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Review paper

CONCENTRATION RISK FOR PLACED ASSETS BY THE LARGEST BANKS IN SERBIA

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Nataša Spahić[1], Petar Tomić[2]

[1]University in Novi Sad, Faculty of Science, Novi Sad, Serbia
[2]OTP Banka Srbija, Finance Division, Novi Sad, Serbia

Abstract. *The fact that the U.S., in the recent past, faced a financial collapse which led to the global economic crisis, and the fact that the euro zone felt the financial collapse of Greece about five years ago has caused the public sector in Serbia, as well as all European countries to be seriously shaken. The significant decrease of transactions in the money market has resulted in the increase of exchange rates, the decline in interest rates, inflation and a decrease in the GDP. This has all been reflected on the economy, which has drastically reduced the number of employees, which has had a direct impact on the living standards of the population With the decrease in living standards, people are in a weaker position to pay back loans, which in turn can lead to some global crisis. The vicious circle is hard to break, and the European and world public is directing its forces, on one hand, to the recovery of the economy and on the other to bailing out banks. In this situation, it is not easy for banks to decide how to optimize the risk they are exposed to, i.e., which industrial branch, for what term and which region is the most optimal for investments. The authors have conducted a study, the results of which illustrate the current situation in Serbia and the trends in Serbia's largest banks.*

Key Words: *bank, loan, concentration, risk, activity, region.*

INTRODUCTION

The problems facing all economic entities in Serbia are mutually connected. The range of problems is broad - from global ones to those specific to one branch activity. The economic crisis is universal, the state has no funds, the industry is in ruins, the GDP is low, unemployment and inflation are high, living standards are low and so on in a circle. A way out of this situation cannot happen abruptly, solutions must be systemic. However, how to begin the fight and what to expect?

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Corresponding author: Nataša Spahić
Faculty of Science, Dositeja Obradovića 3, 21000 Novi Sad, Serbia
E-mail: natasa.spahic@dmi.uns.ac.rs

The authors of this study started from the assumption that banks are business subjects who are the quickest at finding a solution. Namely, before banks there is the largest set of laws, those taken from developed countries which are slowly pulling themselves out of the global crisis. Additionally, banks have the strongest government oversight in terms of the practical application of these laws and respect for recommendations given by the Basel Committee and the OECD. In addition, primarily foreign banks operate on the Serbian market who are trying to break the vicious circle by implement solutions from their own countries. The National Bank of Serbia insists on constant improvements to the existing methods of risk management, control and management of the bank's processes. However, nothing comes of itself, and so banks too have had to adapt to the new conditions and circumstances and to invest considerable efforts in order to develop an adequate risk management system.

In terms of the banking industry, concentration of risk holds an important place in literature and represents a current topic discussed in international academic circles. There are a lot of models for measuring concentration of risk and they are constantly being developed. Banks have focused on this issue and, as already mentioned, are obliged to apply the minimum prescribed by the Basel Committee, which has been implemented in the national legislation of our country. Precisely for these reasons, the authors have not chosen to view concentration of risk from the perspective of the banking industry, but from the perspective of industry that uses banking services.

The authors, by using the methodology of bank audits of balance sheet items for loans given and investments, place the focus on the largest banks in Serbia, where the criterion for the size of the bank is the amount of total assets of the bank.

The database includes publicly disclosed audit reports for 9 of the largest banks in Serbia, that is the balance sheet positions for loans and investments in the largest banks in Serbia.

It is important to note that the analyzed position for loans and investments is comprised of:

- Cash and cash equivalents (with special attention to foreign currency accounts that the banks have with other banks);
- Revocable deposits and loans (in the vast majority of cases these are repo transactions[1]);
- Receivables from interest, fees and other;
- Loans and deposits given;
- Securities (held for trading, held to maturity and held for sale);
- Shares (equity participation in other entities);
- Other investments.

The aim of the research is to illustrate in which industries Serbian banks are investing assets in times of economic crisis, as well as the maturity of those investments and the geographic area which they prefer. The research will also predict the future trend of activities.

[1] Repo transactions (*Repurchase Agreement*) with securities means the purchase and sale of securities in which the contracting parties agree that at the date of purchase the seller sells the securities to the buyer, who pays the purchase price for the security, at the same time the buyer is obligated to on the contracted date resell the same securities to the seller, who is obligated to pay the agreed repurchase price.

1. A Review of the Largest Banks in Serbia

Serbian banks are ranked according to the criteria of the largest balance sheet sums (total assets measured in billion dinars).

The study covered 9 of the largest banks in Serbia as on December 31, 2012. Figure 1 illustrates the ranking of these banks by rating their participating in the total assets of the entire Serbian banking sector.

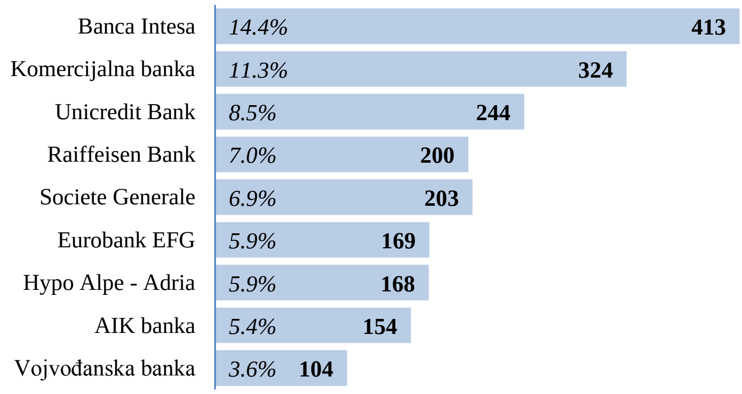

Fig. 1 Overview of the Top 9 banks in Serbia in 2012*

**Data source:* NBS (2013): Kontrola poslovanja banaka, izveštaj za IV tromesečje 2012. godine, http://www.nbs.rs/internet/english/55/55_4/index.html (15.06.2013)

The authors note that 68.7% of the total balance sheet assets of all Serbian banks have been covered by the research, or 68.7% of the Serbian banking market, which represents an adequate sample for making the relevant conclusion using the audit methodology.

2. Concentration of Risk for Investments of the Largest Banks

Concentration risk is risk allocation according to some pre-defined criteria. The professional literature, under the term "concentration of risk" implies the direct or indirect exposure to the same or a similar source of risk occurrence. The criteria for concentration of risk presented in the study are industrial activities, regions and maturity of investments. This is important from the point of view of the bank, because the bank determines the objectives for future operations based on risk concentration. For example: low-risk regions will be attractive for banks to open up more branches in those cities, in order to spread its business network. Also, banks will have more concerns toward high-risk activities, as such they will apply more stringent measures for loans, as they will, depending on the liquidity, decide whether to invest assets for a short or long term.

2.1. Concentration of risk according to industrial activities

When investments by clients are in question, it is important to the bank which activities the client performs. Those more profitable activities will certainly carry less risk, because the likelihood of those clients paying back their loans is greater, given that they have a profitable business. On the other hand, there are industry branches which have been in a crisis in the past few years and banks will be cautious during loan disbursement to those clients.

On figure 2 (figures are in millions of dinars) we can see the analyses of risk concentration for loans and investments by sectors for the period from 2010 to 2012, which is scaled in a way to show in which industries banks invest the most:

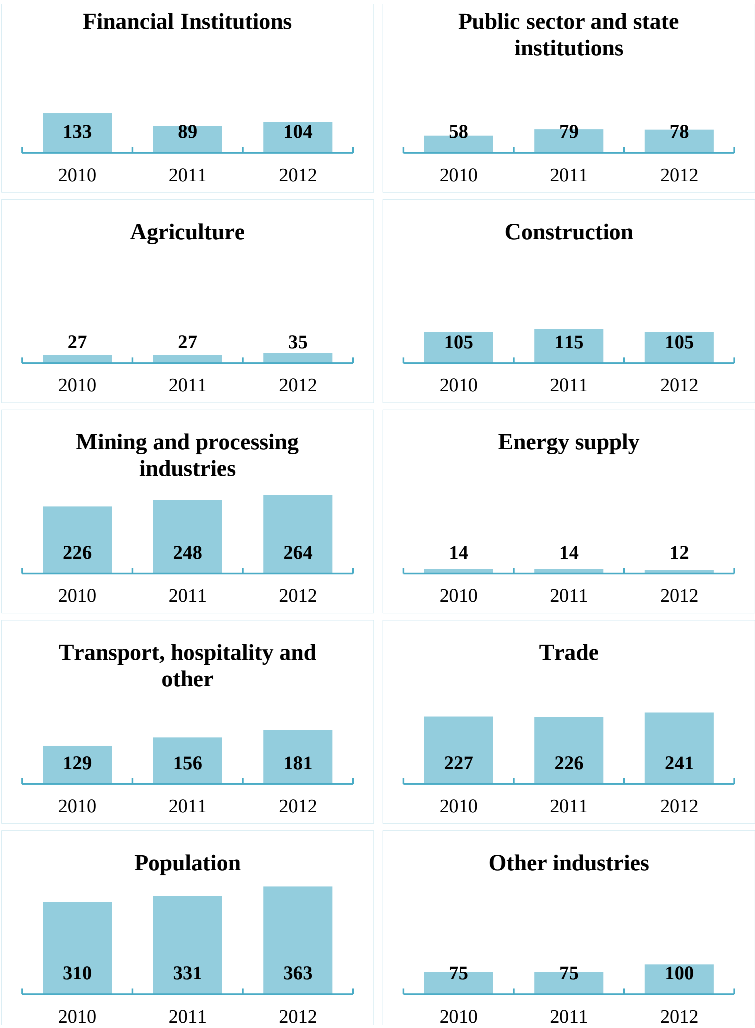

Fig. 2 Risk concentration by industries*

**Data source:* Official audited reports available on the bank's web presentations

From the results it is evident that there is no activity that can be singled out as the one most invested in, but it can be noted that loans to the population occupy a large share of total investments with all banks (on average[2] that is about 24% for all three years observed). Trade, as well as mining and the processing industry, are among the activities that make up about 17% of total investments, on average.

Viewing relative changes in 2011 compared to 2010, it can be seen that the largest increase in exposure was noted in the public sector and state institutions, as well as transport, tourism, hospitality and the service industry, 35% and 21%, respectively. Positive displacement, but in smaller percentages, was recorded in mining and processing industries (10%), construction (9%), energy supply (7%) and population (4%). Imperceptible changes have occurred in agriculture (1% growth), trade and other activities (almost unchanged state). The decrease was only noticeable in financial institutions (down 33%).

Noting again the relative changes, but now in 2012 compared to 2010, a reverse situation is noticeable. Investments in the public sector and state institutions, where we had the largest increase in exposure, now note the largest decrease in gross exposure in the amount of 24%. A decrease in 18% and 9% occurred in energy supply and construction, respectively. Mining and the processing industry, trade and loans to households rose by 6%, 7% and 10%, respectively. Traffic, hospitality, tourism and service industries have felt a higher growth of 16% and a similar increase (17%) was reported in the financial sector. Investments in agriculture (30%) and other activities (32%) have had the highest increase.

Only mining and processing industries, traffic, tourism, hospitality and service activities have had a constant growth over all of the three years

The interesting fact is that largest Serbian banks have been continuously increasing their investments in the entrepreneurs sector during the observed period, which we can see in Figure 3:

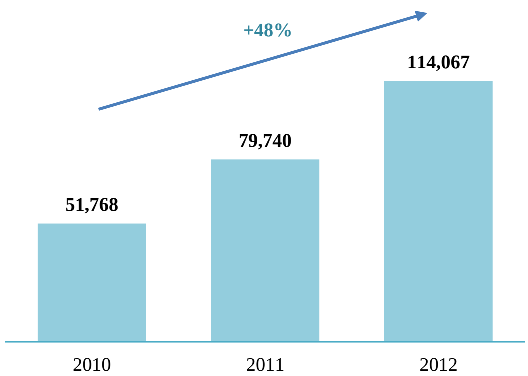

Fig. 3 Lending frowth entrepreneurs*

**Data source:* Association of Serbian Banks (2013):
Study about contribution of banking sector in the economy and society of Serbia

2.2. Concentration of risk according to maturity of investments

Maturity of investments is very important from the point of view of a banks liquidity. The bank must have enough of both short-and long-term assets. The first group is more liquid and those investments are more easily converted into cash to be able to cover some

[2] It is a weighted average, while the total gross exposure of banks was used as a weight.

unexpected expenses. Additionally, short-term investments (those that mature within one year) carry less risk than long-term (those that mature in more than one year), because it is easier to predict what will happen in the following year, rather than what will happen in five or more years. Long-term are riskier (the likelihood that the client will not return funds is greater), but that is also the reason that they are more profitable as they enable an inflow of money into the bank over the long run.

It is important to note that the study only included maturity of balance sheet items for loans and deposits given, as that is the most important item for credit risk, as well as the problem defined as the subject of research herein. The fact that other balance sheet items, whose maturity is usually up to a year, do not have as much importance on the balance sheet of the bank and its concentration of risk by maturity, represents an additional problem for Serbian banks - the problem of a lack of diversification of maturity which has led Serbian banks to the problem of reconciliation the maturity of funding sources with the maturity of obligations It was precisely this problem which confronted the Serbian economy with the fact that the banks were not their "allies".

Short-term investments consist mostly of loans per current accounts (*i.e.* Overdraft loans) for natural as well as legal entities. It also includes loans to industry and small and medium-sized companies which they use to fund some unexpected expenses. Investments with maturities of 1 to 5 years comprise the largest group of these investments (on average). This includes cash, consumer and auto loans, credit cards and other types of loans to natural persons, while for legal entities there are loans for working capital and investment loans. The group of loans with a maturity of over 5 years is mostly residential and mortgage loans with a maturity of up to 30 years.

Figure 4 illustrates the trend of allocating loans according to their residual maturity, looking at the weighed average for the largest banks in Serbia.

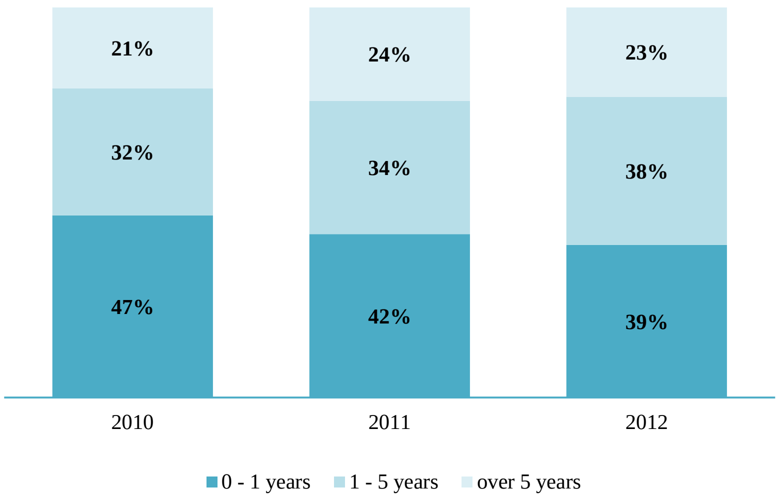

Fig. 4 Distribution of total gross loans according to remaining matury*
**Data source:* Official audited reports available on the bank’s web presentations

What can be seen from the research is that the share of short-term investments decreases every year (in 2010 it was 47% while in 2012 it was 39%), while the share of loans with a maturity of over one year increases. This attests to the fact that the banks intend to do business on the territory of Serbia for a long time and that they are investing into our economy on the long run, which is certainly encouraging.

2.3. Concentration of risk by region

A bank, as an economic subject, never operates within one geographic area rather it operates through its network of branch offices which are geographically dispersed. Consequently there are those regions which are more profitable for banks and those that are less. Additionally, banks are active on the interbank market, both at home and abroad.

More developed regions carry less risk and therefore banks focus more on them. Looking at the operations of the 9 largest banks in Serbia the conclusion imposes itself that banks invest mainly in Belgrade and its surroundings, as well as in Vojvodina, with an emphasis on the South Bačka District. The Serbian economy cannot be satisfied with this policy because in this manner there isn't even a hidden hope that the situation in the economy of the less developed regions will improve.

The following chart (Figure 5) presents the geographical concentration of credit risk in the largest banks in Serbia (in billions of dinars):

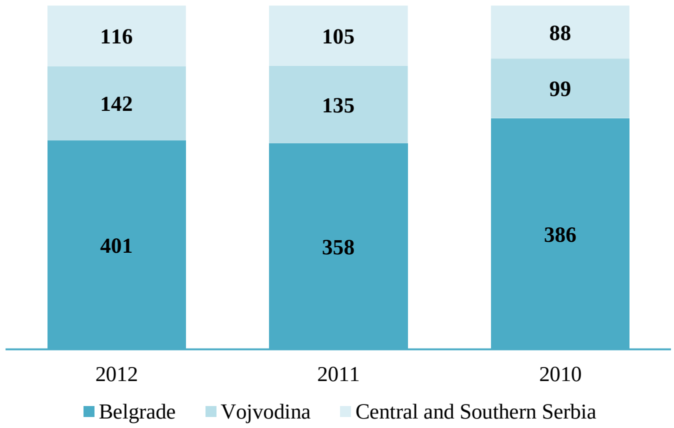

Fig. 5 Overview of the geographic concentration of the Serbian largest banks*

**Data source:* Official audited reports available on the bank's web presentations

As for investments into Serbia, leading are investments in and around Belgrade, as the largest and most developed region of Serbia. Investments in Vojvodina take a second place in the amount of investments by Serbian banks, while investments in other parts of Serbia (Central and Southern Serbia) are less represented.

Below (Figure 6) we present a summary of investments in Serbia, Europe and other countries, in billions of dinars.

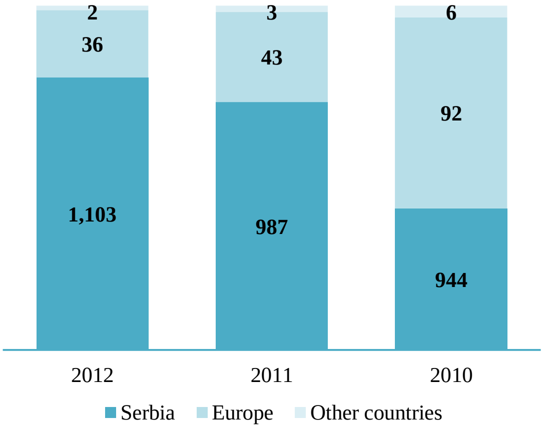

Fig. 6 Overview of the geographic concentration of the Serbian largest banks*
**Data source:* Official audited reports available on the bank's web presentations

As might be expected, banks in Serbia invest the most in Serbia. It is noticed that the investments in Serbia are increasing respectively, which again testifies to the fact that the banks are intent on staying and expanding their operations in this region. On the other hand, the fall in investment in European countries and other countries throughout the world is evident, which means that the Serbian banking industry lacks great power and still needs the help of foreign investors.

Conclusions

From the enclosed research we can conclude that in our country banks represent the main and almost only source of equity for industry, but those investments are insufficient due to the following facts:

- Serbian banks invest the most into the population.
- Out of all branches of industry the most is invested in mining and the processing industry.
- Traffic, catering and other service activities are also supported by Serbian banks.
- Serbian banks classify the construction industry and energy supply in the highest risk branches of industry.
- "There is hope" for the agricultural industry but the banks still hugely rely on state support.
- The banks feel the need of the industry for long-term investments, but as of yet have not made significant progress in terms of granting long term investments – although they have sense for the industry needs for restructuring/reprograming of the old loans.
- The industry can receive cash only in the short term.
- The banks will support you more often if you do business in Belgrade and Vojvodina than in Central and Southern Serbia.

All of the above stated facts indicate that the Serbian banks behave in a manner compliant with the macroeconomic conditions of the environment. They apply the safest investment scenario, *i.e.* take as few risks as possible. It is obvious that banks need support from their parent companies, as well as the support of the state. The crisis in the region has caused all of the above elements of a "vicious circle" to need financial help which is most difficult to receive. The only safe conclusion is that it is possible, even though you have lost several battles, to win the war.

The presented research clearly shows the trend that the largest banks in Serbia are increasing investments into the domestic economy. The amount of investment is not sufficient, just as the maturity of investments is not compatible with the real needs of industry. However, despite the fact that the diversification of the loan portfolio is insufficient and slow, the development of the region is not impossible. Respecting the fact that our economy and our country in general carry a great risk, the trend indicating that banks are willing to take a risk is encouraging, as evidenced by the presented investment growth both from the perspective of branches of industry and from the point of maturity of investments. The road is bumpy and slow but can bring expected progress.

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RIZIK KONCENTRACIJE PLASIRANIH SREDSTAVA NAJVEĆIH BANAKA SRBIJE

Činjenica da su se SAD u bliskoj prošlosti suočile sa finansijksim krahom što je dovelo do svetske ekonomske krize, kao i činjenica da je evrozona pre oko pet godina osetila finansijski krah Grčke, uzrokovale su da se stanje javnog sektora Srbije, kao i svih evrtopskih zemalja ozbiljno poljulja. Transakcije na novčanom tržištu su znatno opale, što je imalo za uticaj porast deviznih kurseva, opadanje kamatnih stopa, rast inflacije i pad BDP-a. To se sve reflektovalo i na privredu, u kojoj se drastično smanjio broj zaposlenih, što je imalo direktan uticaj na životni standard stanovništva. Sa smanjenjem životnog standarda, ljudi su u slabijoj mogućnosti da vraćaju uzete kredite, što opet može dovesti do neke globalne krize. Začarani krug je teško prekinuti, a evropska i svetska javnost usmeravaju svoje snage s jedne strane na oporavak privrede, a s druge strane na spašavanje banaka. U takvoj situaciji bankama nimalo nije lako odlučiti na koji način da optimizuju rizik kojem se izlažu tj. u koju industrijsku granu, na koji rok i u koju regiju je najoptimalnije plasirati sredstva. Autori su sproveli istraživanje čiji rezultati očitavaju trenutno stanje u Srbiji ali i trendove najvećih Srpskih banaka.

Ključne reči: *banka, kredit, koncentracija, rizik, delatnost, regija, ročnost.*