

The Determinants of Profitability of Western Balkan Countries Commercial Banks: A panel Data Approach

Received: 23.02.2023

Available online: 30.06.2024

Vlora Prenaj^{*}, Iliriana Miftari^{}, Sokol Berisha^{***}**

Abstract

Commercial banks are considered to be important contributors to the country's financial system and economic development. The aim of this study was to examine the impact of various factors on commercial banks' profitability. Moreover, the study compares and analyzes the main determinants of the banks' profitability in Western Balkan (WB) countries. The sample size includes all commercial banks in WB countries, covering the period 2010–2020. The collected data provides information about the two main measurements used to determine a bank's performance: 1) return on assets (ROA) and 2) return on equity (ROE), which in our study were used as indicators varying from non-performing loans, the number of banks, real gross domestic product growth, the unemployment rate, and consumer price inflation (percent, period average). The estimated regression models with panel data revealed that real GDP growth, the unemployment rate, and inflation

are positively correlated and significantly determine the bank's performance. While two other factors (non-performing loans and the number of banks) were negatively associated with the performance of banks.

Since the determining factors of external and internal profitability turn out to be almost the same for all the countries of the Western Balkans, during the observed period of 2010–2020, the number of cases of non-performing loans was much higher in other countries of the region than in Kosovo. Once again, the banking system in Kosovo, unlike other countries, has scored ROE performance indicators that are almost three times higher than the average of the countries in the region. On the other hand, Kosovo has the highest unemployment rate in the region. While the weakest ROE performance was in Montenegro, which was improving year after year. Our findings have several important implications for policymakers and regulators, especially in Kosovo.

Keywords: banking system, performance, economic development, Western Balkan

JEL: G20, G21, L25

^{*} Department of Banking and Finance, Faculty of Economics, University of Prishtina, Kosovo.

^{**} Department of Agriculture Economics, Faculty of Agriculture and Veterinary, University of Prishtina, Kosovo.

^{***} Faculty of Economics, University "St' Clement", Prilep, Republic of North Macedonia (Correspondent Author).

1. Introduction

Commercial banks are crucial to the financial system, which has an impact on how a nation's economy develops. Ratio analysis of financial statements is a highly helpful tool for assessing a commercial bank's current operations and position in comparison to its competitors. Bank performance shows the success and efficacy of its activities. Bank indicators provide an overview of their business operations, and they should strive to enhance them to function in the financial market under competitive market circumstances. Only in this way are banks able to offer, in any situation, what is required for their long-term development and advancement.

The financial systems of the Western Balkan countries have seen significant changes in recent years. The banking industry has changed and evolved in many countries as a result of technological advancements in the IT and telecommunications sectors, as well as the intense nature of worldwide competition (Derbali, 2021).

The Western Balkan countries have several characteristics in common, including a history of socioeconomic development, transitions, reforms implemented, liberalization, restructuring, and the route to development. Because their financial sectors are primarily bank-based, the banking sector's soundness is critical to their economies' long-term stability and prosperity (Gabeshi, 2021).

The primary purpose of this research is to identify the several factors influencing the performance of commercial banks in Albania, Bosnia and Herzegovina, North Macedonia, Montenegro, and Serbia from 2010 to 2020. The research aims at how they affect bank profitability as assessed by return on assets (ROA) and return on equity (ROE). The majority

of previous research measured profitability using ROA and ROE, such as: (Al-Homaidi, Tabash, Farhan, Almaqtari, & McMillan, 2018); (Almaqtari, Al-Homaidi, Tabash, & Farhan, 2019); (Almaqtari, Hashid, Farhan, Tabash, & Al-ahdal, 2020). Furthermore, the relationship between internal factors such as non-performing loans and the number of banks and external factors such as the unemployment rate, consumer price inflation, and real GDP growth will be analyzed.

The objective of this paper is to examine the banks' profitability in Kosovo, Albania, Bosnia and Herzegovina, North Macedonia, Montenegro, and Serbia between 2010 and 2020. While the specific objectives related to the main objective are:

- to determine the effect of non-performing loans on the profitability of commercial banks;
- to evaluate the effect of the number of banks on the profitability of commercial banks;
- to determine the relationship between real GDP growth and the profitability of banks;
- what is the relationship between the unemployment rate and the profitability of banks?
- to evaluate the effect of inflation on the profitability of commercial banks.

Although the bank's financial performance is impacted by both internal and external factors, this research focuses on both determinants of bank profitability. Internal factors might be viewed as a special determinant of bank profitability as well (Wahdan & Leithy, 2017). Whereas, according to Olweny and Shipho (2011), external factors represent the economic and regulatory environment, which have an indirect impact on bank operations and profitability.

In this study, we try to identify the main characteristics that, between 2010 and 2020, significantly impacted commercial banks' profitability in the Western Balkan countries. This paper's contribution is to examine the main factors that influence commercial banks' profitability over a 11-years in the Western Balkans. The literature frequently categorizes the factors influencing bank profitability into two categories: internal and external factors. According to the research's findings, the performance of the bank is significantly influenced by the correlation between real gross domestic product growth, the unemployment rate, and inflation. While the number of banks and non-performing loans were negatively correlated with bank performance.

The paper is structured as follows: section 2 briefly reviews the literature review on bank profitability, section 3 discusses the methodological technique used, and section 4 presents the results obtained. Finally, in the last section, the conclusions are drawn.

2. Literature Review

There is a variety of economic and financial literature on this topic. Numerous studies have been conducted to examine the profitability of banks in developing countries. However, the majority of this research has focused on cases from developed countries (Derbali, 2021). For some determinants, the results and conclusions are approximate, whereas they are inconsistent for other variables. In existing empirical research, bank profitability is articulated as a function of internal and external factors. This section gives an overview of previous research related to the factors affecting bank profitability. Overall, this research suggests that the determinants of bank profitability may be divided into two

categories: internal and external factors. The following is a presentation of some current study findings from various countries.

According to Athanasoglou, Delis, and Staikouras (2006), in the analysis of the internal and external factors affecting profitability in three Greek banks between 1985 and 2001, the ratio of equity to productivity has a favorable effect on profitability (ROE and ROA). Three factors: capitalization, size of the bank (total assets), and liquidity, summarize the factors that determine the body's profitability as measured by ROE. Operational effectiveness, as determined by the ratio of general and administrative expenses to total assets, has a negative impact on profitability (Athanasoglou, Delis, & Staikouras, 2006).

In another study by Alexiou and Sofoklis (2009), the purpose was to determine the critical factors that impacted the profitability of six major Greek commercial banks between 2000 and 2007. This study examines the relationship between bank-specific and macroeconomic factors that affect bank profitability. Six Greek banks have been successfully subjected to a panel data technique. The collected information reveals that the profitability relationship is only marginally significant for any consistent or systematic size (Alexiou & Sofoklis, 2009). A considerable impact on bank profitability was discovered for the majority of the bank-specific factors.

Regarding Javid, Anwar, Zaman, and Ghafoor (2011), in their study, they try to analyze the factors that contributed to the profitability of the top 10 banks in Pakistan between 2004 and 2008. The main focus of the researchers is on internal factors only. In this study, the influence of assets, loans, equity, and deposits on one of the key profitability indicators is examined. The

empirical findings have shown strong proof that these factors have a significant impact on profitability (Javaid, Anwar, Zaman, & Ghafoor, 2011). Their findings demonstrate that, due to scale diseconomies, more total assets may not always equate to better earnings. Additionally, although their influence is minimal, higher loan amounts contribute to profitability. Deposits and equity both have a significant influence on profitability (Javaid, Anwar, Zaman, & Ghafoor, 2011).

Research by Said and Tumin (2011) aims to evaluate the influence of bank-specific characteristics such as liquidity, credit, capital, operational expenditures, and commercial bank size on performance as assessed by return on average assets (ROAA) and return on average equity (ROAE). Except for loan and capital ratios, their results indicate that the ratios used in this study have differing implications for the performance of banks in both countries. Operating ratios have an impact on the performance of Chinese banks but not on Malaysian banks (Said & Tumin, 2011).

Another study examines how the CRR credit risk ratio in the Romanian banking system affected banking profitability (as measured by the traditional performance metrics ROA and ROE) from March 2008 to June 2013 (Socol & Dănuțiu, 2013). They discovered that ROA and ROE varied in accordance with the CRR (credit risk ratio).

Dërmaku, Luboteni, and Berisha (2012) emphasized that the development of the financial markets in a country goes alongside the development of financial institutions. One of the features of the Kosovar financial market is the banking sector's advancement compared to the financial market in general.

It is widely known that the securities market in Kosovo is underdeveloped, as we did not have these sorts of markets earlier. We think that one of the key strategic objectives of the financial market in Kosovo is the following: promoting competition processes and establishing a transparent and stable financial environment (Dërmaku, Luboteni, & Berisha, 2012). This was reinforced in 2012, when in Kosovo we had eight commercial banks, while in 2020 we had only 10 commercial banks.

Nuhui, Hoti, and Bektashi (2017) investigate whether the factors influencing commercial bank profitability have an impact on the financial performance of commercial banks in Kosovo. According to the authors, commercial banks in Kosovo are evaluated based on financial performance measures such as return on equity (ROE), return on assets (ROA), and net interest margin (NIM). Their study shows that commercial bank profitability in Kosovo is mostly driven by internal determinant variables such as capital sufficiency, asset quality, and managerial efficiency. Whereas macroeconomic factors have little influence on commercial bank financial performance (Nuhui, Hoti, & Bektashi, 2017).

The focus of Serwadda's (2018) research is to determine how certain aspects of banks, such as liquidity, credit, capital, operating costs, and the size of commercial banks, affect performance as measured by return on average assets (ROAA) and return on average equity (ROAE). Their findings suggest that the ratios utilized in this study had different effects on the performance of banks in both nations, except for the loan and capital ratios. Operating ratios affect Chinese

bank performance but not Malaysian bank performance (Serwadda, 2018).

Derbali (2021) analyzed the cases of six Moroccan banks from 1997 to 2018 and estimated three levels in accordance with three categories of profitability factors: bank factors, factors of the banking system, and macroeconomic factors. This estimate is based on the measurement of banking results on three main indicators: ROA, ROE, and MIN. The empirical results demonstrate how Moroccan banks respond to their size in order to improve performance, proving that Moroccan banks have not yet grown to a scale that will be destructive to their capability to function. As a result, the authors might conclude that the large Moroccan banks do not follow the principle of scale economies. The performance of Moroccan banks is not significantly impacted by variations in economic growth rates or changes in inflation levels (Derbali, 2021).

Almaqtari, Hashid, Farhan, Tabash, and Al-ahdal (2020) investigated the influence of ROA, ROE, and NIM on the profitability of 61 Indian banks. Private banks outperform public banks, and the influence of country-level governance on private bank profitability is favorable and superior to that of public banks. In India, the banking system is a combination of public, private, foreign, regional rural, urban cooperative, and rural cooperative banks (Shrivastava, Sahu, & Siddiqui, 2018). The findings indicate that it has a significant negative impact on Indian bank profitability as measured by ROA and ROE but a significant positive impact on NIM (Almaqtari, Hashid, Farhan, Tabash, & Al-ahdal, 2020).

The purpose of Rahman, Yousaf, and Tabassum's (2020) research is to examine the impact of bank-specific and macroeconomic variables on Pakistan's banking profitability from 2003 to 2017. According to their findings from a dynamic panel data technique, capital sufficiency increases the profitability of Pakistan's banking system. However, minimizing the frequency of bank failures and losses, capital adequacy assists the financial system in absorbing any negative impact.

All of these studies utilize different factors to determine bank profitability. However we can categorize the empirical literature on bank profitability drivers based on several similar characteristics.

3. Methodology

This section presents the data sources and describes the model we used to investigate the effects of internal and external factors on the profitability of banks in the Western Balkan countries. The sample contains the commercial banks of Kosovo, Albania, Bosnia and Herzegovina, North Macedonia, Montenegro, and Serbia for the period 2010–2020. The data came from reports from the central banks of each country in the sample as well as the World Bank.

The first figure shows the number of commercial banks in Western Balkan countries. Kosovo seems to have the smallest number of commercial banks when compared to other Western Balkan countries. Kosovo had just 11 banks in 2020, Albania had 12, North Macedonia had 14, and Montenegro had 15, whereas Serbia had 22 banks and Bosnia and Herzegovina had 23, the highest number of other countries in the Western Balkans.

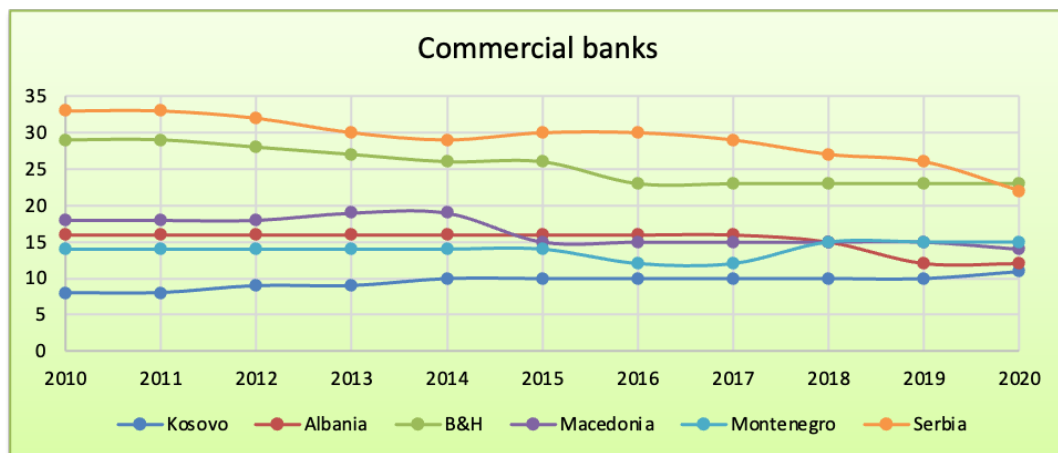


Figure 1. Commercial banks in the banking system in Kosovo and the Western Balkans countries

Source: (National Bank of the Republic of North Macedonia, 2020); (Bank of Albania, 2020); (National Bank of Serbia, 2021); (Central Bank of Montenegro, 2020); (Centralna Banka Bosne i Hercegovine, 2020); (Central Bank of Kosovo, 2020)

We use return on assets (ROA) and return on equity (ROE) as dependent variables for calculating bank profitability. While non-performing loans (NPL) and the number

of banks (FIN_BANK), real GDP growth (%), the unemployment rate, and consumer price inflation (percent, period average) are independent variables.

Table 1. Variables description

Dependent Variables			
ROA	Return on Assets	Net profits over average total assets (%)	(Ana, Blanka, & Roberto, 2011); (Căpraru & Ihnatov, 2014)
ROE	Return on Equity	Net profits over average total equity (%)	(Ferrouhi, 2018); (Derbali, 2021); (Prenaj, Miftari, & Pula, 2024)
Independent Variables			
Internal factors:			
NPLR	Non-performing loans	Nonperforming loans ratio (percent of gross loans, end of period)	(Roman & Dănulețiu, 2013); (Prenaj, Imeraj, & Smajli, 2023)
FIN_BANK	Number of banks in country	Number of banks in country	(Kumar, Thrikawala, & Acharya, 2021)
External factors:			
GDP	Gross domestic product	Real GDP growth (percent)	(Dietrich & Wanzenried, 2011); (Prenaj, Imeraj, & Smajli, 2023):
UNRATE	Unemployment rate	Unemployment rate (percent, period average)	(Kumar, Thrikawala, & Acharya, 2021); (Prenaj, Imeraj, & Smajli, 2023)
INF	Consumer price inflation	Consumer price inflation (percent, period average)	(Akbaş, 2012); (Kumar, Thrikawala, & Acharya, 2021)

Empirical model

Fixed effects (FE) and random effects (RE) are the modes that were utilized in the regression analysis for the performance of banks in Western Balkan countries for the period 2010–2020. Many researchers used Fixed effects and Random effects, including: (Desai, 2021); (Al-Homaidi, Almaqtari, Yahya, & Khaled, 2020); (Prenaj, Miftari, & Krasniqi, 2023). The general model of return on assets (ROA) and return on equity (ROE) connects panel data with non-performing loan ratio (NPLR), real GDP growth (GDP), unemployment rate (UNRATE), inflation rate (INF), and number of banks (FIN_BANK). The Hausman test was used to determine which of the estimated models was more suitable. A decision would be made on whether to accept or reject the null hypothesis based on the test's results. If the p-value of this test is smaller than 0.05, the alternative hypothesis was accepted (H1: Fitted FE model).

We estimated the following two models:

$$ROA_{it} = \beta_1 + \beta_2 NPLR_{it} + \beta_3 GDP_{it} + \beta_4 UNRATE_{it} + \beta_5 INF_{it} + \beta_6 FIN_BANK + \omega_{it} \quad (1)$$

$$ROE_{it} = \beta_1 + \beta_2 NPLR_{it} + \beta_3 GDP_{it} + \beta_4 UNRATE_{it} + \beta_5 INF_{it} + \beta_6 FIN_BANK + \omega_{it} \quad (2)$$

where:

ROA_{it} is return on assets of bank i in time period t ;

ROE_{it} is return on equity of bank i in time period t ;

$NPLR_{it}$ is non-performing loans of bank i in time period t ;

GDP_{it} is gross domestic product i in time period t ;

$UNRATE_{it}$ is unemployment rate i in time period t ;

INF_{it} is inflation i in time period t ;

FIN_BANK_{it} is number of banks i in time period t ;

4. Results and discussions

A summary of the descriptive statistics for the dependent and independent variables used to measure the performance of the study banks is shown in the table below. The variables varied substantially during the study period of 2010–2020. The mean of the non-performing loan ratio is 10.83, with a minimum of 1.9 and a maximum of 23.8. The average unemployment rate is 20.83 percent, with a standard deviation of 6.6. In contrast, real GDP growth has an average of 1.876 with a standard deviation of 3.139. Inflation varies, with a minimum of -1.40 and a maximum of 11.10. While the number of banks' median is 16, with a minimum is 8 and a maximum is 33.

Table 2. Descriptive statistics of variables over the period 2010 – 2020

Variables	Mean	Median	S.D.	Min	Max
ROA	0.941	1.000	0.981	-2.800	2.800
ROE	6.937	6.450	8.217	-27.30	22.50
NPLR	10.83	8.895	6.328	1.900	23.80
GDP	1.876	2.800	3.139	-15.30	6.300
UNRATE	20.83	19.70	6.632	9.010	35.26
INF	21.25	1.550	2.245	-1.400	11.10
FIN_BANK	18.29	16.00	7.144	8.000	33.00

Notes: ROA = Return on assets; ROE = Return on equity; NPLR = Non-performing loan ratio; GDP = Gross domestic product; UNRATE = Unemployment rate; INF = Inflation; FIN_BANK = Number of banks.

The following figure illustrates the evaluation of the strength of the relationship between the explanatory variables and the measured variables to determine if there is a statistically significant positive relationship or a statistically significant negative relationship between them. From the obtained results, it is proven that there is a statistically significant positive correlation between ROA and ROE (0.9), while between ROA and NPLR (-0.5),

there is a statistically significant negative correlation. On the other hand, there is a statistically significant negative association between ROE and NPLR (-0.5). Whereas between INF and NPLR (0.4), there is a statistically significant positive correlation. There is a strong positive correlation (0.3) between FIN_BANK and INF, while with ROE, there is a strong negative relationship (-0.3).

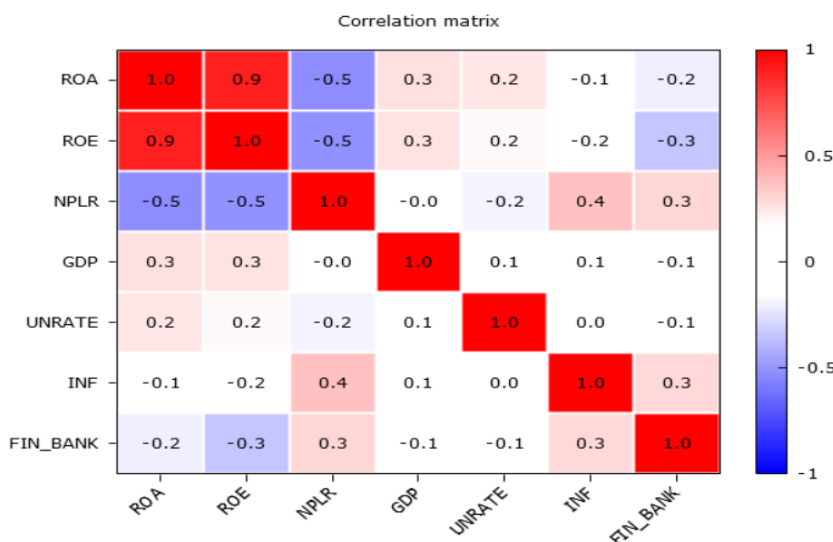


Figure 2. Correlation matrix of variables for measuring the performance 2010–2020

Notes: ROA = Return on assets; ROE = Return on equity; NPLR = Non-performing loan ratio; GDP = Gross domestic product; UNRATE = Unemployment rate; INF = Inflation; FIN_BANK = Number of banks.

The variance inflation factor (VIF) is used in the study to look at the relationship between the independent variables. According to the VIF results, there is no issue with multicollinearity among the independent

variables. The VIF values are all below 10, indicating that the study does not have a high correlational dependency between the independent variables. The table below shows the VIF.

Table 3. Diagnostics of multicollinearity

	NPLR	GDP	UNRATE	INF	FIN_BANK
VIP	1.252	1.168	1.039	1.074	1.228

Notes: VIP – Variance inflation factor; NPLR = Non-performing loan ratio; GDP = Real gross domestic product growth; UNRATE = Unemployment rate; INF = Inflation; FIN_BANK = Number of banks.

The figure below shows the calculations of financial performance, measured by ROA, for

Western Balkans countries during 2010–2020. According to these statistics, Kosovo has the

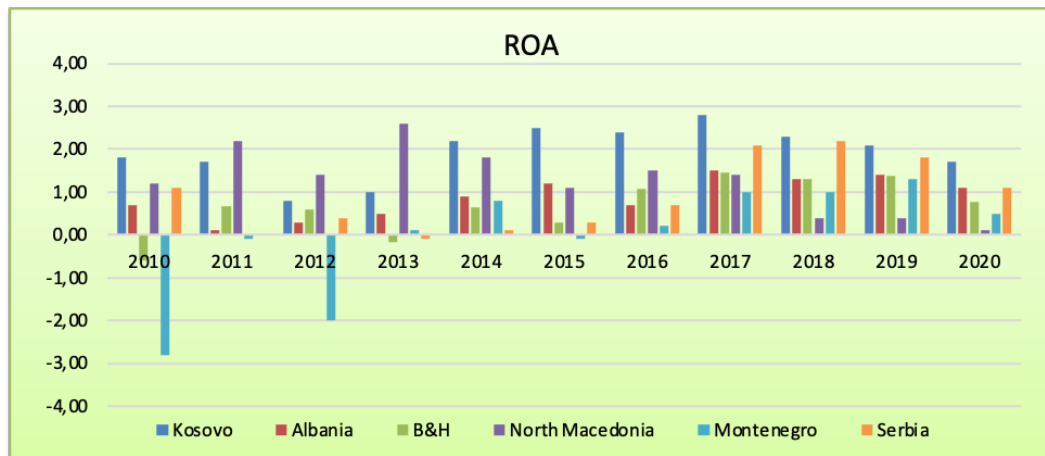


Figure 3. Determinants of financial performance of commercial banks, period 2010–2020
Source: (World Bank Group, 2016); (World Bank Group, 2022)

greatest bank performance, as measured by ROA, for the entire study period, except for 2011, 2012, and 2013, even though the country has the lowest real GDP growth and GDP per capita in the region. While North Macedonia dominated from 2011 to 2013, ROA continued to decrease in the following years compared to other countries.

The results of multiple regression of “fixed effects” (FE) and “random effects” (RE) models are provided in the table below. The models examined the relationship between NPLR, real GDP growth, UNRATE, INF, and FIN BANK, with the bank’s performance measured by ROA.

The Hausman test was used to prove which of the estimated models was more appropriate, and based on the results of this test, a conclusion was taken on whether to accept or reject the null hypothesis (see Table 5).

Table 4. Panel Results for ROA as dependent variables

Variables	ROA Fixed effect	ROA Random effect
Constant	0.9961 (1.0652)	1.3172* (0.6833)
Internal factors		
NPLR	-0.0739* (0.0374)	-0.0821*** (0.0238)
FIN_BANK	-0.0080 (0.0150)	-0.0069 (0.0147)
External factors		
GDP	0.0682* (0.0393)	0.0683* (0.0351)
UNRATE	0.0283 (0.0308)	0.0186 (0.0201)
INF	0.0876 (0.0576)	0.0623 (0.0535)
Number of observations	66	66
R ²	0.43	0.36
Adjusted R ²	0.35	0.31

Notes: ROA = Return on assets; ROE = Return on equity; NPLR = Non-performing loan ratio; GDP = Gross domestic product; UNRATE = Unemployment rate; INF = Inflation rate; FIN_BANK = Number of banks.

* p < 0.10, ** p < 0.05, *** p < 0.01

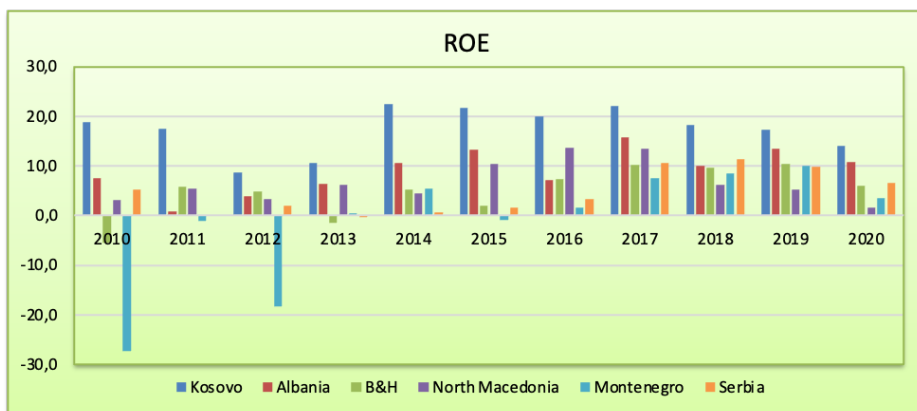
Table 5. Testing and selecting the model for ROA

Hypothesis		The P value for the Hausman test	Best fitted model
H_0 : Fitted RE model	H_1 : Fitted FE model	0.706	H_0 : Fitted RE model

Notes: RE=Random effects; FE=Fixed effects

Based on the random effects (RE) results in Table 3, we can conclude that the coefficient of NPLR is negative and is a statistically significant component in determining ROA. Our results are consistent with those obtained by Osuagwu (2014). Also, FIN_BANK has a negative relationship with ROA. The model's results also showed that real GDP growth has a positive relationship with ROA and is a statistically significant determinant. According to Nuhui, Hoti, and Bektashi (2017), there is also a positive relationship between these two factors. Banking profitability has a significant impact on GDP (Roman & Dănuțiu, 2013). Also, UNRATE and INF have a positive relationship with ROA. Some research has found a positive relationship between INF and ROA (Petria, Capraru, & Ihnatov, 2015); (Jara-Bertin, Moya, & Rodríguez, 2014). The positive relationship between inflation and bank performance implies that a bank's revenue grows more quickly than its expenses (Vong & Chan, 2009).

The figure below shows the calculations of ROE for Western Balkans countries, during 2010–2020. Kosovo appears to have the best ROE performance among Western Balkan countries. On the other side, Kosovo has the region's highest unemployment rate. While the weakest ROE performance was in Montenegro, which was improving year by year. In Montenegro, we can also see a decrease in non-performing loans, from 20.9% in 2010 to 5.5% in 2020, which can positively affect the performance of banks. Also, Albania significantly improved ROE during the last few years and decreased non-performing loans, from 14% to 8.1%. This increase in ROE in Albania can also be affected as a result of the rise in GDP per capita, which has had a significant increase from year to year. Bosnia and Herzegovina will have almost similar ROE performances in 2020. The same can be observed with non-performing loans.

**Figure 4.** Determinants of financial performance of commercial banks, period 2010–2020

Source: (World Bank Group, 2016); (World Bank Group, 2022)

In the table below, you can see the results of multiple regressions of “fixed effects (FE)” and “random effects (RE)” models. The models examined the relationship between NPLR, real GDP growth, UNRATE, INF, and FIN BANK, with the bank’s performance measured by ROE.

Table 6. Panel Results for ROE as dependent variables

Variables	ROE	ROE
	Fixed effect	Random effect
Constant	14.8205* (8.4901)	15.4008** (6.0820)
Internal factors		
NPLR	-0.6889** (0.2984)	-0.6842*** (0.2095)
FIN_BANK	-0.2617** (0.1203)	-0.2535** (0.1183)
External factors		
GDP	0.4788 (0.3135)	0.5022* (0.2876)
UNRATE	0.0754 (0.2461)	0.0547 (0.1753)
INF	0.9981** (0.4596)	0.7954* (0.4365)
Number of observations	66	66
R ²	0.48	0.37
Adjusted R ²	0.39	0.31

Notes: ROA = Return on assets; ROE = Return on equity; NPLR = Non-performing loan ratio; GDP = Gross domestic product; UNRATE = Unemployment rate; INF = Inflation rate; FIN_BANK = Number of banks.

* p < 0.10, ** p < 0.05, *** p < 0.01

The Hausman test was used to prove which of the estimated models was more appropriate,

and based on the results of this test, a conclusion was made on whether to accept or reject the null hypothesis (see Table 7).

Based on the random effects (RE) results in Table 5, we can conclude that the NPLR and FIN_BANK coefficients are negative and are statistically significant components in determining ROE. But not the same thing is concluded (Kumar, Thrikawala, & Acharya, 2021). They thought FIN_BANK had a positive and significant impact on bank profitability. Also, Kumar, Thrikawala, and Acharya (2021) considered the NPLR negative and statistically significant for profitability measured by ROE. Unlike UNRATE, which has a positive relationship with ROE, another finding concluded by Abreu and Mendes (2001) is that the unemployment rate matters in determining bank profitability.

The model’s results showed that real GDP growth and INF have a positive relationship and are statistically significant factors in determining ROE. According to Căpraru & Ilnatov (2014), there is a positive relationship between INF and ROE. A positive relationship also exists between GDP and ROE (Ongore & Kusa, 2013).

Another important statistic is the ratio of non-performing loans. Figure 5 represents the non-performing loan ratio for banks from 2010 to 2021, which shows that banks in Kosovo have the lowest non-performing loan rate in Western Balkan countries. A decrease in non-performing loans can be seen in all countries from year to year, except for Albania. Despite the fact that there has been a decrease, the number of non-

Table 7. Testing and selecting the model for ROE

Hypothesis		The P value for the Hausman test	Best fitted model
H ₀ : Fitted RE model	H ₁ : Fitted FE model	0.584	H ₀ : Fitted RE model

Notes: RE=Random effects; FE=Fixed effects

performing loans remains high compared to other countries. However, from the data, we can see that the highest percentage of non-

performing loans during the period 2010–2020 was recorded by Montenegro, with 23.8% in 2011.

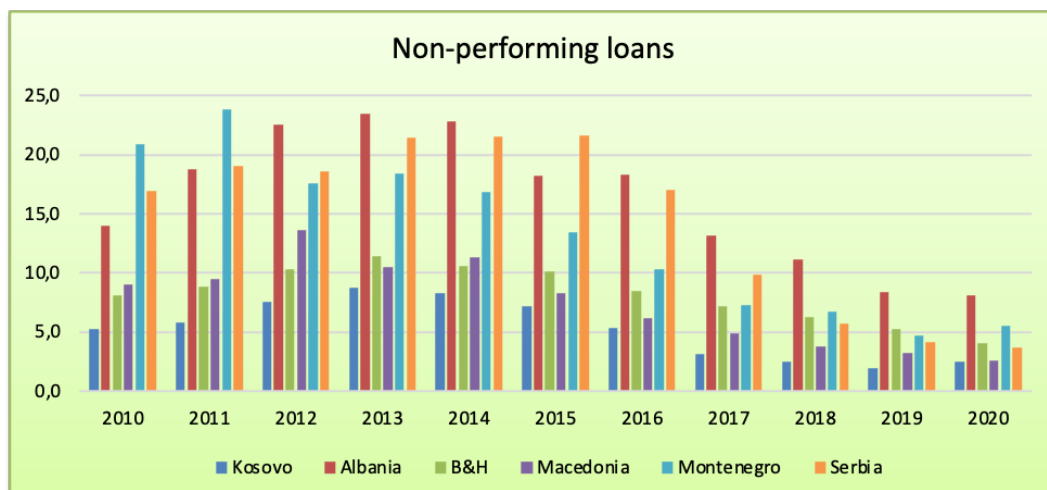


Figure 5. Non-Performing Loans (%) for Western Balkan countries, period 2010–2020

Source: (World Bank Group, 2016); (World Bank Group, 2022)

5. Research Limitations

There are several limitations to this study. A banking sector's profitability may be assessed using a variety of indicators, however, this study focuses on some of them. The performance analysis of commercial banks is very important, especially when analyzed over a longer period of time. Well, we only analyzed the period 2010–2020 because the last years were not reported for all countries. Future research should include the financial sector from last year. We can analyze the performance of banks in Western Balkan countries before and after COVID-19.

6. Conclusions

The aim of this study is to explain how these elements impact the profitability of Western Balkan banks while also identifying and analyzing the many factors that affect bank profitability. This research focused on

internal and external determinants of bank profitability in six countries, such as Kosovo, Albania, Bosnia and Herzegovina, North Macedonia, Montenegro, and Serbia. The study was performed using panel data with 66 observations from commercial banks between 2010 and 2020. The regression models for the Western Balkans' performing banks were fixed effects (FE) and random effects (RE). The general panel data model includes the non-performing loan ratio (NPLR), real gross domestic product growth (GDP), unemployment rate (UNRATE), inflation rate (INF), and the number of banks (FIN BANK) with performance ratios such as return on assets (ROA) and return on equity (ROE).

From the performance result, measured by ROA, based on the random effects (RE), the NPLR coefficient is negative and a statistically significant component in determining ROA. Also, FIN_BANK has a negative relationship

with ROA. On the other hand, GDP has a positive relationship with ROA and is a statistically significant determinant. Also, UNRATE and INF have a positive relationship with ROA. Whereas, based on the random effects (RE) from the performance result, measured by ROE, the NPLR and FIN_BANK coefficients are negative and are statistically significant components in determining ROE. Unlike UNRATE, which has a positive relationship with ROE, GDP and INF have positive relationships and are statistically significant factors in determining ROE.

From the indicators of all the countries, we can see different results. Of all the Western Balkans countries, the weakest performance of ROA during the last few years can be seen in North Macedonia, which in the years 2011–2013 ranked last among all countries with the highest ROA. A similar trend can be observed in ROE performance, where in the last three years there has been the lowest ROE performance compared to other countries, especially in 2020, while the number of banks has decreased from 18 to 14 in 2020.

The highest number of banks compared to other countries can be seen in Bosnia and Herzegovina and Serbia, where ROE performance and non-performing loans have been more or less similar in recent years, even though Serbia in 2021 has over 60% more GDP per capita.

Over the years, Albania has had the highest number of non-performing loans, although this number has significantly decreased in 2020 compared to the previous period. The period from 2012 to 2014 saw the highest percentage of non-performing loans in Albania. As for the number of banks, we can see that, from 16 in 2010, there are now only 12 banks. While Montenegro has the weakest ROE performance in the period 2018–2020,

despite the fact that it has a higher GDP per capita in 2020 and 2021 compared to other Western Balkan countries.

Our findings have several important implications for policymakers and regulators, especially in Kosovo. The findings of the research show the contradictions because, on the one hand, profitability represents the highest average in the region of the main profitability indicators of the banking sector: ROA 1.94% and ROE 17.40% during the examined period 2010–2020. On the other hand, NPLR has the lowest average in the region with 5.3%, while loan interest rates are the highest. Kosovo is characterized by the region's lowest real GDP growth, the lowest GDP per capita, and the highest unemployment rate. Extreme poverty is higher in the region and wider, and the deficit is higher compared to the countries of the region and wider. Consequently, exports do not cover more than 15.9% of imports. Banks in Kosovo with a large concentration of capital are mainly the three largest commercial banks, with over 55.8% of all assets in the banking sector. This situation, in addition to having the highest profitability indicators in the region, represents the closure of the banking market in Kosovo with the aim of easier control of competition among these three banks.

By comparing the indicators of the countries in the region for this period, we consider that Kosovo has lost the opportunity to maximize the weight of the banking sector, which has had the largest impact on the country's economic development. We recommend that the banking sector, as well as every other sector of the economy, continue to play its role in the economic development of the country according to the weight of the particular sector. Therefore, more efficient supervision is recommended as a function

of increasing the development effect by maximizing the value of deposits from citizens and businesses transformed into credit potential. The examination and comparison of all these indicators clearly show the lack of support of the banking system in Kosovo for businesses and economic development compared to the countries in the region.

Bibliography

- Abreu, M., & Mendes, V. (2001). Commercial bank interest margins and profitability: evidence for some EU countries. Conference Jointly Organised by the IEFS.
- Ahmed, R., & Bhuyan, R. (2020). Risk and financial management. Retrieved from <https://doi.org/10.3390/jrfm13090214>
- Akbaş, H. E. (2012). Determinants of bank profitability: An investigation on Turkish banking sector. *Öneri Dergisi*. Retrieved from <https://www.acarindex.com/pdfler/acarindex-1401-9308.pdf>
- Alexiou, C., & Sofoklis, V. (2009). Determinants of bank profitability: evidence from the Greek banking sector. *Economic Annals*, Volume LIV No. 182.
- Al-Homaidi, E. A., Almaqtari, F. A., Yahya, A. T., & Khaled, A. S. (2020). Internal and external determinants of listed commercial banks' profitability in India: dynamic GMM approach. *International Journal of Monetary Economics and Finance*, 13(1), 34-67. Retrieved from <https://doi.org/10.1504/IJMEF.2020.105333>
- Al-Homaidi, E. A., Tabash, M. I., Farhan, N. H., Almaqtari, F. A., & McMillan, D. (2018). Bank-specific and macro-economic determinants of profitability of Indian commercial banks: A panel data approach. *Cogent Economics & Finance*, 6(1), 1-26. Retrieved from <https://doi.org/10.1080/23322039.2018.1548072>
- Ali, A., & Ali, B. J. (2022). Disparity in Total Resources Growth and Its Impact on the Profitability: An Analytical Approach. *International Journal of Sustainable Development and Planning*, 1441-1447.
- Almaqtari, F. A., Al-Homaidi, E. A., Tabash, M. I., & Farhan, N. H. (2019). The determinants of profitability of Indian commercial banks: A panel data approach. *International Journal of Finance & Economics*, 24(1), 168-185. Retrieved from <https://doi.org/10.1002/ijfe.1655>
- Almaqtari, F. A., Hashid, A., Farhan, N. H., Tabash, M. I., & Al-ahdal, W. M. (2020). An empirical examination of the impact of country-level corporate governance on profitability of Indian banks. *International Journal of Finance & Economics*, 27(2), 1912-1932. Retrieved from <https://doi.org/10.1002/ijfe.2250>
- Ana, K., Blanka, Š., & Roberto, E. (2011). Determinants of bank profitability in Croatia. *Croatian Operational Research Review*, 2(1).
- Athanasoglou, P. P., Delis, M., & Staikouras, C. (2006). Determinants of bank profitability in the South Eastern European region . Bank of Greece Working Paper.
- Bank of Albania. (2020). Financial stability report. Tirana: Bank of Albania. Retrieved from www.bankofalbania.org
- Căpraru, B., & Ihnatov, I. (2014). Banks' Profitability in Selected Central and Eastern European Countries. *Procedia Economics and Finance* (pp. 587 – 591). Elsevier.
- Central Bank of Kosovo. (2020). Financial Stability Report. Pristine: Central Bank of Republic of Kosovo. Retrieved from https://bqk-kos.org/wp-content/uploads/2021/06/CBK_FSR_17.pdf
- Central Bank of Montenegro. (2020). Financial Stability Report. Podgorica: Central Bank of

- Montenegro. Retrieved from <http://www.cbcbg.me>
- Centralna Banka Bosne i Hercegovine. (2020). Financial Stability Report. Sarajevo: Central Bank of Bosnia and Herzegovina.
- Centralna Banka Bosne i Hercegovine. (2020). Financial Stability Report. Sarajevo: Central Bank of Bosnia and Herzegovina.
- Derbali, A. (2021). Determinants of the performance of Moroccan banks. *Journal of Business and Socioeconomic Development*, Vol. 1 (No. 1), pp.102-117.
- Dërmaku, A., Luboteni, G., & Berisha, S. (2012). Development of Kosovo Financial Institutions Over Various Periods. *European Journal of Economics, Finance and Administrative Sciences* ISSN 1450-2275 Issue 45 (2012); https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2805448, 115-121.
- Desai, R. (2021, April). Impact of priority sector lending on financial profitability: segment wise panel data analysis of Indian banks. *Management & Accounting Review (MAR)*, 20 (2), 19-38. Retrieved from <https://mar.uitm.edu.my/>
- Dietrich, A., & Wanzenried, G. (2011). Determinants of bank profitability before and during the crisis: Evidence from Switzerland. *Journal of International Financial Markets, Institutions and Money*, 21(3), pp. 307-327. Retrieved from <https://doi.org/10.1016/j.intfin.2010.11.002>
- Ferrouhi, E. M. (2018). Determinants of banks' profitability and performance: an overview. *Contemporary Research in Commerce and Management*, Vol. 4, pp. 61-74.
- Gabeshi, K. (2021). The Role and Financial Performance of Banks in the Western Balkans. *Revista de Științe Politice. Revue des Sciences Politiques*, No.70, pp.129-139.
- Jara-Bertin, M., Moya, J. A., & Rodríguez, A. (2014). Determinants of bank performance: evidence for Latin America. *Academia Revista Latinoamericana de Administración*, 27(2), 1012-8255. Retrieved from <https://doi.org/10.1108/ARLA-04-2013-0030>
- Javaid, S., Anwar, J., Zaman, K., & Ghafoor, A. (2011). Determinants of bank profitability in Pakistan: internal factor analysis. *Journal of Yasar University*, 23(6) 3794-3804.
- Kumar, V., Thrikawala, S., & Acharya, S. (2021). Financial inclusion and bank profitability: Evidence from a developed market. *Global Finance Journal*. Retrieved from <https://doi.org/10.1016/j.gfj.2021.100609>
- National Bank of Serbia. (2021). Annual financial stability report. Retrieved from https://www.nbs.rs/export/sites/NBS_site/documents-eng/publikacije/fs/fsr_2021.pdf
- National Bank of the Republic of North Macedonia. (2020). Financial stability report for the republic of North Macedonia in 2020. North Macedonia.
- Nuhui, A., Hoti, A., & Bektashi, M. (2017). Determinants of commercial banks profitability through analysis of financial performance indicators: evidence from Kosovo. *Verslas: Teorija ir praktika/business: theory and practice*, 18, 160-170. Retrieved from <https://doi.org/10.3846/btp.2017.017>
- Olweny, T., & Shipho, T. M. (2011). Effect of banking sectoral factors on the profitability of commercial banks Kenya. *Economics and Finance Review*, 1(5), 01-30. Retrieved from <http://www.businessjournalz.org/efr>
- Ongore, V. O., & Kusa, G. B. (2013). Determinants of Financial Performance of Commercial Banks in Kenya. *International Journal of Economics and Financial Issues*, 3(1), 237-252. Retrieved from www.econjournals.com

- Osuagwu, E. S. (2014). Determinants of bank profitability in Nigeria. Munich Personal RePEc Archive. Retrieved from <http://dx.doi.org/10.2139/ssrn.4100483>
- Petria, N., Capraru, B., & Ilnatov, I. (2015). Determinants of banks' profitability: evidence from EU 27 banking systems. *Procedia Economics and Financ*, 20, 518-524. Retrieved from www.sciencedirect.com
- Prenaj, V., Imeraj, J., & Smajli, S. (2023). Albania and Kosovo with Development Potential, but Limited Support from the Banking Sector. *International Journal of Sustainable Development and Planning*, 18(5), 1377-1383. Retrieved from <https://doi.org/10.18280/ijstdp.180507>
- Prenaj, V., Miftari, I., & Krasniqi, B. (2023). Determinants of the Capital Structure of Non-Listed Companies in Kosovo. *Economic Studies (Ikonomicheski Izsledvania)*, 32(1), 36-50. Retrieved from https://www.iki.bas.bg/Journals/EconomicStudies/2023/2023-1/03_Vlora-Prenaj.pdf
- Prenaj, V., Miftari, I., & Pula, L. (2024). The Impact Of Capital Structure On Company Performance: Empirical Evidence From Kosovo. *Romanian Journal of Economic Forecasting*, 27(1), 87-102. Retrieved from https://ipe.ro/new/rjef/rjef1_2024/rjef1_2024p87-102.html
- Rahman, H.-u., Yousaf, M. W., & Tabassum, N. (2020). Bank-Specific and Macroeconomic Determinants of Profitability: A Revisit of Pakistani Banking Sector under Dynamic Panel Data Approach. *International Journal of Financial Studies*, 8(3)(42). Retrieved from <https://doi.org/10.3390/ijfs8030042>
- Roman, A., & Dănulețiu, A. E. (2013). An empirical analysis of the determinants of bank profitability in Romania. *Annales Universitatis Apulensis Series Oeconomica*, 15(2), 580-593.
- Said, R. M., & Tumin, M. H. (2011). Performance and Financial Ratios of Commercial Banks in Malaysia and China. *International Review of Business Research Papers*, 7(2), 157-169. Retrieved from <https://doi.org/10.2139/ssrn.1663612>
- Serwadda, I. (2018). Determinants of commercial banks' profitability. Evidence from Hungary. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 66(5), 1325-1335. Retrieved from <https://repozitar.mendelu.cz/xmlui/handle/20.500.12698/1391>
- Shrivastava, R., Sahu, R. K., & Siddiqui, I. N. (2018). Indian Rural Market: Opportunities and Challenges. *International Journal of Advance Research, Ideas and Innovations in Technology*, 23-24. Retrieved from <https://www.ijariit.com/conferences/ncisrdc-2018/>
- Socol, A., & Dănulețiu, A. E. (2013). Analysis of the Romanian banks' performance through ROA, ROE and Non-performing loans models. *Annales Universitatis Apulensis Series Oeconomica*, 15(2), 594-604.
- Vong, A. P., & Chan, H. S. (2009). Determinants of Bank Profitability in Macau. *Macau Monetary Research Bulletin*, 12, 93-113.
- Wahdan, M., & Leithy, W. E. (2017). Factors affecting the profitability of commercial banks in Egypt over the last 5 year (2011–2015). *International Business Management*, 11(2), 342–349.
- World Bank Group. (2016). Rebalancing for stronger growth. South East Europe. World Bank Group.
- World Bank Group. (2022). Steering Through Crises. Regular Economic Report No.21.