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Snezana Popovčić-Avrić, PhD*,
Vule Mizdraković, PhD**,
Marina Đenić, MSc***

* Faculty of Economics,
Finance and Administration,
University Singidunum,
Professor

Email:
savric@fefa.edu.rs

** Faculty of Business,
Singidunum University,
Assistant Professor

Email:
vmizdrakovic@fefa.edu.rs

*** Faculty of Economics,
Finance and Administration,
University Singidunum,
Teaching Assistant

Email:
mdjenic@fefa.edu.rs

Analysis of Financial Structure of the Serbian Banking Sector: Impact of the Financial Crisis¹

Abstract: In this paper, we will analyse financial structure of the banking sector in the Republic of Serbia and based on it conclude whether the financial crisis had an effect on it. The financial sector and banks especially got affected by the recent financial crisis. There are a considerable number of papers that address this issue, but they usually refer to the banking sector of developed countries. Therefore, the research sample in this paper covers the banking sector in Serbia – 31 commercial banks, considering their importance for Serbian economy and their overall reputation. We have analysed financial statements of these banks that submitted quarterly from 2009 to the third quarter of 2012. We have calculated the main financial ratios regarding the financial structure, which has been used for financial analysis of the banking sector by other authors. Results of the research show that the value of banks' liquid funds in the observed period fell considerably, as did the investments in fixed assets. Furthermore, indebtedness of banks rose in the period from mid-2010 to end-2012, but banks' liquidity remained at the same level, on average.

Keywords: financial statements, financial ratios, Republic of Serbia.

JEL Classification: M41, G21

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1. Introduction

Considering the fact that financial crises occur more and more frequently and that their impact on countries' financial systems has ever stronger and longer effects, monitoring of the financial standing of banks, being a vital part of the country's financial system, becomes increasingly important. The central bank of the country is responsible for the monitoring of commercial banks whereby financial statements prepared by the banks on mandatory basis represent the main source of information on the operations of commercial banks. Therefore, it is mainly legally regulated that banks must independently keep books and prepare their financial reports, that is, these activities may not be assigned to any third parties. The same practice is in the Republic of Serbia where banks conduct financial reporting independently. The central bank of the Republic of Serbia receives quarterly data on banks' operations, which facilitates the process of monitoring, unlike companies that prepare financial statements annually and in which case there is a considerable time gap in financial reporting. Banks, as special forms of legal entities, have numerous similarities with companies, such as profit generation as the primary goal of business. However, other features such as liquidity have more important roles in the operations of banks. Bank liquidity reflects its ability to meet due liabilities and at the same time continue regular operations. Namely, if we take into account the nature of a bank's operations which is essentially based on raising free capital and its investments in corporate and retail sectors, illiquidity of a bank indicates that the bank is destined to be subject to bankruptcy proceedings. Bankruptcy represents involuntary termination of bank's operations, unlike voluntary liquidation. The aim of bankruptcy is to free capital from legal entities which do not have "sound" conditions for multiplication and re-allocation of capital. However, another specificity of banks is that termination of operations of a bank means more than a bankruptcy of an average company. Therefore, it is frequently noted that the aim of bank bankruptcy must be minimizing damage for economy of a country and/or finding the least cost resolution (Bliss & Kaufman, 2006). Opening of bankruptcy over a bank may really have significant consequences, primarily for creditors, but in the end also for the financial system of the country. Nevertheless, many authors (Hainz, EBRD) point out that bankruptcy of banks in Europe do not have such devastating effects as it was the case with banks which went bust in the USA.

In any case, for a country to prevent adverse consequences, which are certainly incurred, it must effectively control operations of individual banks and the entire banking system. Particular attention should be focused on bank assets such as availability of cash funds and cash equivalents, as well as the financial structure of the bank. It is not only successful operations that influence the above men-

tioned performance and general soundness of banks, but also the bank's environment and, in the circumstances of the globalization, the current international market conditions. The purpose of this paper is an attempt to establish whether the global financial crisis affected the financial structure of banks in the Republic of Serbia in the period from 2009 until the end of 2012. The paper is divided in two parts; in the first part, the authors present the main information about the global economic crisis and its effects on the performance of companies and the economy. The second part includes the methodology which is used to demonstrate the results of the analyses.

2. Impact of Financial Crisis

Although the financial crisis had started in late summer 2007, the situation improved in early 2008 relative to late 2007 due to an aggressive policy response and a massive liquidity injection into the banking sector, funding markets experienced significant distress again during the fall of 2008 after Lehman Brothers and AIG failed and Fannie Mae and Freddie Mac were placed under conservatorship (Berrospide, 2012). This moment is usually considered as the moment when the financial crisis started. However, if we attempt a deeper analysis of the current situation and consequences left by the crisis, it may be said that the roots of the present crisis date back to the end of the 1990s when developed countries faced excess savings. This resulted in the glut, which led to a decrease in return on savings, especially in case of safe funds. Lower returns turned investors to start investing into more risky undertakings which bring higher profits. Such a situation, however, caused a decrease in returns both in case of safe and risky transactions, due to a rapid saving glut. The result and a huge mistake was risk underestimation.

In October 2007, it was published that the total losses from subprime mortgage loans and respective bonds are estimated to USD 250 billion. The regulatory and supervisory authorities have never been able to completely prevent the appearance of banking crises, which in turn, as situations when a bank's liabilities surpass the market value of its assets, lead to a decrease in the value of its assets (capital and claims) in relation to its liabilities and a decrease of the net value of the bank (Miletic, 2009). Ten American banks managed to create a USD 70 billion liquidity fund, but nobody ever thought of investing three to four times more money in order to prevent possible avalanche effects. One year later, in the wake of the first blow of the crisis, when it was already clear that the global economy was entering recession, the first review of the global economic growth projections until 2015 was made. The difference between the new, lower and the previous

growth path was USD 4,700 billion (nearly 19 times more than the total loss from subprime mortgage loans). Finally, at end-November 2008, after the situation in the global financial markets partly settled, a detailed record of the decrease in the consolidated values of all shares and bonds was made. The total recorded loss was USD 26,400 billion. It is over a hundred times more than the total value of the contentious mortgage loans. One-time tax of 1% on the value of all shares and bonds in October 2007 would be sufficient to cover entirely the financial gap which caused the crisis on a global scale (Vujović, 2009).

The global economic crisis showed that the source of risk is not poor business decision-making of an individual bank (inappropriate loan, bankruptcy of a company, etc.), but the collapse of one type of financial instrument (subprime mortgage loan) in the circumstances of overindebtedness, poor regulation and a high degree of interconnections at the national and global levels. Therefore, it is a systemic disruption which simultaneously affects a large number of banks in the country (USA) and in the world. Secondly, most deposits are insured nowadays so that investors do not have particularly strong motives to withdraw funds in panic at the first sign of volatility. Moreover, immediately after the onset of this crisis, most countries considerably raised the maximum amount up to which deposits are insured in order to prevent this kind of risk.

Today most banks provide liquidity by short-term borrowing on the financial markets. Banks facing problems with assets rapidly lose rating, thus automatically losing access to favourable financing. Maturity of the existing short-term liabilities due to banks causes a gap in the sources of funds which can be closed either by additional private financing sources or by capital increase. If it fails, the only solution is the sale of assets or the use of reserves in order to settle due liabilities. In the circumstances of systemic risk, none of these methods gives good results. In a disrupted market there is no demand for risky assets (at least not at reasonable prices) nor additional capital sources or alternative long-term private financing sources. Since many banks simultaneously offer plenty of assets for sale, the price further declines, even at the level of minimal provision of capital. It creates additional pressure for selling even more assets in order to maintain at least minimum capital coverage and basic solvency. These two mechanisms are mutually enhanced and cause further deterioration of conditions in the assets market. Capital coverage is very soon depleted and the liquidity problem becomes a solvency problem.

Based on the above mechanisms, toxic assets spread very fast, from specialised banks and other financial organisations which were primarily dealing with sub-prime mortgage loans to all other players in the financial markets of the United States and other countries as well as to emerging markets (China, India, other East Asian countries etc). Classic mortgage banks and financing of corporations resisted the longest to the spreading of toxic assets, but in early 2008, a notable presence of toxic assets was for the first time detected in these segments of the financial system, along with relevant risks and highly volatile prices. Owing to massive liquidity interventions taken by the Fed and other central banks of developed countries, the situation partly improved in the months to follow and prices got stabilised. However, it was not sustainable in the long run. Assets prices crash started with the outbreak of the global financial crisis in September 2008. At that time, toxic assets spread not only to all segments of the financial system of developed countries, but also reached the new market through credit channels, thus dominating all segments of the global financial system. A narrow definition of toxic assets would confine to mortgage backed securities and related derivatives that have been estimated to \$2 trillion. It has been proposed that the best solution for these assets should be reverse auction. However, this method can be an effective way to buy homogeneous assets, but it does not work well with MBA because this market is much more fragmented than the market for corporate bonds (Pozen, 2010).

3. Methodology

In this research, we used available financial statements published by the National Bank of Serbia on its official website. The banking system of the Republic of Serbia comprises 32 commercial banks which report to the central bank on quarterly basis. This research includes 31 banks (instead of 32), because data on Eurobank were not available. The authors used quarterly balance sheets in which assets of a legal entity are disclosed, and income statements in which profitability of banks is recorded for a given reporting period (one calendar year). Having in mind that this research is trying to demonstrate the quality of the financial structure of the Serbian banking system and whether the global economic crisis influenced this structure, it is necessary to define the research period.

Considering the fact that the major impact of the global economic crisis on the financial statements in the US could be seen at the end of 2008, whereas in the Republic of Serbia the economy recorded very good results in that year, the authors believe that the effects of the global economic crisis could not be reflected in the financial statements in the Republic of Serbia until 2009. As noticed by the

authors in the region in this period, the banking sector in Montenegro was sharing the fate of the crisis adjustments and impact with the remainder national, but also a wider global, economy (Žugić, 2013). In 2009 and 2010, corporate entities in the Republic of Serbia recognized a notable decrease in returns on investment or equity, around 8% (Stanišić, Radojević, Mizdraković, and Stanić, 2012). Therefore, this research covers the period from 2009 to Q4 2012, which also represents the last period for which financial statements of commercial banks are available.

The research includes 31 commercial banks in the Republic of Serbia. For the purpose of this research, the authors classify these banks into groups by applying a certain criterion in order to facilitate the presentation of the research findings. The value of assets quite reliably presents the size of a bank and, therefore, the authors used the value of business assets in bank classification. Table below showed four groups of banks and their names according to the value of business assets in Serbian dinars (RSD).

Table 1: Groups of banks based on the value of their operating assets

Group	Operating assets in RSD	Banks:
I	>100.000.000	Aik Bank, Hypo Alpe Bank, Intesa Bank, Komercijalna Banka, Raiffeisen Bank, Societe General Bank, Unicredit Bank
II	50.000.000 < x < 100.000.000	Alpha Bank, Credit Agricole Bank, Erste Bank, Piraeus Bank, Procredit Bank, Vojvodanska Banka, Sber Bank
III	25.000.000 < x < 50.000.000	Čačanska banka, KBC Bank, Marfin Bank, NLB Bank, OTP Bank, Banka Postanska Stedionica, Privredna Banka, Razvojna Banka, Univerzal Banka
IV	< 25.000.000	Credy Bank, Dunav Banka, Findomestic Bank, Jugobanka, Jumbes bank, Moskovska banka, Opportunity Bank, Srpska banka

4. Results

Financial statements present values of individual balance sheet items expressed in the local currency, i.e. in the Republic of Serbia in dinars. Because of the currency oscillations, values are expressed in a more stable currency such as Euro. The figure 1 shows the values of operating assets of banks in the Republic of Serbia, expressed in dinars.

Figure 1 shows that the average value of assets of Serbian banks increased, but the Figure 2 which shows that the values in euros present the real situation. This shows that the value of average assets of banks in the Republic of Serbia con-

siderably shrank in the first quarter of 2010, by 12.83% in relation to Q4 2009. The authors notice that the highest value was recorded at the end of 2011 and that it was higher by 5.4% relative to end-2009.

These results are compared with estimates of the International Monetary Fund (IMF) that banks and other financial institutions faced aggregate losses of \$4.05 trillion in the value of their holdings, as a result of the crisis (Landler, 2009). Some \$1.1 trillion should be added to this amount since it has been invested to help fix the problems that the crisis incurred. Of \$4.1 trillion, \$2.7 trillion is from loans and assets originating in the United States. It can be expected that availability of liquid assets is very limited against the backdrop of the financial crisis, whereas the need for such funds is higher than in the circumstances of positive trends in economic development. In deteriorating economic environment, the aforesaid demand for liquid assets is particularly pronounced with banks.

As it was proven in the research conducted by Berrospide (2012), when the financial crisis started, banks held more liquid assets in anticipation of future expected losses from securities write-downs, than in regular business. The author noticed that although banks of all sizes increased their possession of liquid assets during the crisis, the reasons behind such behaviour differ depending on their size. Large unused commitments represent a key determinant of increased liquid buffers only for large banks, since for small and medium-sized banks the relevant source of liquidity risk is their exposure to securities losses (Berrospide, 2012). Therefore, in the figure 3 we showed the movements of the ratio of banks' liquid assets to total business assets in order to check whether a similar situation occurred in the Serbian banking sector.

Figure 1: Average value of operating assets of observed banks in RSD

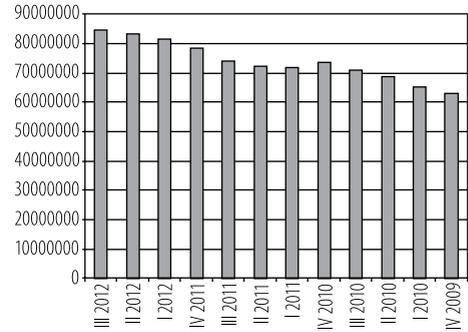


Figure 2: Average value of operating assets of observed banks in EUR

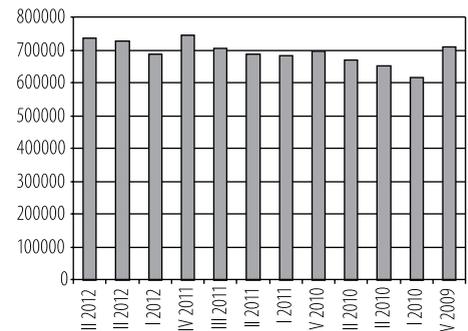


Figure 3: Liquid to operating assets of observed banks

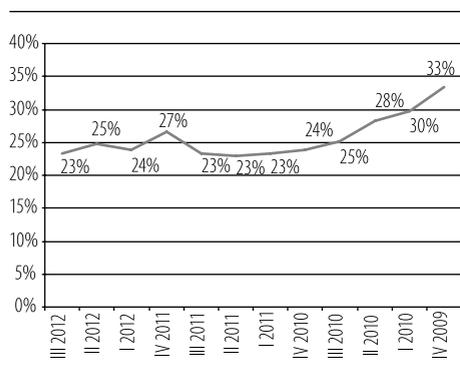


Figure 4: Fixed assets to operating assets of observed banks

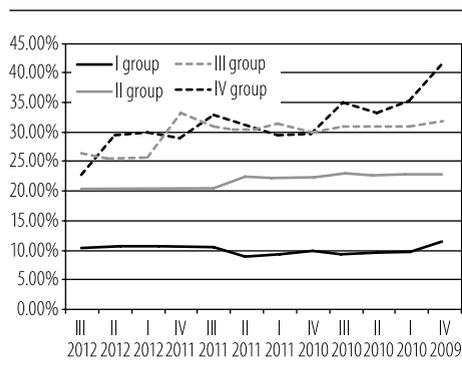


Figure 3 shows that the level of liquid assets in the crisis period remained at more or less the same level and by the end of 2012, compared to end-2009. This shows that it fell by nearly 10 per cent. The reason for such movement of liquid assets may lie in the fact that banks had had sufficient liquid assets during the crisis and after the economic conditions have improved, they invested free liquid assets in order to increase their earnings.

It can be expected that banks which had larger amounts of funds invested in fixed assets achieved good results during the crisis period. Therefore, in the figure 4 we showed investments in fixed assets (real estate and equipment) by the groups of banks.

Figure 4 shows that banks from the first group, i.e. banks with the largest assets, had the least investment in fixed assets, but at the same time recorded the highest return on investment, which is not the subject of this research. The figure 4 proves that banks which invested little in fixed assets responded more effectively to the change in market conditions and the crisis; they had more liquid assets at their disposal, unlike other banks which additionally paid for borrowing liquid assets and thus reduced their profitability. The graph also shows that the banks from the third and fourth group recorded the largest drop in possessing liquid assets, while banks from the first and second group kept the level of liquid and fixed assets at approximately the same level. It means that banks from the third and fourth group have a major portion of invested assets trapped in long-term securities and receivables, which means that they may face problems with regard to maintaining the current liquidity in the long run.

General liquidity ratio is the most frequently used financial indicator for assessment of banks' liquidity, considering that banks do not have stocks so that the value of

the rigorous liquidity ratio corresponds to the value of general liquidity ratio.

In Figure 5, the authors notice that the level of liquidity indicators in the overall observed period was considerably above 1, which can be considered a good sign. Banks in the Republic of Serbia must manage the risk of non-liquidity and establish such a system that will allow continuous provision of information by which the liquidity of banks is supervised (National Bank of Serbia, 2008). A bank is obliged to maintain

the level of liquidity so as to ensure that the minimum liquidity ratio is 1, as the average of ratios for all working days in the month. Furthermore, the ratio may not be less than 0.9 for more than three consecutive days nor may it fall below 0.8 for one working day. If this ratio is below 0.8, the bank is considered to be illiquid. We notice that the value of the ratios for the first three groups of banks is nearly the same and only the fourth group differs. Banks apply different methods to control liquidity, but the following measures are recommended and necessary:

- Identification and measurement of all types of potential risk of illiquidity;
- Performing liquidity stress testing that may include systemic risk;
- Intraday liquidity management on daily basis;
- Monitoring cash flow movements beyond certain limits and managing foreign currency risk, etc. (Jelenkovic & Barjaktarovic, 2010).

The figure 6 shows the loans to assets ratio.

The value of granted loans increased in the period from the beginning of 2010 until the end of 2012. This increase was particularly notable with banks from the first and second group, which can be interpreted as a result of the fact that those banks were seen by borrowers as the safest banks for borrowing. With regard to the equity value, unlike companies where assets are expected to

Figure 5: Liquidity ratio of observed banks

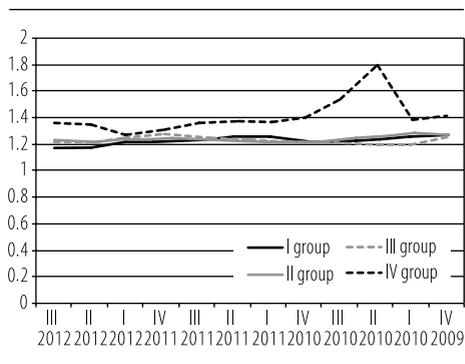


Figure 6: Loans to operating assets ratio of observed banks

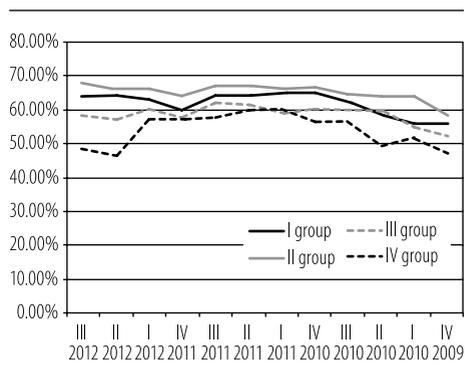


Figure 7: Equity to operating assets of observed banks

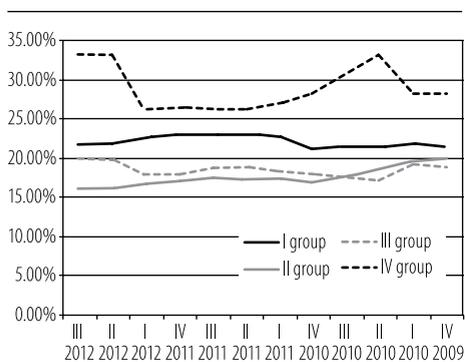


Figure 8: The debt-to-total assets of observed banks

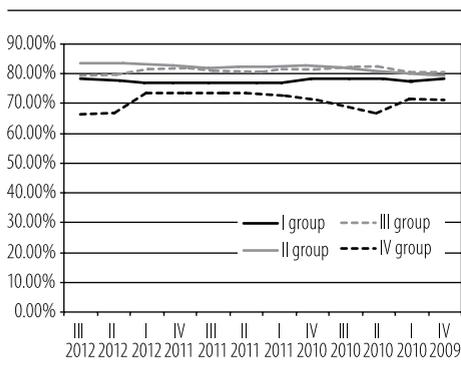


Figure 8 shows that banks from the second and third group had higher levels of leverage as well as that average leverage of all banks recorded an upward trend in the period from 2009 until the end of 2012.

5. Conclusion

Many authors share the opinion that Europe and the European Union were not as severely affected by negative impacts of the global economic crisis as the US. If we analyse the value trends in stock exchanges, operations of banks and corporate entities, we will notice that businesses in Europe proved to be slightly more resilient to the effects of the crisis due to versatile reasons, starting from geographic reasons to the implementation of different accounting methods. Dur-

be financed with 70-80 percent of own capital, this amount is considerably lower in case of banks, as shown in the figure 7.

It can be noted that the last group of banks recorded the biggest oscillations in the value of their own capital in the observed period. Most of the observed banks had a decrease of equity in 2010, when the effects of financial crisis were the strongest. We see that banks from the first and last group are traditionally oriented, whereas banks from the second and third group were more willing to take risks and use financial leverage. Finally, what sets apart successful banks is their clever investing of capital and not necessarily the source of capital they have. Nevertheless, a bank's overexposure may indicate potential illiquidity and insolvency in the end. Therefore, in the last figure we will show leverage ratios for all groups of banks.

Figure 8 shows that banks from the second and third group had higher levels of leverage as well as that average lever-

ing the analysis of the results of the research presented in this paper, we have noticed that the level of operating assets was kept at almost the same level in the banking sector in Republic of Serbia during the observed period, however they depleted in year 2010 for over 12%. In the observed period, the amount of liquid assets recorded a notable decrease of no less than 10%. We have found that banks which had lower value of operating assets than other banks reduced their investments in fixed assets, which can be understood as an attempt to release funds trapped over long periods of time in order to finance their current liabilities. On average, banks' leverage increased in the period from mid-2010 to the beginning of 2012. By analysing the financial structure of the Serbian banking sector, we may conclude that commercial banks suffered the impact of the economic crisis, especially in 2010, did the corporate sector and households because borrowing from these banks increased in that period. However, this impact was not as severe as in case of US banks.

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