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Abstract

In the last two years, the profitability of the banking sector of Serbia has indicated the occasional tendency to recovery. Viewed over the long term, profitability of the banking sector is primarily a function of an increase in lending activities with increased control in the field of credit risk because the credit risk is an essential problem of the banking sector in the Republic of Serbia, the region and individual EU countries. Unlike credit risk, liquidity risk is very insignificant. In this paper, through an approach that has been developed by Alberts, we will explore the correlation between return and risk for a larger group of banks in the Republic of Serbia. Therefore, the main objective of the paper is to determine whether factors such as the size of the bank, i.e. business operations, lending activities, the competitive environment and the style of management of the bank have an impact on the trade-off between return and risk.

Keywords: Return on invested funds, capital risk, credit risk, financial leverage

1. Introduction

Dynamic environment and permanent and profound changes in the markets are forcing banks to make strategic plans, and carry out forecasts of future market trends in the context of balancing the relationship between return and risk. Therefore, the primary task is to analyse past banking performance, as well as the relevant conditions in the environment, and the strengths and weaknesses to bring an adequate strategic plan to meet the objectives. To achieve this task validly, it is necessary to apply a detailed analysis of the relevant indicators of profitability of the bank, and the breakdown of their decisions on which elements of these signs the management must focus its attention in the future to achieve the desired performance.

In some scientific and professional papers, there is an ongoing debate how to increase the profitability of banks. The standard theory states that banks can increase profitability by maximizing return on investment and minimizing costs. Also, it is vital to note that the market power of banks, as well as the proper combination of inputs and outputs, has a significant role in the interdependence of return and risk. The market value of the bank represents the price that investors are willing to pay for their participation in the bank. According to Demirguc-Kunt and Huizinga (1998), the structure of banking assets plays an important role for the trade-off between profitability and risk taken. For example, the high share of loans in total assets should affect the increase of return due to high risk. Also, a high proportion of non-interest bearing assets in total assets can have a negative impact on bank profitability.

The differences in profitability between the banks can be explained by the different structure and style of management. In particular, the comparison of private and state-owned banks shows that the state banks are often less efficient than private. According to García-Herrero et al. (2009), research results usually overwrite the fact that state-owned banks hold assets of poor quality.

Profitability of banks is primarily a function of internal and external factors. Internal factors relating to the individual bank micro factors, such as the size of the bank, the bank's share capital, the risks and the operational efficiency of the banks. Unlike internal factors, external factors are related to macroeconomic variables and industry-specific variables. Some studies regarding macroeconomic analysis used inflation, the market interest rate, GDP per capita growth rate of the GDP, etc.

Of all the observed variables, inflation has a fundamental impact on profitability, as further volatility of inflation could have serious consequences for the profitability of the banking sector. It is possible to borrow at a high risk and engage in activities that carry a high return in order that all this will lead to a higher total return, but the market showed that the viability of the bank's performance over time is primarily dependent on the adopted strategy, i.e. attitude towards risk and management skills of the bank. This paper is structured in four parts. The first part refers to the introductory discussion in the context of the current debate on the problem of bank profitability and factors affecting profitability. The second part relates to the methodology or approach that has been developed by Alberts and is to be applied in the paper. The third part refers to the research results and the last part to the concluding observations.

2. Methodology

Banking ROE in the DuPont model is composed as a multiplier of earnings and return on assets (ROA), which could be explained by the average utilization of assets and profits, i.e. net interest margins. In this paper, we use a similar approach, developed by Alberts (1989), which is implemented by Lindblom (1994 and 2001), who found the trade-off between return and risk banking. The indicator of return on equity (ROE) will decompose the two components, namely: the return on invested funds (ROIF) and return on financial leverage (ROFL). To better illustrate the model in the context of the sensitivity of banks to credit risk and liquidity risk, return on invested funds (ROIF) will compose the two components: the return on earning assets of banks (ROEA) and an earning power factor (EP):

where:

$$ROIF = \frac{OI}{A} = \frac{OI}{A} \cdot \frac{EA}{EA} = \frac{OI}{EA} \cdot \frac{EA}{A} \qquad (1)$$

OI – Interest income plus another income net of administrative costs, as well as a commission for toxic loans;

EA – Interest bearing assets;

EP – Earning power factor;

$ROEA$ – Return on earning assets of banks

The previous equation reflects the different aspects of the banking business. Management of the bank may make a variety of decisions that directly or indirectly affect the components of the previous equation. Net profit margin describes the effectiveness of cost management, while on the other hand, utilization of assets reflects the policy of banking portfolio. Management decisions can positively affect the equity multiplier, where funding sources are selected, and set as a target are the size of dividends that shareholders should receive. In principle, the major banks have a high multiplier (or a relatively small share of capital in financing sources). Given that the capital has to absorb potential losses from operations, the higher the multiplier, the greater the risk exposure of a bank failure.

Return on financial leverage (ROFL) can be written in the following way:

$$ROFL = (ROIF - k_d) * \frac{D}{E} \qquad (2)$$

where:

k_d – average interest expenses on debt;

D – total debt (liabilities); and

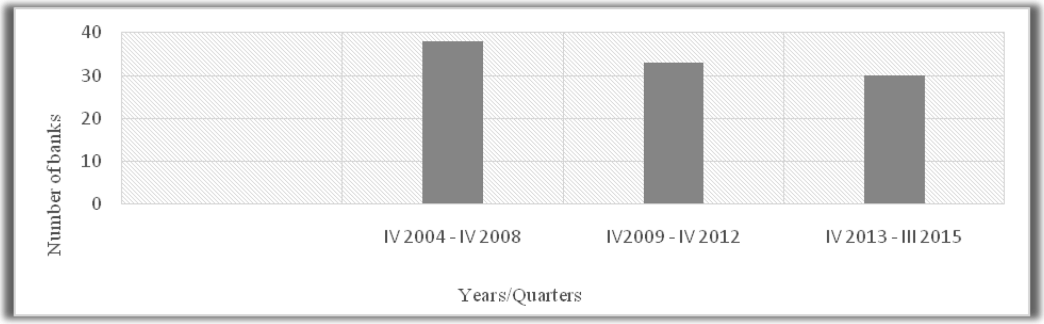
E – equity capital.

Return on financial leverage measures the profitability of banks regarding their assets and depends on the banks' exposure to credit risk and liquidity risk. Bank management may affect the margin profit indicator in the context of the selection mix of collected funds, bank size, control of operating expenses, pricing services and minimizing tax liabilities of the bank. By carefully and selectively allocating its assets mostly in the direction of orientation on income loans and investments, avoiding excessive risk can be influenced by the increase in the average income for the property.

3. Analysis of the performance of the banking sector of the Republic of Serbia

The banking industry of the Republic of Serbia consists of commercial banks operating under the supervision of the National Bank of the Republic of Serbia as a regulatory authority, which is responsible for the monitoring of the banking sector. Commercial banks are independent in their activities regarding making a profit on the principles of solvency, liquidity, and profitability. The financial system of the Republic of Serbia is predominantly a bank-centric system, where the participation of banks in the total assets of the sector at the end of 2014 amounted to about 92.0%. Most of the bank's assets in the Republic of Serbia comprise loans and receivables with about almost 64.1%, because banks are still oriented towards traditional credit and deposit operations. The dominant share in the banking sector of the Republic of Serbia is still held by foreign banks with a total share of about 54.1%, mainly originating from Italy, Austria and Greece, while domestically-owned banks have in relation to the proportion in the assets and equity of the banking sector a somewhat more widespread organizational network and a large number of employees. The graph below illustrates the tendency of changes in the number of banks in the Republic of Serbia for the period: April 2004 – March 2015.

Figure 1 The average number of banks in the period: Q4 2004 – Q3 2015



Source: www.nbs.rs (Adjusted by author)

As can be noted from the previous graph, the number of banks has been slightly reduced in the last 11 years. However, if we take into account an earlier period, i.e. the 2000s when the number of banks was significantly higher, with 81 banks operating in that period, it can be concluded that the number of banks has significantly decreased. At the end of the third quarter of 2015, the banking sector of the Republic of Serbia was operating a total of 30 banks. The main reasons that have contributed to reducing the number of banks can be stated as follows: loss of license to continue operations, the consolidation of some banks, the impact of the global economic crisis and weakened business. The table below shows the average number of employees in the banking sector of the Republic of Serbia for the period: Q4 2004 – Q3 2015.

Table 1 The average number of employees in the banking sector for the period: Q4 2004 – Q3 2015

Period	The average number of employees
IV 2004 – IV 2008	27964
IV 2009 – IV 2012	29673
IV 2013 – III 2015	25291

Source: www.nbs.rs

The table above shows that the number of employees prior to the global economic crisis and the period of the beginning of the crisis had an upward trend. In early 2013 there was a significant decrease in the number of employees by about 14%

due to the weakened economic activity and reduction of bank assets, and because of the liquidation of a number of banks. The banking sector in the Republic of Serbia is significantly fragmented because most of the banks have only small shares in the most important categories of business, such as assets, loans, deposits, and revenues. The highest level of concentration is expressed regarding retail deposits and total revenues. The table below shows the movement of the ten largest banks in the system regarding the assets for the period 2011 – 2014.

Table 2 Changes in assets of the ten largest banks in the system for the period: 2011 – 2014 (billion RSD)

Banks	2011			2012			2013			2014		
	The value of assets	%	Rank	The value of assets	%	Rank	The value of assets	%	Rank	The value of assets	%	Rank
Banca Intesa	392	14.8	**1**	413.3	14.3	**1**	427	15.0	**1**	473	15.9	**1**
Komercijalna banka	275	10.4	**2**	324.2	11.3	**2**	364	12.8	**2**	406	13.7	**2**
Unicredit bank	199	7.5	**3**	243.6	8.5	**3**	252	8.9	**3**	265	8.9	**3**
Raiffeisen banka	194	7.3	**4**	199.6	6.9	**5**	205	7.2	**5**	224	7.5	**4**
Societe Generale	189	7.1	**5**	202.9	7.1	**4**	221	7.8	**4**	222	7.5	**5**
Eurobank EFG	160	6.1	**6**	168.9	5.9	**6**	158	5.6	**6**	146	4.9	**7**
Hypo-Alpe-Adria	147	5.5	**7**	168.5	5.8	**7**	125	4.4	**8**	119	4.0	**9**
AIK banka	143	5.4	**8**	154.4	5.4	**8**	152	5.4	**7**	173	5.8	**6**
Vojvođanska banka	93	3.5	**9**	104.1	3.6	**9**	109	3.8	**9**	123	4.1	**8**
Alpha banka	85	3.2	**10**	-	-	-	-	-	-	-	-	-
Sberbank	-	-	-	101.9	3.5	**10**	-	-	-	-	-	-
Banka Poštanska štedionica	-	-	-	-	-	-	100	3.5	**10**	113	3.8	**10**

Source: http://www.nbs.rs

The analysis of the ten largest banks in the system according to the criteria in total assets, loans, and deposits leads to the conclusion that the banks participating in the balance sheet total of about 74% in total loans at about 75%, and total deposits from 75%. As can be seen, and the largest bank in the Republic of Serbia regarding banking assets is Banca Intesa, which makes an average of about 15% of the balance sum of the banking sector. If we compare the value of the assets of the bank around the year 2011, it would be shown that the relative value of assets increased by about 20%. Therefore, the first three banks out of ten banks have consistently held the same rank regarding the value of assets. Banks that had a variable trend concerning movements of asset value for the reference period were: Hypo-Alpe-Adria Bank, Societe Generale, Eurobank EFG, while AIK bank improved its position slightly.[1]

The most important measure of return in banking return on equity is determined by the way in which the bank implemented all other categories of return. It also reflects the power of the banks to compete in obtaining funds from private sources of capital in the market. Also, the return on assets has capital importance regarding management efficiency bank assets. If the value of the ROA indicators are less than 0.5%, it is considered that bank profitability is poor, if it is between 0.5% and 1%, it is average, if the ROA value is between 1% and 2%, bank profitability is good, whereas if the value of the ROA indicators is above 2%, the profitability is high. If the ROA values are higher than 2.5%, this shows that this is a market where there is a banking cartel or high-risk portfolio of the bank. In contrast to the tendency of the description of the movement of ROA indicators, if the value of the ROE indicators is above 25%, then you have an incredibly large debt of the bank in the financial market.

Table 3 Certain indicators of profitability of the banking sector of Serbia for the period: 2008 – Q2 2015 (in %)

Profitability ratios	2008	2009	2010	2011	2012	2013	2014	Q2 2015
The average weighted interest rate	12.8%	11.6%	10.3%	10.3%	9.6%	8.9%	8.0%	7.5%
The average weighted deposit interest rate	5.3%	4.9%	4.2%	4.4%	4.2%	3.7%	2.7%	2.1%
Spread	7.5%	6.7%	6.1%	5.9%	5.4%	5.2%	5.3%	5.4%
NIM (percentage of average interest-bearing rate)	7.8%	6.9%	6.2%	6.1%	5.6%	5.4%	5.5%	5.5%
ROE	9.3%	4.6%	5.4%	6.04%	2.05%	-0.36%	0.1%	1.1%
ROA	2.1%	1.0%	1.1%	1.23%	0.43%	-0.07%	0.6%	5.4%
Leverage	4.5%	4.5%	5.0%	5.0%	20.5%	20.9%	20.7%	21.2%

Source: http://www.nbs.rs/internet/cirilica/55/55_4/index.html (Accessed on: January 15, 2016)

The table above shows that the considered indicators of profitability of the banking sector of Serbia for the period 2008 - Q2 2015 tended toward a volatile trend. The weighted average interest rate is the highest value recorded in 2008 (12.8%), the lowest in Q2 2015 (7.5%) and an average of 9.8%. Also, the average weighted deposit rate followed the same trend in the movement, i.e. the greatest value achieved in 2008 (5.3%), the lowest in the second quarter of 2015 (2.1%) and the mean value of 3.9%. Therefore, consequently moving weighted average lending and deposit interest rates, i.e. the differences between them ranged and net interest margin, which is the highest value recorded in 2008 by 7.5%, the lowest in 2013 of 5.2% and an average of 5.9%. In the European Union (EU), the net interest margin ranging from 1 to 2%. As the main factors of high net interest margins in the Republic of Serbia states primarily: high liquidity risk regarding the maturity of the deposit, high rates of toxic loans, the reduced inflow of capital from abroad, inflation expectations, and inadequate financial intermediation and underdevelopment of capital markets. Credit risk is mainly transformed into credit losses for the banks, which was of capital importance. It refers to the domestic banks that about 70% of its assets are invested in loans. Looking at the period from 2008 until 2014, there can be seen a tendency of growth of non-performing loans in the total loan portfolio. At the end of 2014, the share of problem loans in the total loans of the banking sector of Serbia increased by 0.1 percentage points, i.e. to 21.5% more growth rate of the net results of the banking industry of Serbia in the second quarter of 2015 compared to the growth in assets and capital. This is primarily the result of partial improvement in profitability indicators compared to the same period last year.[2]

3.1 Data and research results

The data that will be used in this paper are based on an analysis of data from the audited accounting statements of banks, i.e. balance sheet and income statement. Thus, the analysis relies primarily on an analysis of past financial performance of banks regarding the analysis from the point of return of bank riskiness of the business. The table below shows the calculation of the indicators of return on earning assets and making the power factor of 23 selected commercial banks in the Republic of Serbia for the period: 2008 – Q2 2015.

Table 4 Average ROA and the EP for a particular group of banks in the Republic of Serbia for the period: 2008 – 2014

Banks	ROEA	Std dev	EP	Std dev
Banca Intesa A.D.- Beograd	9.89%	66.89%	0.78	7.50%
Komercijalna banka A.D.- Beograd	9.04%	50.45%	0.71	8.34%

Banks	ROEA	Std dev	EP	Std dev
Raiffeisen Banka A.D.- Beograd	10.49%	222.0%	0.75	6.90%
Eurobank A.D.- Beograd	9.87%	126%	0.77	7.36%
Societe Generale banka Srbija A.D.- Beograd	9.60%	257.98%	0.83	6.55%
Alpha Bank Srbija A.D.- Beograd	8.52%	215.99%	0.77	7.09%
Unicredit Bank Srbija A.D.- Beograd	9.20%	107.0%	0.79	8.99%
Erste Bank A.D.- Novi Sad	11.41%	123.0%	0.77	5.80%
Credit Agricole banka Srbija A.D.- Novi Sad	8.66%	172.0%	0.78	4.46%
Hypo Alpe-Adria-Bank A.D.- Beograd	8.53%	148.0%	0.77	7.02%
ProCredit Bank A.D.- Beograd	11.32%	93.0%	0.87	4.62%
OTP banka Srbija A.D.- Novi Sad	7.56%	179.0%	0.80	6.43%
Sberbanka Srbija A.D.- Beograd	7.64%	105.0%	0.80	3.78%
Agroindustrijska komercijalna banka „AIK banka" A.D.- Niš	15.74%	350.0%	0.70	12.61%
NLB banka A.D.- Beograd	12.58%	173.0%	0.59	11.90%
Findomestic banka A.D.- Beograd	9.51%	152.0%	0.82	4.76%
Marfin Bank A.D.- Beograd	6.62%	193.0%	0.76	9.63%
KBM Banka A.D. Kragujevac	11.76%	446.0%	0.59	7.32%
Opportunity banka A.D.- Novi Sad	13.40%	117.0%	0.77	5.99%
mts banka akcionarsko drustvo, Beograd	10.90%	514.0%	0.57	12.46%
JUBMES banka A.D.- Beograd	8.46%	199.0%	0.69	6.64%
Srpska banka A.D.- Beograd	13.43%	306.0%	0.65	7.72%
VTB Banka a.d. Beograd	5.15%	215.0%	0.76	10.89%

Source: Calculation by author based on data from the audited financial statements

Although there are significant differences in the earning power factor observed for 23 commercial banks, it should be noted that slight differences can have a significant effect on the movement of return and risk. A combination of factors earning power and return on interest-bearing assets can be explained by the high credit risk regarding disbursed loans which make up the majority share of interest-bearing assets. The highest average return on interest-bearing assets of 23 commercial banks observed for the period 2008 - 2014 was recorded for AIK bank – with AIK of 15.74% and earning power factor of 0.70 and a variation of 12.61%. On the other hand, the lowest average return on interest-bearing assets of all banks surveyed was achieved by VTB Bank 5.15% and earning power factor of 0.76, and the same fluctuation of 10.89%. High rates of change factors earning power are primarily owed to the high rate of participation in non-performing loans in the total loan portfolio. Analysis of the profitability of the banking sector based on the ownership structure is not of a homogeneous character. At the end of 2014, the domestic state banks accounted for 19.2% of the net assets of the banking sector, the domestic private banks from 6.3%, while foreign-owned banks participated by 74.5%. Therefore, the biggest challenge regarding the average profitability is indeed borne by the banks in majority state ownership, which is primarily due to the restructuring of certain operations of domestic banks[3]. The tables 5 and 6 below illustrate the analysis of indicators of return on invested funds (ROIF) and analysis of performance due to the use of financial leverage (ROFL) by 23 commercial banks in the Republic of Serbia.

Table 5 Analysis of movement of return on invested funds and financial leverage selected group of banks in the Republic of Serbia for the period: 2008 – 2014 (in %)

Parameter	Banks	2008	2009	2010	2011	2012	2013	2014	Average
ROIF	Banca Intesa A.D.- Beograd	7.45%	8.60%	7.70%	8.21%	8.02%	7.47%	6.72%	**7.74%**
	Komercijalna banka A.D.- Beograd	6.19%	7.31%	6.44%	6.99%	6.42%	6.14%	5.29%	**6.40%**
	Raiffeisen Banka A.D.- Beograd	13.08%	7.44%	7.29%	7.55%	6.67%	6.84%	6.73%	**7.94%**
	Eurobank A.D.- Beo-grad	8.93%	8.38%	6.31%	7.96%	6.93%	7.21%	7.26%	**7.57%**
	Societe Generale banka Srbija A.D.- Beograd	11.75%	9.57%	6.40%	6.66%	7.08%	7.01%	6.71%	**7.88%**
	Alpha Bank Srbija A.D.- Beograd	8.99%	4.28%	5.11%	7.26%	6.12%	7.13%	6.25%	**6.45%**
	Unicredit Bank Srbija A.D.- Beograd	10.67%	6.15%	6.99%	7.05%	6.69%	6.80%	6.50%	**7.26%**
	Erste Bank A.D.- Novi Sad	9.85%	9.87%	7.98%	8.92%	9.06%	8.13%	7.62%	**8.77%**
	Credit Agricole banka Srbija A.D.- Novi Sad	6.86%	9.23%	5.68%	6.99%	6.42%	5.93%	5.75%	**6.69%**
	Hypo Alpe-Adria-Bank A.D.- Beograd	9.17%	7.73%	6.91%	6.19%	5.23%	6.32%	4.75%	**6.61%**
	ProCredit Bank A.D.- Beograd	9.73%	10.38%	9.21%	10.84%	10.18%	9.57%	8.55%	**9.78%**
	OTP banka Srbija A.D.- Novi Sad	7.10%	4.85%	4.78%	7.28%	4.39%	6.97%	6.53%	**5.98%**
	Sberbanka Srbija A.D.- Beograd	7.08%	6.20%	5.51%	6.62%	5.33%	6.07%	5.73%	**6.08%**
	Agroindustrijska komercijalna banka „AIK banka“ A.D.- Niš	14.73%	17.45%	12.66%	9.40%	8.88%	8.98%	6.21%	**11.18%**
	NLB banka A.D.- Beograd	9.55%	7.55%	7.41%	8.29%	7.33%	5.40%	5.99%	**7.36%**
	Findomestic banka A.D.- Beograd	7.58%	9.44%	6.69%	6.65%	6.42%	8.15%	9.38%	**7.76%**
	Marfin Bank A.D.- Beograd	6.07%	3.55%	4.22%	5.14%	4.92%	4.80%	5.09%	**4.83%**
	KBM Banka A.D. Kragujevac	6.72%	8.62%	1.415,71%	7.62%	6.91%	7.30%	8.38%	**6.71%**
	Opportunity banka A.D.- Novi Sad	8.61%	11.72%	9.04%	10.48%	9.82%	10.89%	11.70%	**10.32%**
	mts banka akcionar-sko drustvo, Beograd	8.39%	6.54%	2.91%	3.64%	6.18%	6.72%	5.60%	**5.71%**
	JUBMES banka A.D.- Beograd	5.54%	5.35%	5.46%	8.08%	6.69%	5.66%	3.73%	**5.79%**
	Srpska banka A.D.- Beograd	9.92%	6.09%	8.43%	10.01%	11.80%	5.89%	8.64%	**8.68%**
	VTB Banka a.d. Beograd	1.19%	3.02%	1.92%	4.85%	5.86%	4.52%	6.12%	**3.92%**

Source: Calculation by author based on data from the audited financial statements

Table 6 Analysis of movement of return on invested funds and financial leverage selected group of banks in the Republic of Serbia for the period: 2008 – 2014 (in %)

Parameter	Banks	2008	2009	2010	2011	2012	2013	2014	Average
ROFL	Banca Intesa A.D.- Beograd	1.50%	2.99%	3.08%	1.94%	0.81%	0.80%	2.76%	**1.98%**
	Komercijalna banka A.D.- Beograd	1.92%	1.58%	1.37%	2.71%	1.88%	2.87%	0.37%	**1.81%**
	Raiffeisen Banka A.D.- Beograd	3.31%	1.42%	1.51%	1.47%	1.19%	0.98%	0.33%	**1.46%**
	Eurobank A.D.- Beograd	0.45%	0.31%	0.25%	0.33%	0.24%	0.21%	0.26%	**0.29%**
	Societe Generale banka Srbija A.D.- Beograd	9.71%	7.28%	4.91%	2.23%	2.43%	2.76%	2.83%	**4.59%**
	Alpha Bank Srbija A.D.- Beograd	0.74%	(0.51%)	0.80%	0.66%	0.40%	0.73%	1.90%	**0.67%**
	Unicredit Bank Srbija A.D.- Beograd	2.01%	1.13%	0.96%	0.86%	0.92%	0.91%	0.82%	**1.08%**
	Erste Bank A.D.- Novi Sad	1.37%	1.12%	1.04%	2.09%	2.80%	2.37%	1.48%	**1.75%**
	Credit Agricole banka Srbija A.D.- Novi Sad	0.19%	3.11%	1.42%	1.42%	1.47%	0.75%	0.73%	**1.30%**
	Hypo Alpe-Adria-Bank A.D.- Beograd	1.53%	3.02%	1.91%	1.37%	0.26%	0.31%	0.90%	**1.33%**
	ProCredit Bank A.D.- Beograd	2.23%	2.78%	3.36%	5.06%	5.50%	4.97%	3.89%	**3.97%**
	OTP banka Srbija A.D.- Novi Sad	0.80%	(2.60%)	(3.08%)	(5.16)	(1.52%)	0.52%	0.44%	**(-1.51%)**
	Sberbanka Srbija A.D.- Beograd	0.70%	1.22%	1.35%	1.50%	1.51%	1.95%	1.97%	**1.46%**
	Agroindustrijska komercijalna banka „AIK banka“ A.D.- Niš	0.43%	1.18%	1.15%	0.45%	0.57%	0.59%	0.19%	**0.65%**
	NLB banka A.D.- Beograd	0.98%	1.02%	1.16%	1.79%	0.41%	0.08%	0.33%	**0.82%**
	Findomestic banka A.D.- Beograd	1.76%	1.39%	0.87%	0.67%	0.25%	0.25%	0.30%	**0.78%**
	Marfin Bank A.D.- Beograd	0.24%	0.06%	0.04%	0.09%	0.15%	0.04%	0.24%	**0.12%**
	KBM Banka A.D. Kragujevac	0.20%	0.45%	(0.88%)	0.68%	0.82%	0.48%	1.11%	**0.41%**
	Opportunity banka A.D.- Novi Sad	1.93%	1.39%	0.95%	1.61%	1.83%	2.40%	3.01%	**1.87%**
	mts banka akcionarsko drustvo, Beograd	(0.30%)	0.07%	0.03%	0.03%	0.17%	0.11%	0.40%	**0.07%**
	JUBMES banka A.D.- Beograd	4.53%	0.70%	0.60%	1.47%	0.57%	0.35%	0.13%	**1.19%**
	Srpska banka A.D.- Beograd	0.57%	0.44%	1.72%	0.72%	1.77%	0.59%	(0.07%)	**0.82%**
	VTB Banka a.d. Beograd	0.01%	0.07%	(2.23%)	(0.03%)	0.35%	0.14%	0.45%	**(1.24%)**

Source: Calculation by author based on data from the audited financial statements

Return on financial leverage (ROFL) refers not only to the exposure to capital risk already applied to interest rate risk. The analysis that considered commercial banks in the Republic of Serbia reveals that a high level of use of financial leverage regarding comparing economic activity, bad credit loans, increased credit risk, liquidity and risk management may lead to credit losses and a fall in the rate of return. The highest average return on investment of 23 observed commercial banks for the period 2008 – 2014 was achieved by AIK bank (11.18%), while on the other hand, the average return on financial leverage at the same bank and the same period amounted to 0.65% which is certainly a proper management of assets, and liabilities. The bank in the reporting period had a relatively high level of capital adequacy, secure investments, and good provisions for credit risk. On the other hand, the lowest average return on investment of a total of 23 banks in the observed period 2008 – 2014 was recorded VTB Bank (3.92%), while the return on financial leverage was negative and amounted to (1.24%). This situation at VTB commercial bank may be due to the bad politics of loans, high operating costs, high cost of provisions and other expenses. If we compare the value of the assets of the top ten banks with the results of research, i.e. the return on invested assets and the return on financial leverage, it is to conclude that there is a complete correlation. For instance, the average return on investment of Banca Intesa was quite high and stable, but not the greatest. On the other hand, the return on financial leverage was extremely favourable. Therefore, we can conclude that there is an absolute interdependence, but not complete. Banca Intesa has managed its assets and liabilities as the reduced exposure to credit risk in a way that had good coverage of provisions for potential losses.

4. Conclusion

Positioning the bank to increase and maintain profitability primarily reflects the bank's ability to generate profits at a rate that may be above the average of the branches while assuming some degree of risk. Risk management is a measure of the performance assessment of management and employees about the competition. Regarding capitalization, the banking sector of the Republic of Serbia has remained highly capitalized, as the capital adequacy ratio is above the regulatory minimum and two times higher than the minimum required by the EU. Credit risk is the biggest threat not only to the banking sector of the Republic of Serbia but also the region and the individual countries of the EU.

This analysis aimed to determine the relationship between the return and risk of a select group of banks in the Republic of Serbia. As you might notice the return on investment of a particular number of banks has been stable and even had a growing trend while some banks had a volatile and negative performance. The main reasons for this situation are primarily bad policy lending, and high exposure to credit risk, high operating costs, high costs of borrowing, high liquidity risk of certain banks in terms of deposit maturity, withdrawal of deposits of individual banks in foreign ownership, a certain level of inflation expectations, the decline in economic activity and the impact of the post-crisis period. The risk that banks take on is the degree of uncertainty regarding future returns, with good risk management that carries a greater reward.

Also, analysis of 23 commercial banks has found that small differences in the earning factor can have a significant impact on the trade-off between return and risk because the poor structure of interest bearing assets can have a high impact on the profitability of banks. When it comes to the performance of banks, it is important to observe their time dimension and behaviour over an extended period of five years or more. Sustainability in performance over time is primarily dependent on the adopted strategy, appetite for risk, management skills, and banks. Thus, the long-term viability of the performance and profitability can only be achieved with the increase in credit growth and adequate risk management process.

References

1. Alberts, W. A. (1989), "A New Look at Calculating ROE", The Bank Magazine, No. 172, pp. 37-42.
2. Božović, J. (2013), "Dynamics of Interest Margins in Transition Environment of Serbia", Facta Universitatis, Vol. 10, No. 4, pp. 457-469.
3. Collier, P. M. (2009). Fundamentals of Risk Management for Accountants and Managers. Oxford: Butterworth-Heinemann.
4. Croxford, H., Abramson, F., Jablonowski, A. (2005). The Art of Better Retail Banking. Chichester: John Wiley & Sons.
5. Demirgüç-Kunt A., Huizinga, H. (1998), "Determinants of Commercial Bank Interest Margins and Profitability", World Bank Policy Research Working Paper, No. 1900.
6. Đukić, Đ. (2011). Upravljanje rizicima i kapitalom u bankama. Belgrade: Centar za izdavačku delatnost Ekonomskog fakulteta u Beogradu.
7. García-Herrero, A., Gavilá, S., Santabárbara, D. (2009), "What explains the low profitability of Chinese banks?", Journal of Banking and Finance, Vol. 33, No. 11, pp. 2080-2092.
8. Mishkin, F. S. (2010). Ekonomija novca, bankarstva i finansijskih tržišta. Zagreb: MATE.
9. Plakalović, N., Alihodžić, A. (2015). Novac, banke i finansijska tržišta. Banja Luka: Faculty of Economics Banja Luka.
10. Revell, J. (1979). Inflation and Financial Institutions. London: Financial Times Limited.

(Endnotes)

1 National Bank of Serbia (2014), Annual Financial Stability Report, available at: http://www.nbs.rs/export/sites/default/internet/latinica/90/90_2/finansijska_stabilnost_2014.pdf (Accessed on: June 30, 2016).

2 National Bank of Serbia (2013), The banking sector in Serbia, Report for the fourth quarter, pp. 7-8., available at: http://www.nbs.rs/export/sites/default/internet/latinica/55/55_4/kvartalni_izvestaj_IV_13.pdf (Accessed on: June 30, 2016).

3. National Bank of Serbia (2015), The banking sector in Serbia, Report for the third quarter, available at: http://www.nbs.rs/export/sites/default/internet/latinica/55/55_4/kvartalni_izvestaj_III_15.pdf (Accessed on: June 30, 2016).

Almir Alihodžić

MEĐUZAVISNOST PRINOSA I RIZIKA BANAKA U REPUBLICI SRBIJI

Sažetak

U posljednje dvije godine profitabilnost bankarskoga sektora Republike Srbije ukazuje na tendenciju umjerenoga oporavka. Promatrajući na duži rok, profitabilnost bankarskoga sektora je prije svega u funkciji povećanja kreditne aktivnosti uz povećani nadzor u domeni kreditnoga rizika, jer je kreditni rizik esencijalni problem, kako bankarskoga sektora u Republici Srbiji, tako i u regiji i u pojedinim zemljama EU-a. Za razliku od kreditnoga rizika, izloženost riziku likvidnosti bankarskoga sektora, bila je niska. U ovome ćemo radu, kroz pristup koji je razvio Alberts, istražiti korelaciju između prinosa i rizika za veću skupinu banaka u Republici Srbiji. Dakle, osnovni je cilj rada utvrditi imaju li čimbenici poput veličine banke, poslovnih operacija tj. kreditne aktivnosti, konkurentskoga okruženja i samoga načina upravljanja bankom utjecaja na odnos između prinosa i rizika.

Ključne riječi: prinos na investirana sredstva, kapitalni rizik, kreditni rizik, financijski *leverage*