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Market Power and Bank Profitability: Evidence from Montenegro and Serbia

Abstract: This study investigates the relationship between profitability and market power in the banking sector using data from the financial reports of the banks that operated in Serbia and Montenegro, covering the period from the first quarter of 2010 to the last quarter of 2019. In order to investigate this relationship, determinants of bank profitability are split between internal and external. As the external determinants, selected ratios of concentration were calculated and used in order to measure market power. The total of sixteen panel regression models were applied, eight for each country. The results indicate that variations of return on assets and return on equity in Serbia can be explained by the variations of the ratios of concentration. On the other hand, results of the panel regression model applied for the banking sector of Montenegro does not give enough argument to support such explanation, and bank profitability can be explained by bank efficiency to some extent.

Keywords: banking sector, bank profitability, market power, competition.

JEL Code: G21, E58, L10

Introduction

When analyzing bank profitability and market power, the most common hypotheses in studies are the SCP hypothesis (Bain, 1951), market power hypothesis, and efficient-structure hypothesis (Demsetz, 1973). Market power hypothesis ar-

gues that collusion among firms with market power results in higher pricing and profitability. The SCP hypothesis posits that the structure of a market influences firms pricing conduct and ultimately performance (Alhassan, Tetteh & Brobbey, 2016). Efficient-structure hypothesis predicts that efficient firms come out ahead in competition and grow as a result (Homma, Tsutsui & Uchida, 2014).

In order to measure market power, two common approaches are usually used: the structural approach, also known as the empirical industrial organization model, and the nonstructural approaches known as the new empirical industrial organization models. The structural approach refers to including structural measures of concentration as independent variables in models which are analyzing bank profitability function. Considering that, selected measures of concentration are used to measure market power. Market power is usually measured as a market share, using the market share of the leading bank known as a ratio of concentration (CR1) and cumulative market share or three or four banks that have the highest market share in the market (CR3 or CR4). Considering market share in the banking sector, the authors usually use the value of total balance sheet assets or the value of total loans. Using these ratios and including them in regression models is the first step in analyzing the relationship between bank profitability and market power.

Literature review

Determinants of bank profitability are usually split between internal and external. In most of the papers external determinants of profitability are usually split between industry-specific and macroeconomic variables. Speaking about industry-specific determinants, besides ownership, the authors use different measures of concentration to analyze relationship between profitability and level of concentration in the banking sector. Speaking about measures of concentration, the influence of market power measured by the ratio of concentration of leading bank or group of leading banks is also analyzed due to profitability.

Short (1979) was one of the first authors to test the relationship between the profit rates of 60 banks in Canada, Western Europe and Japan, as well as the market share of each of them. As a measure of market concentration CR1, CR3 and CR5 were included in the model. The results of this research support the hypothesis that higher market concentration leads to higher profit rates.

Demsetz (1973, 1974), Peltzman (1977) and McGee (1974) argue that concentration is not an accidental event, but the result of the superior efficiency of leading

companies. Companies that have a comparative advantage in production become large and thus gain a higher market share and, as a consequence, the market becomes more concentrated. This view, which the authors have defined as the efficient structure hypothesis, implies that market share implies greater efficiency of the company and therefore efficiency is in a positive correlation with profitability.

Kasman, Kasman, and Turgutlu (2011) in their work give a comparative analysis between developed and developing countries through a study of the relationship between profits and structures in the banking sector in the period 1995 - 2006. The results indicate that testing the efficient structure hypothesis is crucial to explain the relationship between profit and structure in the European banking market. When efficiency measures are included as control variables, the market share and concentration ratio are below the significance level in all regression models. The results confirm the efficient structure hypothesis as opposed to the relative market power hypothesis and the SCP hypothesis.

In his paper, Sufian (2011) analyzed the profitability of the banking sector in Korea by applying a panel regression model that includes both variables specific to the banking sector and macroeconomic indicators in the period 1992-2003. The sample includes a total of 251 banks, the dependent variables are return on assets and return on equity, while the independent variables are divided into two groups - internal and external. In the group of external factors, as a measure of concentration, he used the concentration ratio of the first three banks with the largest market share based on total balance sheet assets - CR3. The results indicate that the concentration of the banking market has a positive and significant impact on the profitability of banks.

In a sample of a total of 23 banks in the Turkish banking sector, the authors Çelik i Kaplan (2016) tested the SCP paradigm by applying a regression model of the panel data of the Turkish banking sector in the period 2008-2013. Return on assets was used as the dependent variable, while CR5 - concentration ratio of the top five largest banks and the market share of each bank measured by total balance sheet assets was included in the group of independent variables. The results presented in the paper indicate that the variable that measures efficiency is the most significant determinant of bank profitability, but also that the concentration measure (CR5) is a significant factor in profitability.

Bucevska and Hadzi Misheva (2017) test the SCP hypothesis and the efficient structure hypothesis. The aim of their work is to analyze the significance of the structure-conduct-performance hypothesis versus the efficient structure hypothesis in explaining the performance of banks. Their sample includes 127 com-

mercial banks from six Balkan countries (Slovenia, Croatia, Serbia, Bosnia and Herzegovina, Montenegro, and Macedonia) during the period 2005-2009. In addition to control variables grouped within macroeconomic variables, sector-specific variables and bank-specific variables use the Herfindal-Hirschman index and the market share of individual banks measured by total balance sheet assets. In conclusion, they state that empirical results indicate that efficiency is one of the main determinants of bank profitability, but not the only one. The profitability of banks is determined by a combination of variables that are specific to banks and the sector. In addition, the effects of concentration and market share are not significant, i.e. they cannot be considered as determinants of profitability.

Shijaku (2017) studies the impact of bank concentration on the likelihood of a country suffering systemic bank fragility. The sample included the panel data with quarterly frequency for individual bank balance sheet and income statement items of 16 banks operating in Albania and some macroeconomic indicators for the period 2008Q04 – 2015Q03. That included a total panel balanced observations with 448 observations and 28 periods. First, results provide supportive evidence consistent with the concentration-fragility view. Second, macroeconomic variables seem to have a significant effect on bank stability, which is not found for the sovereignty primary risk. By contrast, the bank-specific variables have also a significant effect on bank stability conditions.

Arif & Awwaliyah (2019) analyze the influence of market structure on profitability of the Islamic banking industry in Indonesia. They used panel regression with a random effect model. The result shows that market structure - proxies by market share (MS) and concentration ratio (CR4) does not affect profitability of the Indonesian Islamic banking industry. This result implies that the performance of the Islamic banking industry in Indonesia is not supported by the traditional hypothesis and the efficient structures hypothesis.

Kamarudin, Sufian, Nassir, Anwar, and Hussain (2019) investigate the potential internal (bank specific) and external (macroeconomic) determinants that influence the revenue efficiency of Malaysian domestic Islamic banks. The data cover domestic and foreign Islamic banks operating in the Malaysian Islamic banking sector during the period of 2006 – 2015. The results indicate that the level of revenue efficiency of the Malaysian domestic Islamic banks is lower compared to their foreign Islamic bank counterparts. They found out that bank market power, liquidity, and management quality significantly influence the improvement in revenue efficiency of the Malaysian domestic Islamic banks during the period under study.

On the panel data in the period 1996 - 2017, which include banks from Austria, the Czech Republic, Germany, Hungary, Luxembourg, the Netherlands, Poland, Slovakia and Switzerland, the profitability of banks is explained by the function of 13 different variables (Uralov, 2020). In addition to the non-structural measure of concentration - Lerner's index, a structural measure of concentration is included in the model – CR3, concentration ratio of the three largest banks based on total balance sheet assets, while the dependent variables are ROA and ROE. Based on the obtained results, the author concludes that there is a significant impact of concentration ratio on return on equity (ROE).

Le and Ngo (2020) investigates the determinants of bank profitability in 23 countries from 2002 to 2016 using the system generalized method of moments. The findings show the negative impact of market power on bank profitability, implying that competition improves bank profitability. Further, the positive relationship between capital market development and bank profitability suggests that they should be considered as complementary to one another.

The Model and data

In accordance with the aim of the paper, the empirical research is based on the evaluation of the panel regression models. The sample includes all banks that operated in the period 2010 – 2019, on quarterly basis, on the territories of the Republic of Serbia and Montenegro, which makes a total of 40 quarters. The sample of the banking sector of the Republic of Serbia includes a total number of 36 banks that operated in the observed period, while the sample of Montenegro covers 15 banks. A representative set of data is formed using the official financial statements published by the National Bank of Serbia and the Central Bank of Montenegro, i.e. quarterly balance sheets and income statements. Due to the fact that the number of observations in the panel differs from one bank to another, these are unbalanced panel data.

The general model to be estimated is of the following linear form (Athanasoglou, Brissimis & Delis, 2008):

$$\pi_{it} = c + \sum_{k=1}^{K} \beta_x X_{it}^k + \varepsilon_{it}, \qquad (1.1)$$
$$\varepsilon_{it} = v_i + u_{it},$$

where π is the profitability of bank i at time t, (i=1,...,N; t=1,...,T), c is a constant term, X_{it} are K explanatory variables and ε_{it} is the disturbance with v_i the unobserved bank-specific effect and u_{it} idiosyncratic error.

The explanatory variables X_{it} are grouped into bank-specific, industry-specific and macroeconomic variables. The general model (1.1), with the explanatory X_{it} separated into these three groups, econometrically is specified as follows:

$$\pi_{it} = c + \sum_{j=1}^{J} \beta_j X_{it}^{j} + \sum_{l=1}^{L} \beta_l X_{it}^{l} + \sum_{m=1}^{M} \beta_m X_{it}^{m} + \varepsilon_{it} \quad (1.2)$$

where the $X_{it}s$ with superscripts *j, l* and *m*, denote bank-specific, industry-specific and macroeconomic determinants respectively.

The general linear regression model that is used in this paper is specified as follows:

$$\pi_{it} = c + \sum_{j=1}^{J} \beta_j X_{it}^{j} + \sum_{l=1}^{L} \beta_l X_{t}^{l} + \beta_{gpd} X_{t}^{gdp} + \varepsilon_{it} \quad (1.3)$$

where π is the profitability of bank i at time t, (i=1,...,N; t=1,...,T), c is a constant term, X_{it} are explanatory variables, j and l - bank-specific and industry-specific variables, respectively, while *gdp* represents a control macroeconomic variable, and ε_{it} is a random error that includes the effects of all other variables that are not directly included in the model, including individual effects.

As dependent variables *roa* and *roe* were used, by comparing net profit and assets, i.e. net profit and the amount of total equity. According to the discussion above, the independent variables are divided into three groups: macroeconomic variables, bank-specific variables, and industry-specific variables.

Within the group of bank-specific variables, the following variables are included in the model: capital, credit risk, operating cost management and size. The variable related to capital with the notation *cap_ass* was obtained by comparing the amounts of capital and assets and a positive impact of this variable on the dependent variables is expected. The increase in net profit results indicates an increase in total capital and is based on the assumption of a positive correlation between leverage and bank profitability.

The next variable within this group is credit risk with the notation *cr_risk*, which is obtained by comparing the position of interest expenses and the total amount of loans where a negative impact is expected. Loans are the riskiest part of bank assets, their quality is one of the most important determinants of business stability and success (Žunić, Kozarić, and Dželihodžić, 2021). It is believed that greater exposure to credit risk may adversely affect the bank's operations, resulting in reduced profitability. As a measure of the bank's efficiency, the variable *op_exp* was used, which was obtained by comparing the cost of earnings and assets. Poor management of these costs results in the value of the stated ratio being higher, i.e.

a lower level of bank efficiency, which is expected to have a negative impact of this variable on the dependent profitability measures.

Given that the effect of bank *size* growth has to some extent proved positive on the bank's profitability, the model includes the logarithmic function of total assets - *size* where a positive impact is expected. It is argued that the worldwide credit crunch continued for an extended period leading to low/negative growth, raised unemployment, business & consumer confidence fell, companies were not able to borrow the funds required for investments. This highlighted the challenges and discrepancies in the banking system (Kolluru, Hyams-Ssekasi, and Rao, 2021). When it comes to macroeconomic variables, only one variable is included in the model - *gdp_growth* where a positive correlation is expected between the specified variable and the dependent *roa* and *roe*.

Industry-specific variables are variables that measure the market power of certain market-leading banks. A large number of authors have used concentration ratios to examine the relationship between profitability and market structure (Demirgüç-Kunt, Laeven & Levine, 2003; Staikouras & Wood, 2004; Rinkevičiūtė & Martinkute-Kauliene, 2014; Antoun, Coskun & Georgiezski, 2018).

Table 1: Regression models and key explanatory variables

Model	Key explanatory variables
$roa_{it} = c + \sum_{j=1}^{J} \beta_j X_{it}^j + \beta_{cr1} X_t^{cr1} + \beta_{gpd} X_t^{gdp} + \varepsilon_{it}$	*cr1a* *cr1l*
$roa_{it} = c + \sum_{j=1}^{J} \beta_j X_{it}^j + \beta_{cr4} X_t^{cr4} + \beta_{gpd} X_t^{gdp} + \varepsilon_{it}$	*cr4a* *cr4l*
$roe_{it} = c + \sum_{j=1}^{J} \beta_j X_{it}^j + \beta_{cr1} X_t^{cr1} + \beta_{gpd} X_t^{gdp} + \varepsilon_{it}$	*cr1a* *cr1l*
$roe_{it} = c + \sum_{j=1}^{J} \beta_j X_{it}^j + \beta_{cr4} X_t^{cr4} + \beta_{gpd} X_t^{gdp} + \varepsilon_{it}$	*cr4a* *cr4l*

Source: Authors

In regression models, selected concentration ratios were used as key independent variables to examine the relationship between market power and profitability in the banking sector. In accordance with the above, *cr1* and *cr4* were used, which were calculated on the basis of assets (notation a) and the total amount of approved loans (notation c). Key independent variables were simultaneously included in the models, examining the impact on *roa* and *roe*. Thus, the research is based on the econometric evaluation of 8 panel regression models for each of

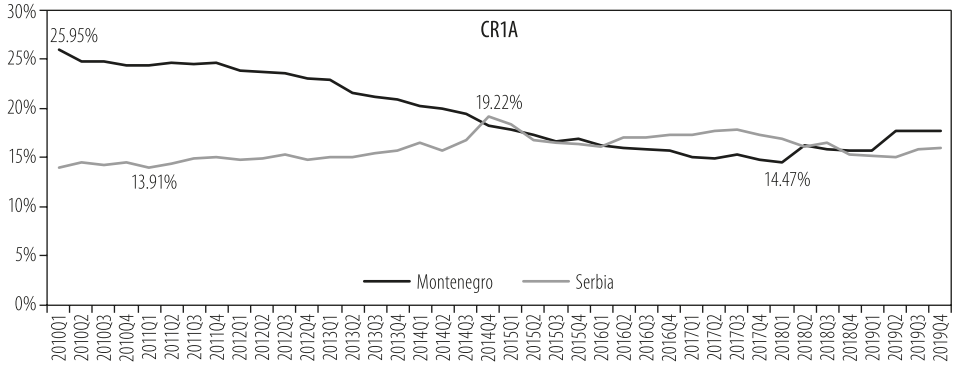
the countries whose banks are included in the sample. Regression models and key explanatory variables are presented in Table 1. The values of key independent variables are graphically presented in the figures further below.

Hausman test is used to decide which estimation technique is more appropriate between the fixed effects model and the random effects model. The results of the Hausman test suggest that models *roe1, roe2, roe3,* and *roe4* for the Montenegro are more appropriate with the random effects model because the chi square is not significant at 5% levels and the other models are more suitable with the fixed effects model as it is significant at 1% for the chi square.

Results and discussion

Figure 1 shows a comparative analysis of the CR1 ratio calculated on the basis of total balance sheet assets for the banking sectors of Serbia and Montenegro in the observed time period. It is noticeable that the CR1 ratio in the case of Montenegro has a downward trend since the beginning of the observed period. The highest value of this ratio was in the first quarter of 2010. This indicates that the bank that was the market leader - CKB bank AD Podgorica had a market share of about a quarter of the total market - almost 26%.

Figure 1: Comparative analysis of CR1 ratio based on total balance sheet assets, 2006Q1-2019Q4



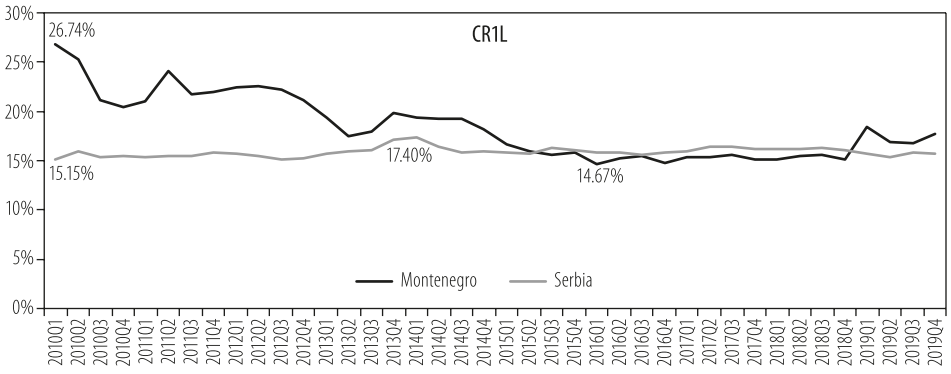
Source: Author's calculations based on data from the Central Bank of Montenegro (https://www.cbcg.me/) and the National Bank of Serbia (http://www.nbs.rs)

Having in mind the number of banks that operated in that quarter, i.e. 11 banks in total, it can be concluded that the remaining 10 banks shared 75% of the mar-

ket, measured in total balance sheet assets. The lowest value of this ratio was 14.47% in the first quarter of 2018 when there were 15 banks in the market, from which it can be concluded that there was a change in dispersion of market shares in the observed period. In the banking sector of the Republic of Serbia, there was a slight increase in this ratio in the observed period, but the market leader did not change - Banca Intesa AD Belgrade. The lowest value of this ratio was in the first quarter of 2011 - 13.91% when a total of 33 banks were operating. The highest value of concentration ratio in the observed period was 19.22% in the fourth quarter of 2014 when there were 29 banks in the market.

Figure 2 shows a comparative analysis of the CR1 ratio calculated on the basis of the total amount of approved loans for the banking sector of Serbia and Montenegro in the observed time period. The highest and lowest values of CR1L ratios differ slightly in the banking sector of Montenegro - the highest value was also in the first quarter of 2010 followed by a downward trend. The range of the concentration ratio was 14.67% - 26.47%, and the lowest value was in the first quarter of 2016 when a total number of 14 banks operated. As in the case of total balance sheet assets, in the case of total loans, CKB bank AD Podgorica was the market leader during the entire observed period. The range in which the stated ratio in the case of the Serbian banking sector was based on - the total amount of approved loans - is lower in relation to the total amount of balance sheet assets, i.e. 15% - 17% compared to 14% - 19%. The lowest value of the ratio was recorded in the first quarter of the observed period, while the highest value of the ratio was in the first quarter of 2014 - 17.40% when there were a total of 29 banks, and it can be concluded that 28 banks accounted for some 82% of the market.

Figure 2: Comparative analysis of CR1 ratio based on the total loans, 2006Q1-2019Q4

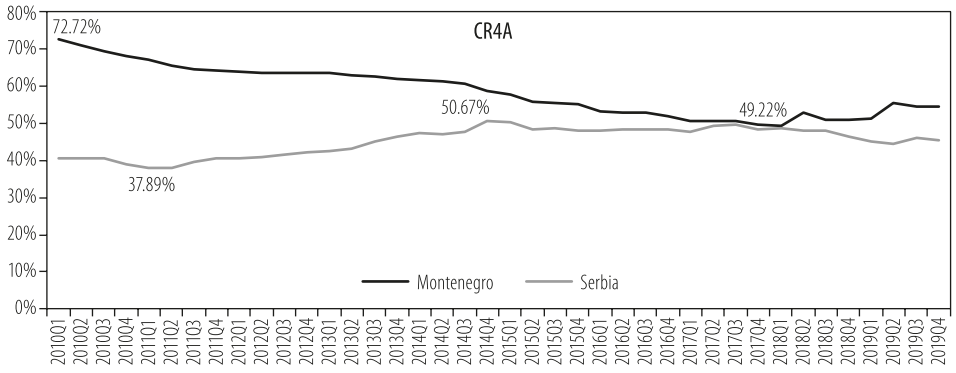


Source: Author's calculations based on data from the Central Bank of Montenegro (https://www.cbcg.me/) and the National Bank of Serbia (http://www.nbs.rs)

Figure 3 shows a comparative analysis of CR4 ratio based on the total balance sheet assets of the banking sectors of Serbia and Montenegro. The value of the ratio CR4 of the banking sector of Montenegro ranged from 49.2% to 72.7%, with a downward trend recorded in the observed period. If the value of the cumulative market share of the first four banks is higher than 40%, it can be concluded that such a market is characterized by an oligopoly market structure (Lončar & Rajić, 2012). In the period 2016Q2-2018Q4, a total of 15 banks operated in the banking market of Montenegro, after which this number declined first to 14 in 2019Q1, and then to 13 in the last three quarters of 2019. It can be concluded that with the change in the number of banks, there was a change in the dispersion of market shares and thus a slight increase in CR4 ratio in the last year of the observed period, which is noticeable in Figure 4.

The banking sector of the Republic of Serbia is characterized by a slight growth of CR4 ratio and it ranged from 38% to 51%, which is far less compared to the range of the same ratio in Montenegro. It is important to note that there was a decline in the number of banks operating in the banking market in the Republic of Serbia in the observed period, so in the first quarter of 2011 when the CR4 ratio was at its lowest – 37.89%, there were a total of 33 banks, while in the fourth quarter of 2014 when it was at its highest – 50.67%, we had 29 banks. Bearing in mind that the number of banks and the value of the ratio have not changed in the last three quarters (26, and 45%, respectively), it can be concluded that the remaining 22 banks accounted for some 55% of the market in the banking sector of Serbia.

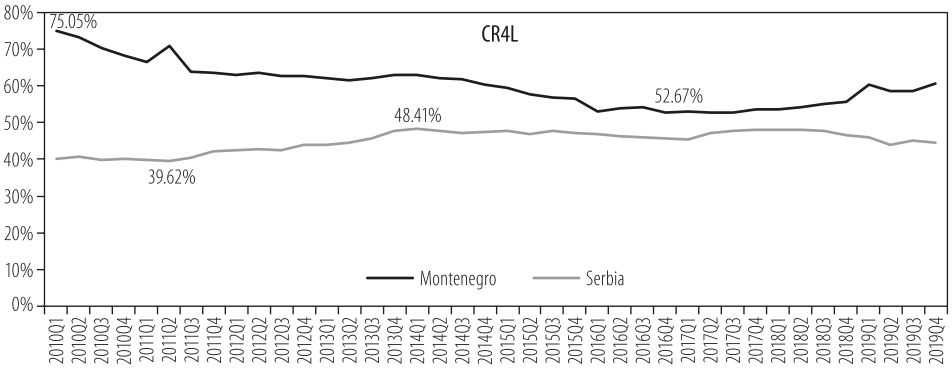
Figure 3: Comparative analysis of CR4 ratio based on total balance sheet assets, 2006Q1-2019Q4



Source: Author's calculations based on data from the Central Bank of Montenegro (https://www.cbcg.me/) and the National Bank of Serbia (http://www.nbs.rs)

Figure 4 shows a comparative analysis of the CR4 ratio based on the total amount of approved loans in the banking sectors of Serbia and Montenegro at the quarterly level over the 2010 – 2019 period. In relation to the total amount of assets, the CR4 ratio of the banking sector of Montenegro has a higher value of 75% compared to 72% in the first quarter of 2010 when it was the highest value of the ratio. This was followed by a downward trend to 52.67% in the fourth quarter of 2016 when this ratio has the lowest value and when it operated a total of 15 banks. The cumulative value of the shares of the first four banks in the Serbian banking sector ranged from 39.6% to 48.4%. The lowest value was in the second quarter of 2011 while the highest value was recorded in the first quarter of 2014 when there were 29 banks, from which it can be concluded that the remaining 25 banks shared about 50% of the market measured by the total amount of approved loans.

Figure 4: Comparative analysis of CR4 ratio based on the total loans, 2006Q1-2019Q4



Source: Author's calculations based on data from the Central Bank of Montenegro (https://www.cbcg.me/) and the National Bank of Serbia (http://www.nbs.rs)

Table 2 shows the estimated effects of market power indicators on *roa* and *roe* of the banking sector of Montenegro. Of a total of eight regression models, only CR1 measured by total balance sheet assets was statistically significant at the level of 10%. Other indicators, CR1 and CR4, were not statistically significant in any of the remaining 7 regression models.

The impact of these indicators together with other explanatory variables are shown in the Appendix - Table 1.1. In regression models in which the return on the asset was used as a dependent variable, the variable measuring efficiency is statistically significant at the level of 1%, while the variable related to size has a statistically significant positive effect at the level of 10%.

Given that the coefficient of determination in these models is 0.15, it can be concluded that 15% of the variability in return on assets is explained by variability of the independent variables included in the model. Taking into account the statistical significance of the efficiency measure, it can be concluded that the high profit of banks is the result of efficiency of the banks and not their market power.

Table 2: Estimated effects of market power indicators on the profitability of the Montenegro banking sector

	roa1	roa2	roa3	roa4	roe1	roe2	roe3	roe4
cr1a	-0.0306 (0.0766)				-5.7727* -31.910			
cr4a		-0.0216 (0.0477)				-35.458 -20.533		
cr1l			-0.0320 (0.0708)				-56.148 -41.349	
cr4l				-0.0241 (0.0417)				-24.405 -20.654

Source: Authors

In regression models in which the return on capital is used as a dependent variable, the variable measuring efficiency is not statistically significant but the coefficient of determination is very low, and there are not enough arguments to draw certain conclusions that are statistically significant. Also, in addition to the above variables that are statistically significant, other independent variables included in the model do not have a significant impact on the profitability of the banking sector of Montenegro.

Table 3 shows the estimated effects of market power indicators on *roa* and *roe* of the banking sector of the Republic of Serbia. The impact of these indicators together with other explanatory variables are shown in the Appendix - Table 1.2. Unlike the banking sector of Montenegro, the results of regression models indicate that variations in profitability of the banking sector of the Republic of Serbia can be explained by systematic and robust variations in concentration indicators. Of a total of eight models, only the *cr1* concentration indicator measured by total balance sheet assets is not statistically significant. The concentration ratios of *cr1a*, *cr1l* and *cr4l* are statistically significant at the levels of 5% and 1%. The impact of these indicators is negative, leading to the conclusion that the growth of market power in the banking sector of Serbia affected the decline in profitability of the banking sector in the observed period.

Table 3: Estimated effects of market power indicators on profitability of the Serbian banking sector

	roa1	roa2	roa3	roa4	roe1	roe2	roe3	roe4
cr1a	-0.1607 (0.1200)				-0.3895 (0.3504)			
cr4a		-0.1000*** (0.0329)				-0.2875** (0.1216)		
cr1l			-0.7960** (0.3634)				-3.3825** -13.393	
cr4l				-0.1446*** (0.0488)				-0.4699** (0.1960)

Source: Authors

The variable *cr_risk* is statistically significant in all regression models, where the negative causality between credit risk and profitability of the banking sector is confirmed. In addition, the variable *op_exp* which measures the efficiency of banks is statistically significant at the levels of 5% and 10%. The significance of this variable leads to contradictory conclusions although the level of significance is statistically lower compared to the indicators of market power. In the first four models, the coefficient of determination is 0.61, while in regression models where the roe was used as a dependent variable coefficient of determination is 0.39. In regression models where roe was used as the dependent variable, the *capp_ass* variable has a statistically significant positive effect.

Conclusion

The aim of this paper was to analyze the influence of the market power on bank profitability known as the market power hypothesis using bank data from Serbia`s and Montenegro`s banking sectors. Panel regression models were applied in order to test the market power hypothesis. First of all, it can be concluded that there were significant changes in both banking sectors considering number of the banks, market shares and dispersion of market shares in the observed period. Common characteristic is that both banking sectors had one leader during the entire period. In Montenegro, the market share of the leading bank significantly decreased, whereas the market share of the leading bank in Serbia slightly increased. The same changes were noted with the quarter values of CR4 which indicates that dispersion of the market shares has changed in both banking sectors.

In order to test the market power hypothesis, a total of eight panel regression models were applied for each country, and when examining internal determinants of profitability, the variable which refers to efficiency was also included to test the efficient-structure hypothesis. In case of Montenegro`s banking sector, there were not enough arguments to confirm the influence of market power on profitability. Also, in four of eight models, only the variable that refers to operating cost management was significant so higher wages had negative impact on profitability implying that the variations in profitability can be explained by the variations in operating cost management. Although this variable refers to efficiency, it can be concluded that profit of banks is the result of the efficiency of banks to some extent, thus confirming the efficient-structure hypothesis. The recommendation for future research is to expand data set when analyzing determinants of bank profitability because the number of the observations (banks) is small. The authors believe that the results in that case would be more consistent.

In the case of the banking sector in Serbia, the coefficient of determination was much higher compared to Montenegro, especially when applying the fixed effects model. As long as most of the ratio coefficients were statistically significant at the levels of 1% and 5% it can be concluded that market power has a negative impact on profitability of banks in Serbia. Also, credit risk has a strong negative impact on profitability. Considering the impact of the independent internal variable that refers to efficiency, the variations of profitability can be explained by the variations of efficiency of banks, so profit of banks is the result of their efficiency to some extent because this variable is statistically significant at the level below ratios of concentration.

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Appendix

Table 1.1: Influence of market power indicators on profitability of the banking sector of Montenegro

Montenegro	roa1	roa2	roa3	roa4	roe1	roe2	roe3	roe4
cr1a	-0.0306				-5.7727*			
	(0.0766)				-31.910			
cr4a		-0.0216				-35.458		
		(0.0477)				-20.533		
cr1l			-0.0320				-56.148	
			(0.0708)				-41.349	
cr4l				-0.0241				-24.405
				(0.0417)				-20.654
cap_ass	0.0429	0.0432	0.0428	0.0430	-0.0089	0.0625	-0.0088	0.0658
	(0.0437)	(0.0438)	(0.0435)	(0.0440)	-10.076	-10.019	(0.9965)	-10.484
cr_risk	-0.0096	-0.0096	-0.0103	-0.0101	-0.0097	-0.0356	-0.1541	-0.1901
	(0.0342)	(0.0340)	(0.0344)	(0.0340)	(0.2983)	(0.2913)	(0.3084)	(0.3460)
op_exp	-0.5422***	-0.5470***	-0.5541***	-0.5503***	-38.407	-47.389	-59.954	-50.597
	(0.1790)	(0.1795)	(0.1818)	(0.1796)	-71.551	-70.284	-66.484	-69.142
size	0.0113*	0.0110	0.0115*	0.0113*	-0.1862	-0.2184	-0.1573	-0.1242
	(0.0063)	(0.0066)	(0.0059)	(0.0058)	(0.2052)	(0.2106)	(0.1733)	(0.1712)
gdp_growth	-0.0000	-0.0001	-0.0000	-0.0000	-0.0154	-0.0147	-0.0103	-0.0039
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0250)	(0.0257)	(0.0255)	(0.0234)
_cons	-0.1346	-0.1240	-0.1358	-0.1248	34.631	48.035	30.330	30.120
	(0.0918)	(0.1068)	(0.0854)	(0.0914)	-29.103	-33.608	-23.575	-23.985
R-Squared	0.15	0.15	0.15	0.15	0.03	0.04	0.03	0.02

Source: Authors

Table 1.2: Influence of market power indicators on the profitability of the banking sector of Serbia

Serbia	roa1	roa2	roa3	roa4	roe1	roe2	roe3	roe4
cr1a	-0.1607				-0.3895			
	(0.1200)				(0.3504)			
cr4a		-0.1000***				-0.2875**		
		(0.0329)				(0.1216)		
cr1l			-0.7960**				-3.3825**	
			(0.3634)				-13.393	
cr4l				-0.1446***				-0.4699**
				(0.0488)				(0.1960)
cap_ass	0.0062	0.0077	0.0064	0.0085	0.2787**	0.2836**	0.2819**	0.2873**
	(0.0295)	(0.0295)	(0.0305)	(0.0299)	(0.1135)	(0.1169)	(0.1151)	(0.1193)
cr_risk	-0.8964***	-0.8972***	-0.8941***	-0.8968***	-1.4130**	-1.4148**	-1.4016**	-1.4135**
	(0.2223)	(0.2213)	(0.2211)	(0.2211)	(0.5362)	(0.5360)	(0.5260)	(0.5333)
op_exp	-0.9897*	-0.9881*	-0.9883*	-0.9862*	-4.3408**	-4.3344**	-4.3278**	-4.3261**
	(0.5818)	(0.5777)	(0.5792)	(0.5763)	-17.640	-17.529	-17.526	-17.474
size	0.0032	0.0036	0.0026	0.0039	0.0545***	0.0558***	0.0526***	0.0573***
	(0.0043)	(0.0043)	(0.0042)	(0.0043)	(0.0172)	(0.0172)	(0.0171)	(0.0172)
gdp_growth	-0.0036**	-0.0033*	-0.0032**	-0.0032**	-0.0087	-0.0077	-0.0071	-0.0075
	(0.0016)	(0.0016)	(0.0015)	(0.0015)	(0.0058)	(0.0056)	(0.0055)	(0.0055)
_cons	0.0116	0.0228	0.1223	0.0362	-0.8458**	-0.8055**	-0.3428	-0.7511**
	(0.0796)	(0.0775)	(0.0930)	(0.0771)	(0.3227)	(0.3180)	(0.3824)	(0.3236)
R-Squared	0.61	0.61	0.61	0.61	0.38	0.39	0.39	0.39

Source: Authors