Proceedings of the Faculty of Economics in East Sarajevo
Year 2022, Issue 24, pp. 11-20
Received: 19th January 2022

UDC 338.486.1.02(497.11):[616.98:578.834
DOI: 10.7251/ZREFIS2224011G
Preliminary Communication

Milka Grbić

Faculty of Economics,
University of Kragujevac,
Serbia

✉ mgrbic@kg.ac.rs

EFFECTS OF THE 2008 GLOBAL RECESSION AND THE COVID-19 PANDEMIC ON FINANCIAL STABILITY OF THE REPUBLIC OF SERBIA

ЕФЕКТИ ГЛОБАЛНЕ РЕЦЕСИЈЕ 2008. ГОДИНЕ И ПАНДЕМИЈЕ COVID-19 НА ФИНАНСИЈСКУ СТАБИЛНОСТ У РЕПУБЛИЦИ СРБИЈИ

Summary: *A series of financial crises in the last thirty years, among other things, serves as a reminder of the importance of financial stability. Therefore, preserving the financial system's stability, especially its most important segment - the banking sector, is the principal goal and the most significant challenge faced by the macro-prudential and economic leaders. The benefits of financial stability are manifold, starting from creating favourable circumstances for business and providing security for participants in the financial market to increased efficiency of financial intermediaries and better allocation of limited resources. Also, the greater resilience of the financial system and its ability to absorb financial and economic disruptions facilitates the achievement of other economic policy objectives. Starting from the position that financial stability is one of the fundamental preconditions for sustainable economic growth, this paper aims to analyse and assess the impacts of the global 2008 recession and the COVID-19 pandemic on the stability of the Serbian financial system.*
Keywords: *financial stability, global recession, COVID-19, Republic of Serbia*
JEL Classification: ***G01, E50, E63***

Резиме: *Низ финансијских криза у последњих тридесет година, између осталог, служи као подсетник на значај финасијске стабилности. Стога, очување стабилности финансијског система, а посебно банкарског сектора као најзначајнијег сегмента, представља примарни циљ и најважнији изазов са којим се носиоци макропруденцијалне политике али и економске политике суочавају. Користи од финансијске стабилности су вишеструке. Почев од тога да ствара погодне услове за пословање и пружа сигурност учесницима на финансијском тржишту, па до повећане ефикасности финансијских посредника и боље алокације ограничених ресурса. Такође, већа отпорност финансијског система и његова способност да апсорбује финансијске и економске поремећаје олакшава остваривање осталих циљева економске политике. Полазећи од става да финансијска стабилност представља један од кључних предуслова одрживог економског раста, циљ рада је анализа и оцена утицаја глобалне рецесије 2008. године и пандемије COVID-19 на стабилност финансијског система Републике Србије.*
Кључне ријечи: *финансијска стабилност, глобална рецесија, COVID-19, Република Србија*
ЈЕЛ касификација: ***G01, E50, E63***

Paper presented at the 11th Scientific Conference with International Participation ''Jahorina Business Forum 2022: Economic Lessons Learnt from the 2008 and 2020 Crises: Experiences and Recommendations for Entrepreneurial Nations"

1. INTRODUCTION

The economic circumstances at the end of the 20th and the beginning of the 21st century made us learn that a stable financial sector is of vital importance for the economic growth and development of the nation. Two elements are the basis of this lesson. The first is a series of financial crises that suppressed economic growth and development and burdened countries with massive fiscal and social costs. Another element is research that shows that a well-functioning financial system encourages economic expansion. Growth resulting from an active, efficient, stable and liquid financial system provides goods and services benefiting all members of society.

The relevance of financial stability analysis was first recognized during the international financial crises at the end of the 90s of the last century. It was further amplified by the financial crisis that ensued in 2007. These happenings generated the need for the professional and scientific public to continuously draw attention to the importance of financial sector stability.

Financial stability represents the basis for the smooth functioning of the entire financial system, including the market, institutions and infrastructure, in order to efficiently allocate resources, assess systemic risks and influence the system's resistance to sudden shocks. Also, financial stability is one of the crucial prerequisites for sustainable economic growth. Therefore, preserving financial stability is an implied goal of the central bank of every national economy.

Regarding the above, this paper aims to analyze and assess the impact of the 2008 global recession and the COVID-19 pandemic on the stability of the Republic of Serbia's financial system.

The paper consists of three parts other than the introduction and conclusion. The first part of the paper considers the concept and determinants of financial system stability. The second part of the paper emphasizes the necessity and role of macroprudential policy in preserving financial stability. The third part analyses and assesses the stability of the financial system of the Republic of Serbia.

2. FINANCIAL STABILITY CONCEPT AND DETERMINANTS

Since the beginning of the 1980s, numerous world countries have achieved the positive effects of the rapid growth of the financial industry due to the progress of financial liberalization. At the same time, however, they have experienced periods of a dramatic economic growth slowdown due to the significant economic costs resulting from financial instability or financial crises. In this context, multiple countries have begun to stress financial stability. Attention to financial stability is increasing given the emergence of new factors that have the potential to generate economic instability, including the strengthening of financial sector linkages between countries and the rapid evolution of complex financial instruments.

Financial stability can be defined in various ways. Despite numerous suggestions, there is still no single and generally accepted definition of the financial stability concept. Generally, financial stability is interpreted as a state in which the financial system is not unstable. In other words, it is a state in which the three components of the financial system (financial institutions, financial markets and financial infrastructure) are stable. Broadly speaking, financial stability is a state in which the financial system can smoothly sustain real economic activity and eliminate financial imbalances caused by shocks (Schinasi 2004). Of course, shocks do not always result in crises, but an unstable financial environment can hinder the healthy development of the economy.

Financial stability depends on two fundamental groups of factors (Donath and Cismas 2008). The first group includes macroeconomic and structural conditions in the real economy that influence financial decisions and constitute the environment in which the financial system functions. Another is the robustness of the financial system itself, which includes financial markets, institutions and arrangements carrying out financial transactions. Considerable distortions in the real economy almost inevitably pose a risk to financial stability, no matter how powerful the financial system is. However, a robust financial system can reduce the risk of problematic real economic conditions leading to a financial crisis, and reduce the crisis damage, if one occurs. Financial stability depends not only on the necessary institutions but on sufficient political and social consensus supporting the measures necessary to establish and maintain that stability.

In current business conditions, political stability is one of the conditions that largely determines the financial system's development and stability. Political turmoil, civil unrest, crime and corruption render general instability and worse business conditions. The unstable political environment in the country can cause frequent regulatory changes, breach of contracts, insufficient protection of investors before the courts and general legal uncertainty. This further causes unplanned costs to increase, making the investment much more expensive. Also, the investment survival is questionable, i.e. there is a danger of losing the total invested funds.

In addition to a stable and democratically oriented political system, fiscal discipline and macroeconomic stability influence the stability and good functioning of the financial system (Demirgüç-Kunt and Levine 2008). The part of total savings that could be used to finance productive investments in the private sector is reduced if the state budget deficit is eliminated by increased state borrowing on the financial market instead of harmonizing public expenditures with public revenues. In fact, by financing the budget deficit through the issuance of securities, the state crowds out private investments. As a result of intensive government borrowing, the interest rate on government securities is increasing. The growth of yields on government securities enables the state to absorb the most

significant part of the savings mobilized in the financial system. Consequently, high yields on government securities limit the ability of the financial system to allocate savings efficiently.

A high inflation rate can seriously affect the stability of the financial system. Inflation questions the operational efficiency of the financial market and financial institutions. Inflation weakens confidence in the national currency and causes an outflow of money abroad. The uncertainty caused by the growth of the general price level affects the structure of investments, i.e. short-term investments become dominant over long-term ones. Furthermore, inflation causes nominal interest rates to rise. The higher cost of capital discourages the deficit sector from undertaking investments.

Financial regulation and supervision are to prevent the activities of financial institutions that could contribute to the creation of feelings of mistrust and ultimately to the growth of the risk of financial panic outbreaks that would threaten the functioning of the financial system (Šoškić and Živković 2007). In developed market economies, the financial system is thoroughly and comprehensively regulated. Some of the fundamental reasons for financial regulation are stability and efficiency of the financial system, preservation and improvement of public trust in the financial system, security of financial assets of legal and natural persons, and equal opportunities and fairness in terms of public access to financial services.

Financial institutions can perform an intermediary role if their clients (depositors in the case of banks, issuers and investors in the case of securities transactions) trust them. That is why it is in the interest of the clients, the state and the intermediaries themselves to prevent too risky operations, which would lead to the accumulation of losses and insolvency of financial institutions through business regulations. (Vučković 2010, 39)

The regulatory framework of financial institutions includes multiple aspects of business, from their establishment to their closure. In this regard, one of the segments of the regulatory framework involves the fulfilment of *capital requirements*. Among other things, banks are obliged to have a certain amount of capital at their disposal at all times, which guarantees the bank's ability to meet its obligations to clients in the long term. The minimum amount of finances that each bank must have is defined as the capital adequacy rate. It represents the ratio of total capital and risk-weighted assets of the bank. Prescribing the amount of money is the primary form of state intervention because the state directly limits the bank's exposure to risks in this way (Barth et al. 2004). Requirements regarding the minimum amount of capital represent a guarantee for covering losses that may occur due to the high risk of the business undertaken. In fact, capital adequacy regulation is essential for financial system stability.

The regulatory framework also includes *a deposit insurance* system. It reduces the depositors' exposure to the risk of losing invested funds if the bank can not fulfil its obligations. The introduction of deposit insurance is intended to protect depositors but also depository institutions. Nevertheless, the deposit insurance system encourages banks' excessive risk-taking (moral hazard). It leads to the neutralization of the stabilizing effects that this system has. It is also important to note that deposit insurance covers savings deposits up to a certain level. In this regard, Demergüç-Kunt et al. (2004) empirically proved a positive connection between the deposit insurance system's "generosity" and systemic banking crises.

A vital segment of the regulatory framework is the regulation of publication and disclosure (disclosure requirements), which implies that financial institutions make financial statements available to the public at regular intervals. The reason for the transparency of information about the financial state of the institution is simple - from the perspective of the regulatory body, it is easier to prevent a financial crisis before it occurs, and from the perspective of the investment public, one must know what financial institutions are doing to have confidence in them (Šoškić and Živković 2007, 25).

Kane (1981) indicates that regulation enhances the confidence of clients and the investment public in the stability and safety of financial institutions. However, to increase market value, regulated institutions are constantly looking for ways to evade state regulations or to find potential loopholes to go beyond the scope of activities allowed by the regulatory authorities. Such behaviour inevitably forces regulatory authorities to modify existing or devise new regulations to prevent adverse effects. New regulations encourage further attempts to avoid constraints by regulated institutions, which again leads to the emergence of new rules. Kane (1981) calls changes in the field of financial regulation due to the described interaction of regulatory and regulated institutions *the regulatory dialectic*. Regulatory policy is dynamic and adapts to innovations in the financial market. Conversely, changes in the operations of financial institutions are often a response to changes in particular segments of the regulatory framework.

The appropriate state supervision institution controls the implementation of regulatory rules and prudentially supervises the operations of financial institutions in order to preserve financial stability in the national economy. For many years, there has been a debate in the professional and scientific public about whether there is an institutional supervision model that ensures the financial system stability (Cervellati and Fioriti 2007). Financial theory distinguishes between two models of supervision of the financial system - sectoral and integrated one.

The traditional sectoral model that follows the segmentation of the financial system into three main sectors (banking, insurance and the securities market) is based on a strict division of responsibilities. It means that each sector is monitored by a distinct supervisory institution. As a consequence of greater integration of these sectors, there was a transition from sectoral to integrated supervision in which one institution controls the financial system as a whole, the so-called *single supervisor* model.

There are numerous reasons for integrating the supervision of banks and non-bank financial institutions, i.e. the securities market (Wymeersch 2006). In addition to traditional banking operations and the development of modern banking, banks are also starting to deal with atypical banking operations to strengthen their competitive position in the market. They include transactions with securities, transactions resulting from personal insurance and other transactions. In addition, realizing the effects of economies of scale, lower operating costs and easier gaining of public trust are arguments supporting the institutional consolidation of financial supervision.

In addition to its advantages, the single supervisor model also has particular disadvantages (Beroš 2012). The reaction of a single supervisor, which includes several individual institutions, can be sluggish when it is necessary to respond quickly to changes in the market. Besides, the approach of a single supervisor to different financial activities and institutions is often unified. The identical procedure of supervision and applying sanctions in a certain way creates the homogeneity of financial institutions, which harms the preservation of economic stability in the long term. The global financial crisis of 2007 emerged, among other things, as a result of regulatory vagueness in the financial market. The liberal operation of financial institutions, i.e. the absence of clearly defined rules for the operation of financial institutions on the financial market, proved to be inadequate. Everybody agrees that the crisis revealed significant deficiencies in theregulation and supervision of the financial system. Hence, state interventionism was established as a fundamental way out of the crisis. In this sense, the representatives of the G20 industrially developed world countries committed themselves to strengthening financial regulations and reforming international financial institutions. *The Financial Stability Board* (FSB) was established in 2009, which cooperates more closely with the IMF striving to warn of macroeconomic and monetary risks and take actions to eliminate the causes and consequences of these risks (Bašić 2012, 179). In 2010, *the Basel Committee for Banking Supervision* (BCBS) adopted new banking regulation standards called Basel III.

3. MACROPRUDENTIAL POLICY IN THE FUNCTION OF PRESERVING FINANCIAL STABILITY

Macroprudential policy, which gained importance only with the emergence of the 2007 financial crisis, has an influential role in preserving financial stability. A key lesson arising from the global recession is the need to establish macroprudential frameworks, a view that the Bank for International Settlements has advocated for many years (Clement 2010). Macroprudential policy is an essential component of the post-crisis framework for financial stability (Borio 2014). In fact, it is a policy aimed at preventing systemic risks and reducing the probability of systemic events related to financial institutions, markets, infrastructure and instruments that could threaten financial stability.

The macroprudential policy has two primary goals: strengthening the financial system resilience and actively limiting the accumulation of systemic financial risks. The macroprudential approach focuses on the interaction between financial institutions, markets, infrastructure and the broader economy. For example, one of the goals of this policy is to encourage the creation of countercyclical capital reserves in the period of expansion to strengthen the banks' defence against accumulated risks. Thus, losses that banks or other participants in the financial system could potentially suffer are limited. Another goal of creating macroprudential policy is to ensure that large, systemically important institutions are subject to stricter prudential requirements and supervision since

the potential failure of such institutions has severe consequences for the financial system and the economy as a whole. In general, the macroprudential policy aims to control systemic risk and economic stability and thus regulate the business cycle that may result from crises arising in the financial market.

Although the macroprudential approach implies the supervision of all financial institutions, markets and infrastructure, it mostly referred to the regulation of the banking sector in the past, especially in the economic systems of European countries with emerging markets, where banks dominate the financial systems (Dumičić 2015). Dumičić (2015) also notes that strengthening the banks' activities in the financial markets contributed to their exposure to market risk. The increasingly intense connections between banks and non-banking financial institutions increased the possibility of a shock spillover from, as a rule, a less regulated segment of the financial market to the banking sector.

The macroprudential policy framework encompasses a wide range of instruments supported by appropriate institutional arrangements that regulate their implementation. Macroprudential instruments are aimed at strengthening the resistance of the financial system to shocks, i.e. reducing vulnerabilities associated with excessive credit activity, sectoral vulnerabilities related to movements in property prices, exchange rates or interest rates, and excessive exposure to risks associated with financing (Dumičić, 2015). Macroprudential policy focuses on the system as a whole, in contrast to the microprudential approach, which focuses on individual components.

Macroprudential instruments represent regulatory measures taken by the competent authority to limit and control the systemic risk of the financial system. Those instruments can be grouped according to the systemic risk dimension they affect. Thus, to limit the risk of cyclicality, one can apply measures such as higher capital requirements in the upward phase of the cycle, limitation of profit distribution, public warning about the growth of risk in the system, *Loan-to-Value* (LTV) and *Debt-to-Income* (DTI) ratios, different types of bank tax etc. On the other hand, concerning the control of connection risk, special capital requirements for systemically important financial institutions, a ban on some business activities that do not represent the core business, order for the division of the institution to reduce its systemic importance, a particular indebtedness indicator for systemically important financial institutions, etc. can be determined (NBS 2021).

Previous research points to the fact that despite the very high costs of implementing particular macroprudential instruments, the benefits from their implementation are far more significant than the incurred costs, and therefore the application of macroprudential policy instruments in order to preserve financial stability is well justified (Committee of the Global Financial System, 2012 according to Šarganović 2017).

Apart from macroprudential policy, other policies, such as microprudential, monetary or fiscal, greatly influence financial stability. Each affects financial and real trends and the financial system as a whole, so their interrelation determines the selection of macroprudential policy instruments.

Therefore, the preservation and strengthening of the entire financial system include a wide range of policies (and instruments) that cannot be in the formal competence of the central bank alone. The stability of a whole financial system depends on numerous activities that are the responsibility of various institutions. No single institution can be responsible for preserving stability on its own, so the coordinated action of all relevant institutions and the preparation of a unified macroprudential policy framework become necessary (Drvendžija 2015).

4. IMPACT OF THE 2008 GLOBAL RECESSION AND THE COVID-19 PANDEMIC ON THE REPUBLIC OF SERBIA'S BANKING SECTOR STABILITY

When analyzing the economic dynamics behind the global recession, there is nothing structurally new about this particular crisis compared to previous financial crises also based on an abundance of cheap capital, credit growth, leverage, rising asset prices and real estate price "bubbles" (European Commission 2009). However, the sheer magnitude and globality of its destabilizing effect, achieved through global banking, makes it the single most disruptive economic event since the Great Depression of the late 1920s/early 1930s (Gundbert 2012).

The spillover of the world economic crisis on the financial system of the Republic of Serbia began to intensify during the last quarter of 2008. In the structure of the financial system of the Republic of Serbia, the banking sector plays a dominant role (with 90.6% participation in the financial

sector's balance sheet). It is an essential factor in its stability. The pronounced bank-centricity of the financial sector imposes the need to analyze the appropriate indicators of the banking sector's stability. The achieved values of financial stability indicators are presented in Table 1.

Financial stability was preserved in 2008 despite the harmful effects of the global financial crisis. The conservative monetary and prudential policy conducted by the National Bank of Serbia immediately before the crisis made the financial system more resistant to the spillover effects (NBS 2008, 86). Therefore, sudden disruption of the stability of financial institutions was prevented, and confidence in the overall system of financial intermediation was maintained.

The damaging effects persisted at the beginning of 2009. During 2009 most of the crucial indicators of the banking sector's stability were at the same level as in the period before the crisis (NBS 2009, 93). The only ones that showed a worsening trend were portfolio quality indicators, as well as profitability indicators. At the same time, the solvency of the banking sector remained practically unchanged compared to the previous year (21.9% in 2008, i.e. 21.4% in 2009 (Table 1)).

As a response to the global recession in terms of preserving financial stability, the Basel III regulatory standard was adopted internationally. To implement this standard in the Republic of Serbia government adopted a regulatory package which transferred it into domestic regulations. An integral part of this regulatory package is the Decision on Bank Capital Adequacy, which introduced protective layers of capital into the banking regulation, which are the most significant macroprudential policy instruments. In addition to protective layers, new liquidity requirements were introduced, following Basel III standards, such as the indicator of liquid asset coverage. Protective layers of capital represent additional necessary share capital, which banks must maintain above the prescribed regulatory minimum to limit systemic risks in the financial system. The capital buffers have been applied since June 30, 2017. They include the capital preservation buffer, the countercyclical capital buffer, the global systemically important bank buffer, the systemically important bank buffer, and the structural systemic risk buffer (NBS 2020a, 87).

Table 1 Realized values of financial stability indicators

Indicator	2008	2009	2010	2011	2012	2017	2018	2019	2020	2021 T3
Regulatory capital to risk-weighted assets	21,9	21,4	19,9	19,1	19,9	22,6	22,3	23,4	22,4	21,7
Regulatory tier I capital to risk-weighted assets	7,9	16,5	15,9	18,1	19,0	21,6	21,1	22,4	21,6	20,6
Nonperforming loans net of provisions to regulatory capital	15,5	26,9	35,5	52,1	52,3	17,7	9,7	6,3	6,7	6,7
Nonperforming loans to total gross loans	11,3	15,7	16,9	19,0	18,6	9,8	5,7	4,1	3,7	3,6
IFRS provision for NPLs to gross NPLs	56,9	50,9	47,2	51,0	50,0	58,1	60,2	61,5	59,0	59,3
IFRS provision of total loans to gross NPLs	73.2	61,4	53,9	57,0	54,9	66,8	78,7	84,2	93,4	94.4
Return on Assets	2,1	1,0	1,1	0,0	0,4	2,1	2,2	1,8	1,1	1,2
Return on Equity	9,0	4,6	5,3	0,2	2,0	10,5	11,3	9,8	6,5	7,4
Liquid assets to short-term liabilities	75,7	75,1	70,1	70,6	65,0	50,9	50,5	50,5	50,9	51,2
Liquid assets to total assets	47,8	49,0	43,7	42,3	38,9	35,1	35,7	36,0	37,3	38,6
Net open position in foreign exchange to regulatory capital	4,2	1,1	1,6	4,2	4,6	2,4	4,3	0,6	0,2	1,1

Source: NBS, 2021

The financial sector of Serbia overcame many challenges during the global recession and after it, including the sovereign debt crisis in the EU, the banking sector crisis in Greece, and the on-going challenges that are a consequence of the COVID-19 virus pandemic.

The spread of the COVID-19 virus at the beginning of 2020 led to a shock on both the supply side and the demand side, and its full extent, duration, and financial, fiscal and social consequences, are still unknown. The rapid global spread of the virus reached pandemic proportions. To suppress the virus spread, mitigate the economic consequences of the interruption of activities and prevent

disruptions in the financial markets, the implementation of a series of emergency measures was encouraged - reduction of interest rates, support for liquidity, postponement of tax payments, travel ban, mandatory closure of business entities, restrictions on gatherings. In general, the pandemic caused by the COVID-19 virus forced the introduction of emergency measures, which were accompanied by the growth of uncertainty in the international commodity and financial markets, turning to safe assets and a sharp decline in economic activity at the world level.

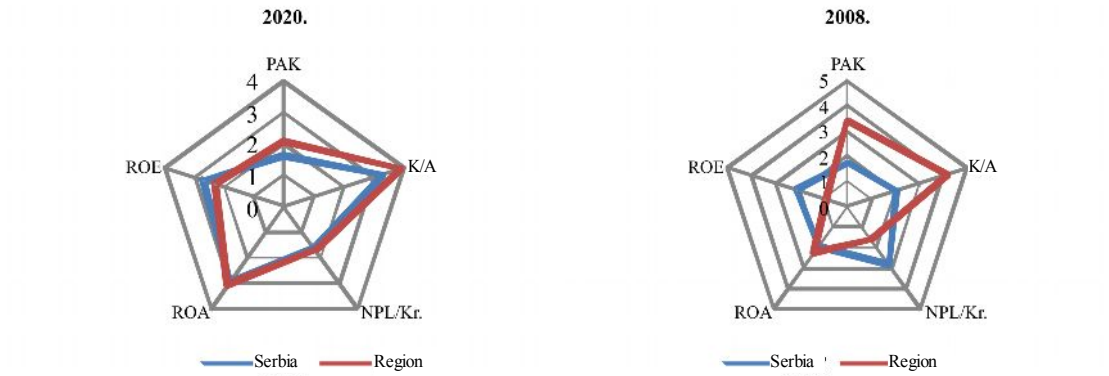
In 2020, in addition to standard macroprudential measures, several additional ones were adopted as a response to the crisis caused by the pandemic in the Republic of Serbia. Credit growth, and thus the program of economic measures adopted by the Government of the Republic of Serbia, was supported by reducing the reference interest rate. In 2020, the reference interest rate was lowered four times, by a total of 1.25, and at the end of the year, the rate was 1.00%, which is its lowest level in the inflation targeting regime. In addition, timely and adequate measures enabled the domestic financial sector to obtain additional dinar and foreign currency liquidity to continue crediting the domestic economy and citizens without hindrance. The provision of additional liquidity contributed to the growth of the share of liquid assets in the banking sector's total assets, which amounted to 37.3% at the end of 2020 (36.0% at the end of 2019 (Table 1)).

In addition to the previous, to preserve the achieved stability level and further strengthen the financial system in conditions of potential risks caused by the extraordinary health situation in the country and the world, decisions were adopted prescribing a moratorium on the repayment of debtors' obligations. The moratorium was prescribed for all debtors who needed it (natural persons, farmers and entrepreneurs and companies), and it implied a delay in the repayment of obligations that cannot be shorter than 90 days.

The adequate capitalization and liquidity of the domestic financial system are reflected in the high values of the capital adequacy indicator (22.42%) and liquidity (2.24) at the end of 2020. It is clear that nonperforming loans do not threaten the financial system stability if one considers their low level and their high coverage by corrections, which at the end of 2020 was 59.0% (Table 1). The share of nonperforming loans in the total loans of the banking sector was significantly reduced in the previous period and has an evident downward trend thanks to the implementation of the Strategy for solving problem loans of the Government of the Republic of Serbia and the National Bank of Serbia, as well as other regulatory activities of the National Bank of Serbia. In addition, the forenamed measures contributed to a further decrease in the share of nonperforming loans, which at the end of 2020 amounted to 3.7%, which is 0.4 less than at the end of 2019, i.e. 18.5 less than in August 2015, when the Strategy was adopted (NBS 2021).

A network diagram is suitable method for assessing financial stability and showing the movement of elemental risks to stability. An increase in the distance from the centre of the diagram for each variable indicates higher riskiness to the banking system (Figure 1). A significant element of the stability of the domestic banking system is reflected in the high capitalization of the banking sector, viewed through the capital adequacy ratio (CAR) but also through the balance sheet capital and assets ratio (C/A), which are higher than the average of countries in the region. Due to the significant reduction of non-performing loans over the last few years, the share of non-performing loans in total loans (NPL/total loans) is below the regional average. As a result of the COVID-19 virus pandemic the profitability of the banking sector declined slightly in 2020, which also affected the profitability of the neighbouring countries. The return on assets (ROA) is above the regional average, while the return on equity (ROE) remained below the average of the countries in the region due to the strong capitalization of the banking sector of the Republic of Serbia.

Figure 1 Financial stability network diagram

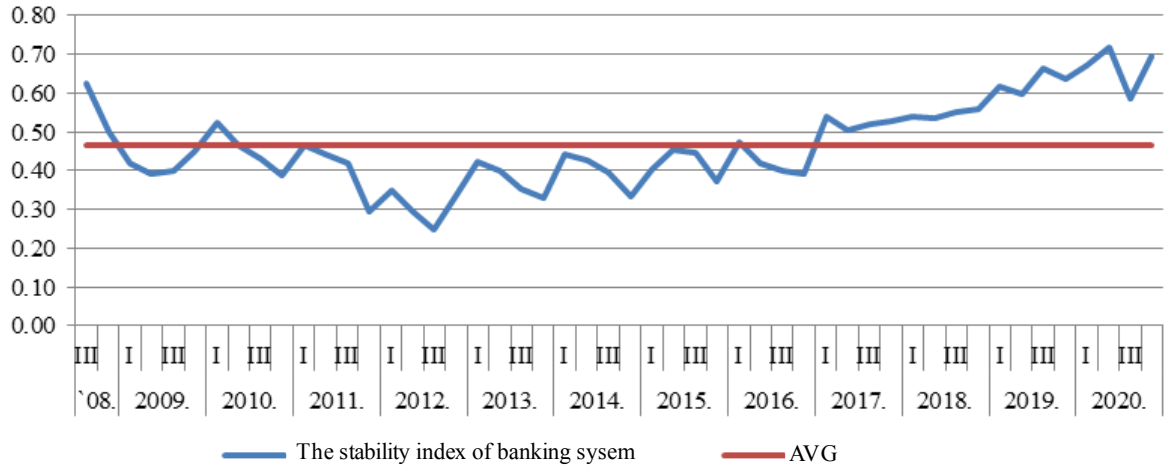


Note: The region includes the countries of Central and Eastern Europe: Bosnia and Herzegovina, Bulgaria, Hungary, North Macedonia, Poland, Romania, Turkey and Croatia.

Source: NBS 2020b, 128

Since the financial system of the Republic of Serbia is bank-centric, an index of stability of the banking system was constructed to assess the potential risks to financial stability resulting from the functioning of the banking system. It is calculated based on indicators of solvency, credit risk, liquidity risk, profitability and foreign exchange risk (NBS 2014). The movement of the stability index of the banking system is presented in Figure 2. The index had a high value during 2008, indicating a low-risk level in the banking system considering the good capital adequacy (PAK of 23.3%), increased profitability (yield on capital of 11.9%) and liquidity (44% of total assets were considered liquid), and the lowest amount of problem loans in the observed period. Then the index had a downward trend; its lowest value was recorded in 2012. After that, the index records an upward trend with cyclical oscillations. Its value at the end of 2020 was 0.69 compared to the previous year when this value was 0.64. Observed by individual components, high capital adequacy, reduced level of nonperforming loans and preserved profitability contributed the most to the high level of stability of the banking sector in 2020. The increase in the banking sector stability in 2020 was influenced mainly by the reduction of foreign exchange risk indicators, i.e. the currency mismatch of assets and liabilities of the banking sector, which dropped compared to the previous year (NBS, 2020b).

Figure 2 Banking sector stability index

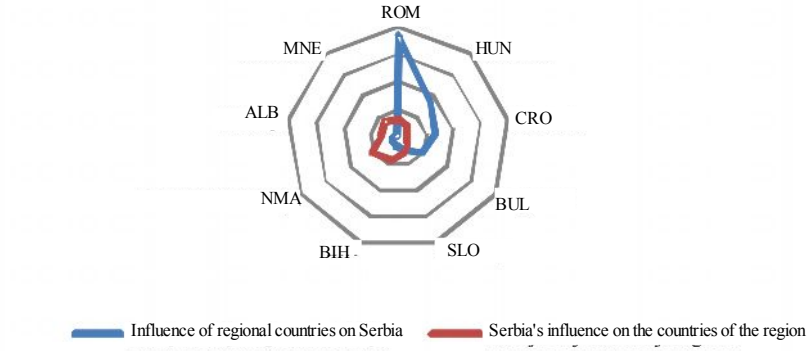


Source: NBS 2021

Considering that the Republic of Serbia's economy is small and open, i.e. that it is exposed to international influences, and the most significant part of the financial sector is in foreign ownership, an indicator of the common creditor's influence is also used to measure the effects of the financial crisis on countries using the same financing sources. The value of this indicator depends on the creditor country's exposure to the private and public sector of the debtor country and the share of the debt to the shared creditor concerning the indebtedness of the financial sector of the debtor country. The

obtained indicator is proportional to the probability of the transfer of the financial crisis from a particular region country to Serbia, i.e. the possibility of the transfer of the crisis from Serbia to the countries of the region (NBS, 2020b, 129). The results of the analysis are presented in a network diagram in Figure 3, showing that in the event of a potential financial shock in a country of the region, Romania, Hungary, and Croatia would have the most prominent influence on the Republic of Serbia, through the common creditor channel. However, the Republic of Serbia would primarily influence North Macedonia, Bosnia and Herzegovina, and Montenegro.

Figure 3 Transmission of shocks through the common creditor channel



Source: NBS 2021

Most indicators of banking sector stability imply that financial stability has improved at the end of the third quarter of 2021 compared to the end of 2020 (Table 1). Even in conditions of great uncertainty regarding the further course of the pandemic, the priorities of central banks remain unchanged. The National Bank of Serbia's goal is to continue preserving price and financial stability with adequate coordination of monetary and macroprudential policy measures to mitigate the consequences of the most significant health and economic crisis in recent history.

5. CONCLUSION

The growing liberalization of capital flows, the integration of national financial systems and, consequently, the globalization of the financial system are processes that increase the strength and speed of the spread of events that can result in economic instability on a broader scale. Thus, the crises that arose in certain countries became global crises. Such was the case with the most intense one ever, which began in 2007 in the USA and then spread to numerous countries. These crises have confirmed that disruptions in any market, whether developed or emerging, can quickly spread as financial contagion to other countries. The COVID-19 pandemic further deepened the consequences of the 2008 global economic crisis. The main features of the contemporary crisis caused by the COVID-19 pandemic are the uncertainty and unpredictability of movements in all spheres of the economy.

Every country needs a stable financial system to avoid a crisis. Macroprudential policy plays an essential role in the process of preserving the stability of the financial system. It is a policy aimed at preventing systemic risks and reducing the probability of systemic affairs related to financial institutions, markets, infrastructure and instruments that may threaten the financial system. Through the macroprudential analysis, the weaknesses of the financial system are determined. Also, various indicators are measured to obtain a broader idea of the degree of financial stability and timely detection of risks that could threaten it in the future. Based on the identified risks, measures and instruments for their mitigation are defined, and the possible effects of their implementation are assessed.

The paper examines the stability of the financial system of the Republic of Serbia. The National Bank of Serbia determines and implements measures and activities for preserving and strengthening it. The financial system stability is reflected in the banking system stability since banks make up about 91% of the financial system of the Republic of Serbia. The banking system is stable thanks to its high solvency, liquidity and profitability and better placement quality due to a significant reduction in non-performing loans. Despite the COVID-19 pandemic, the Republic of Serbia's financial stability has been preserved thanks to the timely measures of the monetary and fiscal authorities.

REFERENCES

Barth, James R., Garard Caprio Jr, and Ross Levine. 2004. "Bank Regulation and Supervision: What Works Best." *Journal of Financial Intermediation* 12: 205-248.

Bašić, Dragana. 2012. "Aktuelni pravci promjena regulacije finansijskog sistema." *Acta Economica* 10 (16): 173-198.

Beroš, Božina M. 2012. "Financijska supervizija u Hrvatskoj–između dvije institucije jednog europskog trenda." *Ekonomski pregled* 63 (5-6): 352-371.

Borio, Claudio. 2014. "Macroprudential frameworks: (too) great expectations?." Contribution to the 25th anniversary edition of Central Banking Journal, August 2014. Accessed: 10th December, http://www.bis.org/speeches/sp140813.htm

Cervellati, Enrico Maria & Fioriti, Eleonora. 2005. "Financial Supervision in EU Countries". *SSRN Electronic Journal*. Elsevier BV. doi:10.2139/ssrn.873064.

Clement, Piet. 2010. "The term 'macroprudential': origins and evolution". BIS Quarterly Review, March 2010. Accessed: 10th December, https://www.bis.org/publ/qtrpdf/r_qt1003h.pdf

Demirgüç-Kunt, Asli, Ross Levine 2008. "Finance, Financial Sector Policies, and Long-Run Growth Policy." *World Bank Research Working Paper* 4469. World Bank, Washington, DC.

Demirguc-Kunt, Asli; Laeven, Luc A. & Levine, Ross E. 2003. "Regulations, Market Structure, Institutions, and the Cost of Financial Intermediation". *SSRN Electronic Journal*. Elsevier BV. doi:10.2139/ssrn.427200.

Donath, Liliana E., and Laura Mariana Cismas. 2008. "Determinants of Financial Stability.". *Romanian Economic Journal* 11(29): 27-44.

Drvendžija, Jelena. 2015. "Tvrda kora ili gorka koštica – zagonetka definisanja finansijske stabilnosti". *Bankarstvo* 2: 124-137.

Dumičić, Mirna. 2015. "Kratak uvod u svijet makroprudencijalne politike". Pregledi 26. Hrvatska Narodna banka Zagreb.

European Commission. 2009. "Economic Crisis in Europe: Causes, Consequences and Responses". *European Economy* 7/2009. https://ec.europa.eu/economy_finance/publications/pages/publication15887_en.pdf

Gundbert, Schref. 2012. *Financial Stability Policy in the Euro Zone – The Political Economy of National Banking Regulation in an Integrating Monetary Union*. Springer Science & Business Media.

Kane, Edvard J. 1981. "Accelerating Inflation, Technological Innovations and the Decreasing Effectivness of Banking Regulation." *The Journal of Finance* 36(2): 355-367.

NBS. 2008. "Godišnji izveštaj". Narodna banka Srbije (NBS), Beograd.

NBS. 2009. "Godišnji izveštaj". Narodna banka Srbije (NBS), Beograd.

NBS. 2014. "Godišnji izveštaj o stabilnosti finansijskog sistema". Narodna banka Srbije (NBS), Beograd.

NBS. 2020a. "Godišnji izveštaj o poslovanju i rezultatima rada". Narodna banka Srbije (NBS), Beograd.

NBS. 2020b. "Godišnji izveštaj o stabilnosti finansijskog sistema". Narodna banka Srbije (NBS), Beograd.

NBS. 2021. "Sistemski rizik". Accessed 16 December https://nbs.rs/sr/ciljevi-i-funkcije/finansijska-stabilnost/finansijska-stabilnost/sistemski_rizik/

Šarganović, Haris. 2017. "Značaj makroprudencijalne politike kod upravljanja sistemskim rizicima u cilju očuvanja financijske stabilnosti." *Društvena i tehnička istraživanja* 1: 97-110.

Schinasi, Garry J. 2004. "Defining financial stability". *IMF Working Paper No*. 04/187.

Šoškić, Dejan, i Boško Živković. 2007. *Finansijska tržišta i finansijske institucije*. Beograd: Centar za izdavačku delatnost Ekonomskog fakulteta u Beogradu.

Vučković, Sanja. 2010. "Regulacija finansijskih tržišta nakon svetske ekonomske krize." *Megatrend revija* 7(1): 33-50.

Wymeersch, Eddy. 2007. "The Structure of Financial Supervision in Europe: About Single, Twin Peaks and Multiple Financial Supervisors." *European Business Organization Law Review* 8(2): 237–306.