that the increase of bank profitability is attributable only to this factor.

The question is that whether the profitability level will not excessively drop as a result of provision of reserves for a future crisis, with the consequence that there will be no sufficient resources to remedy the problem in the case of a crisis despite the reserves. In general, it is found that the situation of the banks has improved, but the primary task is still to increase the profitability and to clean the bank balances (Müller, 2019).

Confirmation of Hypothesis H3

Hypothesis H3 presented the situation of the Hungarian banking system in detail, and confirmed that the tendencies described in the previous hypotheses are valid also for the national banking system, though to a different extent.

T3: The capital situation and liquidity as well as the profitability of the national banking system have improved as a result of the introduction of the rules, and it is confirmed also by the values of the indicators specifying the capital situation and profitability. The profitability situation of the Hungarian banking system is also outstanding at the EU level. In Hungary, the ratio of non-performing loans is one of the lowest, and due to the liquidity reserves required as a result of strict capital rules, it has one of the most stable banking systems among the member states.

Confirmation of Hypothesis H4

Hypothesis H4 examined how the market forces changed in the sector after the crisis. It is valid almost for each member state of the EU, that the number of the banks is reducing, the causes of which include the advancement of the digital technologies and the increase of the demand of the young population having already savings on online administration. **T4: Following the crisis, the banking systems became more concentrated in both the European Union and our country.** Analysing the concentration data, the hypothesis was confirmed and accepted, and it became clear also that the problem of the TBTF banks was not solved even after the crisis, as their growth continued after the crisis. As a result of the acquisitions and mergers, the sizes of the giant banks further increased, and therefore they may be the root causes of additional problems in the future.

Confirmation of Hypothesis H5

Hypothesis H5 laid an emphasis on the importance of the knowledge of the deposit guarantee system. The results of the primary research were analysed by means of the Pearson's chi-squared test and the analysis of the Cramér's V measure. In connection with the correlation between the analysis four different group parameters and variables, the significant correlation was proved in three cases, and therefore the author accepted the hypothesis.

T5: The awareness of the deposit guarantee system to a certain group of the population (having higher education or previous experiences in the deposit guarantee system) is higher. Based on a survey made by the National Deposit Guarantee Fund in 2017, the spontaneous awareness of the deposit guarantee was 55%, and the supported awareness was 43%. The primary research was finished with a better result, 64%. The reason may be that the majority of those involved in the survey came from depositors living in the narrow environment of the domicile of the author. The wave of failures of cooperative banks in 2014 affected one of the significant financial providers of the region. The relatively high awareness of certain deposit guarantee elements, such as the indemnification limit or deadline, which exceeds the national average, may be explained by the fact that presumably certain percentage of the respondents was actively involved in and suffered damages from the events of 2014.

4. CONCLUSIONS, RECOMMENDATIONS

In year 10 following the crisis, in 2019, another milestone was reached by the European Union. Europe celebrated the 60th anniversary of the Treaties of Rome, the 25th one of the establishment of the European Union, and the 20the one of the introduction of Euro. Any date is taken into consideration, the Union has significantly changed since its foundation, and after the global crisis of 2008 it faced challenges previously not experienced. According to Inotai (2018, the European Union reached a critical phase in its development. Though the solution of the global problem affecting the financial system at international level started after the crisis, but the introduction of the rules is still in process, and the circle of institutions to be newly established is not complete yet at all. The initiated process has not been finished yet, since the introduction of the capital requirements specified on the basis of proposal Basel III, or Basel IV in certain literature, is continuous, and the implementation of the third pillar of the banking union, the single deposit guarantee system exists only at the level of concepts.

Analysing the banking details of the EU member states, the restructuring of the financial surveillance system and the more stringent rules contributed, in general, to the restored growth of the system after a low point in 2012, however, its effect raises several questions as regards the future. The positive effect of the result achieved by the banking system due to the measures is, in general, higher than the effect that would have been achieved by the sector if these measures were not taken.

The main purpose of the introduction of the requirements was to solve the problems and deficiencies highlighted by the crisis and to make preparations for a potential future crisis. At the same time, the question is raised whether the rules were sufficiently stringent. Will the currently specified liquidity and capital rules be sufficient to manage an economic shock in the case of a future crisis? According to some opinions, the sufficient level of the capital cannot be specified at all, as the economy is constantly changing from moment to moment. What proves to be a sufficient capital on one day will not ensure the liquidity of the bank on the next day.
The question is if the liquidity rules will offer sufficient protection in the case of a future crisis. In the current situation, the capital provided as a reserve for liquidity purposes draws resources from the profit-making activity of the banks, and thereby it holds back the growth of the GDP's of the countries. Provision of the required capital reserves may be useful in the case of a future crisis, but if they are not used, then there are fears that they will represent capitals drawn from the current profit-making activity of the banks. According to Móra (2019), the situation is paradoxical, since as a result of the stringent capital and liquidity rules the operation of the system is safer, however, the profitability simultaneously reduces. Consequently, the operators make investments in new, often more risky assets, which reduces the stability of the system on the other hand.

Though the decision-makers try to model the situation caused by an unfavourable economic event by means of stress tests, nobody knows how the economic environment will change in the next years, and whether the stress test results obtained now effectively reflect the true situation of the banks.

Every crisis is different, and its nature and size could not and cannot be predicted and therefore the process of the introduction of the rules must be expedited. 12 years have lapsed since the crisis, and the final version of the new capital requirement rules was drawn in 2017, their introduction will be compulsory from 2024. The period from the creation of the rules to their introduction is too long, and there are fears that another economic crisis will affect the banking system unprepared again.
The regulation of the banks is a very complex field, and therefore it is difficult to simplify it. The current regulation is already hardly transparent. The compliance of the banks with the excessive rules may draw resources from other areas, while such regulation does not apply to other operators of the sectors, e.g. to shadow banks.

The idea of the European banking union is positive from the aspect that a larger risk community can help the member states in the fields of resolution and deposit guarantee if necessary, however, the difference between the countries of the Euro area and the countries having non-Euro currencies may further increase the percentage between the parties due to the fact that while the countries of the Euro area are automatically members of the system, the other member states may decide on joining it themselves. In this case, the latter countries may receive support from the banking union without having to meet other requirements applicable to Euro area membership.
The single supervision set up within the framework of the banking union has been performing its duties already for 6 years, and the single resolution system has been operating for 4 years. If the supervision and the resolution are not able to save the institution, then the establishment of the single deposit guarantee becomes necessary as soon as possible, which is able to indemnify the clients.
The coverage level of 0.8% required for the national funds in connection with the deposit guarantee may prove to be limited, if depositors of a bank with a key rule on the market have to be indemnified, and we already saw an example of this in Hungary in connection with the indemnification in 2014. Development of a European-level deposit guarantee system reaching beyond the country borders is extremely important (Bőhm, 2016), as the sizes of the banks are constantly growing, and indemnifications are expected in the future rather in connection with banks with an extensive clientele reaching also beyond the country borders.

The lack of the regulation of giant banks created as a result of the concentration of institutions and the restriction of the growth of the systematically important institutions are further problems. Though the specified extra capital requirement criteria indicate to the institutions that their operation is risky, they to not really limit their spreading.

The question is whether their resolution can be really solved in the case of a new crises without any state intervention, as their sizes are much larger than the resources made available by the resolution fund.

The current and future challenge for the banking system involves compliance with the change consumer demands. Banking on the online surface is at the forefront now, the spread of the digital currencies requires them to use significant IT resources in order to ensure fast and efficient administration expected by the clients without visiting a bank branch.

The main causes of the bank failures included also the irresponsible behaviour of the owners. Despite their excessive risk taking, the bankers were not made liable, which further deepens the distrust between the banking system and the depositors (Avgouleas - Goodhart, 2019). Rebuilding, and what's more important, keeping the trust between the parties is a key objective in many areas of life, including the banking system. The operation of the banks is very complex, and their activities are difficult to understand. This is why trust is important, which has always been an indispensable element of the bank operation (Kovács, 2019).

Strengthening of communications related to the deposit guarantee system would be important from the aspect of the trust of the depositors. The survey also supports that those with higher education have more information on the system in our country, and it would be worth presenting its operation also to the students of secondary schools in order to raise financial awareness. Raising awareness in connection with the topic is in the interest of both the depositors and the system, as the depositors may feel their money in safety, and the bank can tell that it has made its best to make sure that the client can trust the bank even in case of a bank panic. In case of bank failures, the deposit guarantee receives more attention, the activity of the fund becomes clearer for the general public. This and the period following it should be better used in order to give more information to the depositors and to draw their attention to it.

Due to lack of data and to limits of scope, it was not possible to examine the number of bank failures within the European Union, while the study of the correlation of such data and the concentration level of the banking system would help explore additional correlations. The gradual introduction of the banking rules and the development of a new institutional structure are a process still taking place and continuing also in the next years, and therefore this topic could be a subject of additional researches in the future.

On the basis of the research, the thesis has concluded, in general, that the reform of the European Union started on the area of banking regulation is clearly necessary and useful for the establishment of the stability of the banking system. At the same time, the process it not final at all, and continuous supervision of the sector is necessary to make sure that the regulation reacts to the challenges of the rapidly changing economic environment as soon as possible.

5. PUBLICATIONS RELATED TO THE TOPIC OF THE THESIS

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