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Assesment of the Interest Rates in the Serbian Banking Sector¹

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Abstract: Lending interest rates (IR) in the Serbian market are generally viewed as high. In accordance with the official NBS (National bank of Serbia) data for 2010: lending (IR) was 10.4% p.a., deposit IR was 4.2% p.a., and spread was 6.3% p.a. At the same time, IR on cross-border loans was 3.7% p.a. It means that the use of cross-border loans was a better solution for companies which were in position to take them. The indicator of IR spread in Serbia got worse and came down to 106th position (it used to be ranked 90th in 2009; WEF). If we analyse the structure of IR spread, we can notice that there is room for decreasing the level of active IR in the area of country risk premium and funding spread. Pearson Correlation shows that IR has strong relation with return on assets and volume of collected deposits i.e. profit margin per product.

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1. Introduction

Fluctuations of lending and deposit interest rates (IR) were determined by the (Serbian) banks' liquidity from October 2008. The importance of the local money market was influenced by the liquidity problems. The banks' lending IR was increased as result of higher country risk, while deposit IR was stable. It should be mentioned that components of active and deposit IR are the base part and margin (Barjaktarović, 2009).

The base part is the reference interest rate. In the case of dinars, it can be the reference IR of the National Bank of Serbia (RIR) or BELIBOR, while in the case of foreign currency (FX) it can be EURIBOR or LIBOR.

Credit margin (in the case of foreign credit line) consists of: funding spread, country risk, withholding tax (WHT - in the case that there is no mutual agreement between Serbia and creditor country about avoiding this tax), mandatory reserve (MR), standard risk cost (SRC) and bank's profit margin.

Break-even for the local bank (borrower) is IR which covers the base part, funding spread, country risk, WHT and MR. Break-even for the (foreign) bank (lender) is important to cover the base part, funding spread and country risk.

According to professor Savic et al. (2013), interest rates are strongly determined by RC, MR and WHT. At the same time, previous research done by professor Savic and his team (2012) confirmed that cross-border loans had the biggest impact on GDP per capita in CEE countries. At the same time, collecting deposits is crucial for decreasing the lending IR of Serbian banking sector.

The crisis has confirmed that collecting deposits in the domestic financial market is the most reliable source of financing banks.

The purpose of this paper is to determine the relation between components of the lending IR on the level of IR in the Serbian banking sector. The comparison will be done in correlation with the Austrian lending IR due to the fact that Austrian banks had the biggest impact as owners of local banks on development of Serbian banking sector in previous years.

The hypotheses subjects of testing are:

- There is the space for decreasing of active IR on Serbian banking market.
- Country risk is crucial for decreasing level of active IR on Serbian banking market.

Contribution of this paper is to empirically confirm the reasons of relatively high active interest rates in Serbia by appliance of Pearson correlation. During the crisis in CEE region Serbia and Bosnia and Herzegovina had increasing trend of active interest rates.

This paper is structured as follows. Section 2 gives a brief description of methodology which will be used including database, indicators which to be considered, presumptions and the model which will be applied in order to determine the room for decreasing lending IR in the Serbian banking sector. In Section 3, the authors give an overview of basic indicators of the Serbian banking sector performance. Results of empirical research are presented in Section 4. The paper concludes with some comments on achieved results, limitations and future work.

2. Methodological approach and data

Data used in the analysis are taken from the websites of the National Bank of Serbia (NBS), the Association of Serbian Banks (ASB), Reuters, Bloomberg and Erste bank Vienna (EBV) for the year 2008. These data are connected to basic indicators of the banking sector such as: assets, liabilities, equity, deposits, credit by different segments of customers, IR, CR and profitability ratios.

In order to get the statistic relation (connection) between IR and relevant indicators (components) of IR such as ROE, ROA, country risk, deposits, credits, balance sum and financial result, the authors applied the Pearson correlation (formula below). Available data is presented in Tables 1, 4 and 6.

$$r = \frac{\sum_{i=1}^N (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^N (x_i - \bar{x})^2 \sum_{i=1}^N (y_i - \bar{y})^2}}$$

Elements of the formula (Pearson correlation): N is the number of indicators in relation; X_i is the independent indicators and Y_i are dependent indicators; \bar{x} and \bar{y} are averages (of relevant indicators). Software SPSS did calculations.

Explanation of Pearson Correlation values:

- +/-0 - +/- 0.2 no relation
- +/-0.21 - +/- 0.4 weak relation
- +/-0.41 - +/- 0.6 mid relation

+/-0.61 - +/- 0.8 strong relation

+/-0.81 - +/- 1 very strong relation

SPPS software calculated Pearson correlation.

3. Basic indicators of Serbian banking sector performance

In comparison to the developed financial systems (which have a stable banking sector) in Central and Eastern Europe (CEE), the banking sector is still underdeveloped, particularly in countries in transition. In this context, there has been a lack of innovation in the financial system, primarily because of the low and underdeveloped financial markets, political, economic and credit risk, high rates of poverty, underdeveloped segments of stock exchange operations, currency fluctuations, higher levels of inflation and other macroeconomic indicators (i.e. trade deficit, a high level of public debt, a relatively small inflow of foreign direct investment etc.).

In comparison to the Western Europe region, the banking sector in CEE countries is still highly risky and unstable, despite the fact that the financial system in these countries has been developing rapidly in the past few years, with modern financial regulations as well as newly established financial institutions.

The first visible signs of the global economic crisis in CEE countries were present in the financial sector in the form of a decrease in liquidity and stricter reforms of financial institutions. The growth of interest rates was one of the first signals that pointed to potential problems in CEE. The gap between interest rates, under which commercial banks invested free resources and reference interest rates of CEE central banks, is getting superior in time. (Barjaktarovic & Paunovic & Jecmenica, 2012)

There are 33 banks in the Serbian banking market: 21 of which are foreign owned (from 11 different European countries) and they account for 74% of the total banking balance sum and 71% of the total equity of the banking sector (NBS, 2010).

The most important balance indicators of the Serbian banking sector showed an increasing trend in the previous period (Table 1).

Table 1: Summary of the most important balance sheet items of the Serbian banking sector in the period from 2001 to 2010 (in mil EUR)

Item	2001.	2007.	2008.	2009.	2010.
Balance's sum	14.939	19.710	20.055	22.530	22.699
Credits	6.326	9.602	11.598	13.331	14.854
Equity	-3.474	4.146	4.739	4.667	4.587
Deposits	2.232	12.118	11.565	13.570	13.054
Financial result	-4.173	296	394	209	195
Off-balance items	7.255	19.749	17.727	24.033	25.064

Source: Matic (2002), UBS (2008), UBS (2009), NBS (2010b)²

Serbian banks are very well capitalized. It helped them to be prepared for the global economic crisis.

Balance sheet assets of the banking sector showed an increasing trend during 2010 and reached the level of 22,699 million euros (where 20% represent non-performing loans, which have an increasing trend). It is important to notice that there were changes within the structure (Table 2). The most important items of balance sheet assets are: loans and deposits (62.1%) and revocable deposits and loans (17.2%; are result of decreased level of repo transactions with the NBS and increased MR in FX). It should be mentioned that there was a decrease in cash and cash equivalents (5.9%) as a result of a decrease of banks' FX deposits abroad and increased investments in securities (up to 7%) issued by the Serbian state (in the last quartile of 2010; NBS, 2010).

Table 2: Summary of the crucial items of balance sheet assets of Serbian banks in the period from 2001 to 2010 (in million euros)

ASSETS	2001.		2007.		2008.		2009.		2010.	
	Amount	Amount	%	Amount	%	Amount	%	Amount	%	
Cash and cash equivalents	661	1.013	5,1	3.010	15,0	2.694	12,0	1.485	6,5	
Revocable deposits and credits	n.a.	6.960	35,3	3.117	15,5	4.584	20,3	3.898	17,2	
Granted credits and deposits	n.a.	9.772	49,6	12.060	60,1	12.505	55,5	14.092	62,1	
Others	n.a.	1.965	10,0	1.868	9,4	2.747	12,2	3.224	4,0	
Total	14.939	19.710	100,0	20.055	100,0	22.530	100,0	22.699	100,0	

Source: Matic (2002), UBS (2008), NBS (2010)

² The authors did conversion calculations on the basis of exchange rates available on the website of the National Bank of Serbia available as at date 01/18/11 (for Tables 1,2,3).

Loans to the state of Republic of Serbia were the most important during 2010 (table 3). At the same time, the level of loans to Serbian corporate was decreased. Also, 67% of approved loans were in FX, and 56% of loans had tenor above one year (NBS, 2010a).

Table 3: Summary of the credit structure of Serbian banks in the period from 2001 to 2010 (in mil EUR)

Sector	2001.		2007.		2008.		2009.		2010.	
	Amount	Amount	%	Amount	%	Amount	%	Amount	%	
Corporate	n.a.	5.520	57,5	7.135	61,5	7.826	58,7	8.298	56,0	
Retail	n.a.	3.818	39,8	4.112	35,5	4.119	30,9	4.587	31,0	
-Residential construction	n.a.	1.128	11,8	1.815	15,6	1.961	14,7	2.259	15,2	
Public sector	n.a.	175	1,8	196	1,7	1.230	9,2	1.639	11,0	
Other institutions	n.a.	89	0,9	155	1,3	156	1,2	330	2	
Total	6.326	9.602	100,0	12.598	100,0	13.331	100,0	14.854	100,0	

Source: Matic (2002), UBS (2008), NBS (2010a)

The Serbian banking sector had a positive financial result (NBS, 2010a), but the speed was slower from the third quartile of 2008 (when the impact of world economic crises started to feel in Serbia). At the end of 2010 the profit before taxes was EUR 195 million. In the income structure, net non-interest bearing revenue was dominated with 75%, while in the cost structure employees expenditures were the most important (42%).

Profitability indicators of the Serbian banking sector are on the low level (NBS, 2010a): return on equity (ROE) is 5.9%, return on assets (ROA) is 1.2% and leverage is 4.9 (table 4). Targets of local banks in foreign ownership are:

1. ROE and ROA are 20%,
2. Minimal profit of owners in the lever of investment in repo-transactions in Serbia.

Table 4: Profitability indicators of the Serbian banking sector in period from 2001 to 2010 (in %)

Indicator	2001.	2007.	2008.	2009.	2010.
Averages ponder active IR	3.5	13.5	12.8	11.6	10.4
Averages ponder IR	1.1	4.7	5.3	4.9	4.2
Spread	2.4	8.8	7.5	6.7	6.3
ROE	n.a.	n.a.	9.3	4.6	5.9
ROA	n.a.	n.a.	2.1	1	1.2
Leverage	n.a.	n.a.	4.5	4.5	4.9

Source: Matic (2002), UBS (2008), NBS (2010a), NBS (2010b)

We can notice that the level of achieved spreads of Serbian banks is acceptable, but the level of ROE is not in accordance with it (drastically lower comparing to the level of RIR). If we analyse the fluctuations of key indicators (profitability and efficiency) of the Serbian banking sector, we can notice that banks do not manage costs properly, so there is plenty of room for further decrease through improvement of efficiency in banks. It would, in turn, have an indirect impact on decrease of the level of lending IR.

3.1. Analysis of fluctuation of lending and deposit interest rates in Serbian banking sector

Fluctuations of lending and deposit interest rates (IR) have been determined by banks' liquidity as of October 2008. The importance of the local money market has been influenced by liquidity problems. Banks' lending IR has increased as result of a higher country risk, while deposit IR has remained stable.

It should be mentioned that components of lending and deposit IR are the base part and margin (Barjaktarovic, 2009).³

In the case of lending IR, the base part is increased for the margin. The base part is referent interest rate. In case of dinars, it can be the reference IR of the National

³ In the case of deposit IR, the margin is deducted from the base part. The margin consists of MR and profit margin of the bank. The NBS uses MR as an instrument for the regulation of credit activity. The level of MR is high, especially for FX MR (45%). Also, there is a scale of MR for different items of balance lending and deposit (from 20% to 100%). In the neighbourhood countries, MR is lower (up to 14%).

Bank of Serbia (RIR) or BELIBOR, while in case of a foreign currency (FX) it can be EURIBOR or LIBOR.

Credit margin (in case of foreign credit lines) consists of: funding spread, country risk, withholding tax (WHT - in the case that there is no mutual agreement between Serbia and creditor country about avoiding this tax), mandatory reserve (MR – in the case of Serbia it varies from 0% to 60%; for FX foreign credit lines it goes up to 60%), standard risk cost (SRC – determined by the creditworthiness of the customer), and bank's profit margin.

Break-even for a local bank (borrower) is IR which covers the base part, funding spread, country risk, WHT and MR. Break-even for a (foreign) bank (lender) is important to cover the base part, funding spread and country risk.

In order to get an idea about the level of country risk, we can monitor fluctuations of CDS (Credit Default Swap) per countries, announced by Reuters and Bloomberg. Having in mind that the Austrian banks are the important creditors in the Serbian economy, we will analyse country risk of Austria and Serbia (Table 5).

Table 5: Country risk of Serbia and Austria in the period from 2006 to 2010 (in %)

Country	2006.	2007.	2008.	2009.	2010.
Austria	0	0	0	0	0
Serbia	1,525	2,300	2,520	3,200	2,940

Source: ETV (2010)

We can notice that on every euro taken from abroad, Serbian banks add 2.94% for country risk (December 2010). That means that the break-even for 3-month borrowing euros from Austria is 12.53% p.a. in December 2010 (3-month EU-RIBOR is 1.01%, funding spread is 5%, according to ETV, 2010), which is 2.13% more comparing to the average lending IR in the Serbian banking sector in 2010 (10.4% p.a., according to the NBS, 2010a).

It is important to emphasize the indicator of Serbian credit rating (83rd) in 2010 in accordance with *The Global Competitiveness Report (World Economic Forum, 2010)*.⁴

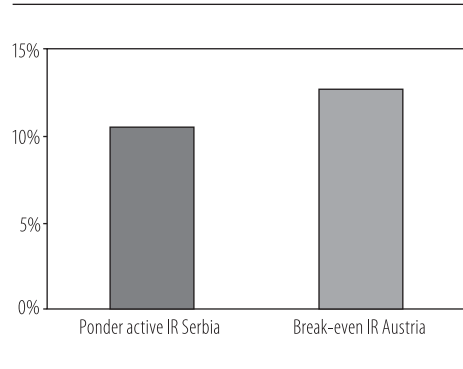
⁴ The indicator of (Serbian) credit rating achieved level of 81st during 2011. The indicator of (Serbian) IR achieved level of 91st during 2011. (WEF, 2011)

In accordance with the official NBS data (NBS, 2010a), an average lending IR was 10.4% p.a., average deposit IR was 4.2%p.a and spread was 6,3% p.a. during 2010. At the same time, an average IR on cross-border loans was 3.7% p.a. (NBS, 2010). It means that for a Serbian corporate entity it was cheaper to use cross-border loans compared to local credits.

It should be mentioned that the ranking of the indicator of the IR spread in Serbia worsened during 2010 to 106th place (it was 90th in 2009, according to the *World Economic Forum*, 2010). If we analyse the IR spread components, we can notice that there is room for decreasing lending IR in the area of:

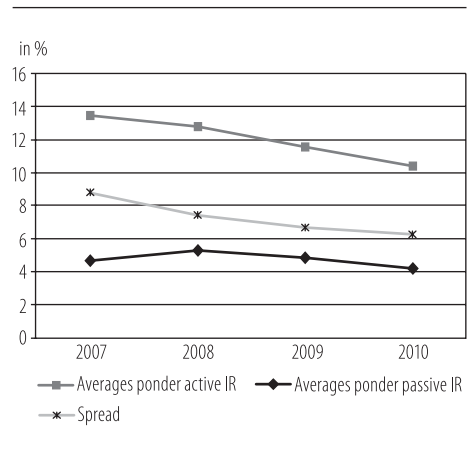
1. Country risk and funding spread (Table 6 and Figure 2)
2. Improvement of efficiency within a bank (Table 4).

Figure 1: Relation of average lending IR in the Serbian banking sector and break-even in the case of 3-month borrowing euros from Austria in December 2010 (in %)



Source: Bloomberg and Reuters websites

Figure 2: Fluctuations of IR in the Serbian banking sector in the period from 2007 to 2010 (in %)



Source: NBS (2010), NBS (2010a), UBS (2008)

Table 6: Components of lending IR of Serbian banking sector in period of 2007 to 2010 (in %)

Components of lending IR	2007	2008	2009	2010
IR spread	8,800	7,500	6,700	6,300
Base part – 3-month EURIBOR	4,684	2,928	0,700	1,010
Country risk	2,300	2,520	3,200	2,940
Others: <i>Funding spread</i> + WHT + MR + SRC + profit margin	1,816	2,052	2,800	2,350

Source: NBS (2010), NBS (2010a), UBS (2008), web sites of Bloomberg and Reuters

If we analyse the level of IR spread of the Serbian banking sector, we can notice a decreasing trend. It can be explained by the fact that Serbian banks increased exposure to the Serbian government (Table 3), which had an impact on a decrease in the lending IR but it did not improve the competitiveness of Serbia. Also, we should emphasize that the increasing level of the public debt means an increase in consumption, i.e. leaving of debts to the future generation.

If we analyse the country risk, we can conclude that for developing countries such as Serbia, credit rating plays an important role due to the fact that financial market is not developed and there is no discipline of market participants. Good rating assigned by a credit rating agency has an impact on attraction of foreign direct investments. It is important for banks which perform business in particular country, because it has impact on the pricing of borrowed funds from abroad. Also, this has impact on the overall creditworthiness of a customer through SRC (Jelenkovic and Barjaktarovic, 2010).

Foreign banks entered the Serbian market due to the high risk and high margins, but the current level of banks' revenues is lower per granted loan.

4. Results of empirical research

In order to get statistic relation (connection) between the IR and relevant indicators (components) of IR, such as ROE, ROA, country risk, deposits, credits, balance sum and financial result, we applied the Pearson correlation. Available data is presented in Tables 1, 4 and 6.

SPPS software calculated the Pearson correlation. Results are presented in Table 7 (period 2008/2010) and Table 8 (period 2007/2010).

The IR is strong determined with ROA. Having in mind components of the IR, it means that the profit margin per credit (part of the bank's assets) is the most important for the IR value, in addition to the volume and pricing of deposits. Deposits are the cheapest source of bank financing, so banks should pay the minimum (deposit) IR to their customers.

Also, the Pearson correlation shows that deposits and balance sum have a very strong relation, which is in accordance with the bank's basic activity (collecting deposits and granting loans to customers, where the lending IR is higher than the deposit IR).

Table 7: Correlations IR, ROE, ROA, Country risk

		IR	ROE	ROA	Country Risk
IR	Pearson Correlation	1	.700	.768	-.612
	Sig. (1-tailed)		.253	.221	.290
	N	3	3	3	3
ROE	Pearson Correlation	.700	1	.995	-.993
	Sig. (1-tailed)	.253		.032	.037
	N	3	3	3	3
ROA	Pearson Correlation	.768	.995	1	-.977
	Sig. (1-tailed)	.221	.032		.069
	N	3	3	3	3
Country Risk	Pearson Correlation	-.612	-.993	-.977	1
	Sig. (1-tailed)	.290	.037	.069	
	N	3	3	3	3

Table 8: Correlations Deposits, Financial results, Balance sum, Credits

		Deposits	Financial Results	Balance Sum	Credits
Deposits	Pearson Correlation	1	-.829	.903	.684
	Sig. (1-tailed)		.086	.049	.158
	N	4	4	4	4
Financial Results	Pearson Correlation	-.829	1	-.863	-.763
	Sig. (1-tailed)	.086		.069	.119
	N	4	4	4	4
Balance Sum	Pearson Correlation	.903	-.863	1	.931
	Sig. (1-tailed)	.049	.069		.034
	N	4	4	4	4
Credits	Pearson Correlation	.684	-.763	.931	1
	Sig. (1-tailed)	.158	.119	.034	
	N	4	4	4	4

Empirical research confirmed both hypotheses:

- There is room for decreasing the lending IR in the Serbian banking market.
- Country risk is crucial for decreasing the lending IR level in the Serbian banking market.

5. Conclusion

We can conclude that the level of lending and deposit IR in the Serbian banking sector are on the high level, i.e. the indicator of IR spread is on the low competitiveness level. Furthermore, the indicator of Serbian credit rating is on the low level of competitiveness. If we analyse the level of IR spread we can notice the decreasing trend. It can be explained with the fact that Serbian banks increased exposure to the Serbian state, which has an impact on decrease of lending IR but it has no impact on improvement of the Serbian competitiveness. It is important to say that an increase of the state's debt means an increase of consumption, which means that the future generations will have commitment to repay debts.

Moreover, it is important to notice that a further decrease of IR in the Serbian banking sector is determined by improvement of the Serbian credit rating. Good country ranking by independent credit agencies has impact on attraction of foreign direct investments. It is important for banks which perform business in a particular country, because it has impact on availability and pricing of foreign funds.

The general decrease of IR is determined by the stability of economy, low level of inflation, trade balance and low level of MR. It means that the stability of economy is dependent on political environment and their willingness to change current situation. The question is: Do the current political parties have wish and willingness to improve the situation in the country?

So, quantitative indicators can be improved: 1) macroeconomic indicators of the country can be controlled by a responsible monetary and fiscal policy, 2) a higher level of efficiency within banks i.e. companies (as Pearson correlation proved it).

Finally, we confirmed both hypotheses:

- There is room for decreasing the lending IR in the Serbian banking market.
- Country risk is crucial for decreasing the lending IR in the Serbian banking market.

Practically, this means that there is room for decreasing the lending IR in the area of country risk and funding spread.

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