THE EFFECT OF CREDIT RISK ON THE FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN BALKAN COUNTRIES

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Abstract

This study aims to examine the effect of credit risk on the profitability of financial institutions. For research, we have collected secondary data from the relevant institutions of the Western Balkan states such as Kosovo, Albania, North Macedonia, Serbia, Croatia, Montenegro, and Bosnia and Herzegovina. In total, there are 26 commercial banks from 2010 to 2022 that serve in these countries. We consider information from three panels that categorize state-owned banks, private banks, or multinational banks according to their ownership structure. Return on assets (ROA) or return on equity (ROE) were used as surrogates for financial performance measures, while the percentage of bad loans was used to measure credit risk (Furhmann, 2022). Where the research objective was to explore the relationship between credit risk and financial performance in commercial banks operating in the Balkan countries, to understand the factors that affect credit risk, and to suggest measures to increase the financial performance of banks in the region (Gbadamosi & Olaleke, 2019). From the evaluation results, we can see that both ROA and ROE are inversely related to credit risk (Al-Malkawi, 2019). The profitability of commercial banks in the Balkan countries from 2010 to 2022 has been shown to be related to credit risk management. As a result, financial institutions should pay more attention to credit risk management, especially bad debt prevention and investigation. Therefore, managers should pay more attention to the latest credit risk management strategies.

Keywords: Deposit Banks, Credit Risk, Balkan Countries, Financial Performance

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1. INTRODUCTION

The banking sector's contribution to economic expansion is crucial. It is widely accepted that banks function as intermediaries to fuel economic expansion. So, it is widely acknowledged that a healthy banking system is essential to a prosperous economy. In order to provide economic security, the banking industry must maintain healthy profit margins and sufficient capital reserves (Al-Malkawi, 2019).

Due to the dynamic nature of their organizational structure and the complex nature of the economic system in which they operate, banks are susceptible to a broad range of dangers. There are six primary dangers that banks face, as identified by Barakova et al. (2020). They may be broken down into a number of categories, including credit risk, liquidity, market risk, operation of the project, nominal risk, or legal risk (Bajraktaraj & Sefa, 2018). Potential losses in profit, market value, debt, or equity are all possible outcomes of these dangers. Income in the banking sector is driven mostly by interest earned on commercial loans. This means that financial institutions are very vulnerable to credit risk. Credit risk, as defined by the Basel Committee for Banking Supervision, is the risk of not recovering loan funds when they are due. As credit risk rises, so does the price at which lenders and investors demand repayment. Financing expenses for the bank increase accordingly. Every increase in a bank's exposure to credit risk increases the probability of a financial catastrophe (Dineva & Dinev, 2019). Establishing new lines of credit is a major source of profit for financial institutions. Yet, there are substantial dangers involved for both the lender and the borrower in this procedure. Furthermore, when it comes to a bank's bottom line, credit risk is universally considered the biggest threat (Naveed et al., 2018; Korkmaz & Korkmaz, 2021). This means that banks and other financial organizations cannot afford to be inefficient when it comes to managing their credit risks. Bank profitability is in part determined by credit risk, an internal factor. Thus, credit risk management has an impact on banks' bottom lines. Banks can ensure their long-term viability and financial success via prudent credit risk management, and they can help the economy as a whole by ensuring that capital is allocated effectively (Simovic & Srejic, 2018). As emphasized by the above authors and also by Vuksic and Milenkovic (2019), yes, credit risk is indeed an internal factor that can significantly affect a bank's profitability. Credit risk refers to the potential for borrowers or counterparties to default on their financial obligations to the bank, resulting in losses for the institution. When borrowers default on loans or are unable to repay their debts, it directly affects the bank's financial performance.

Here are some key points about the relationship between credit risk and bank profitability:

1. *Loan loss provisioning*: Banks set aside funds as provisions to cover possible loan losses arising from credit risk. Higher levels of credit risk may require higher provisions, which reduces the bank's profits.

2. *Interest income*: Credit risk affects the interest rates banks charge on loans. Higher-risk borrowers typically face higher interest rates to compensate for the increased probability of default. Therefore, credit risk can affect the interest income generated by the bank's lending activities.

3. *Non-performing loans (NPLs)*: NPLs are loans where borrowers have stopped making payments or are significantly late. Higher credit risk increases the likelihood of non-performing loans, which can lead to reduced interest income and possible write-offs, negatively impacting a bank's profitability.

4. *Capital adequacy*: Banks must maintain sufficient capital to absorb potential losses. Higher levels of credit risk require higher capital requirements, which can reduce the bank's return on equity (ROE) and overall profitability.

5. *Reputation and customer confidence*: Continued high credit risk can damage a bank's reputation and erode customer confidence. This can result in reduced customer deposits, fewer credit opportunities, and a loss of business, which can affect long-term profitability.

To effectively manage credit risk, banks use risk management practices, including comprehensive credit assessment procedures, consistent credit underwriting standards, diversified loan portfolios, and continuous monitoring of the borrower's creditworthiness. By implementing sound credit risk management strategies, banks aim to mitigate the impact of credit risk on their profitability. The purpose of this study is to ascertain if and how credit risk management influences the profitability of financial institutions. By examining this relationship, we try to identify strategies and mechanisms that can increase profitability through effective credit risk management. The ratio of non-performing to performing loans is a common metric in the field of credit risk management. Non-performing loans are included as a credit risk management indicator inside the model since they have characteristics with this concept and have been repeatedly reported in the literature. Profitability in the banking industry may be gauged by looking at metrics like return on assets (ROA) and ROE. The sample for this research, which covers the years 2010–2022, consists of 26 operational depositories.

The structure of this paper is as follows. The first section includes general information on the financial system in the Western Balkan countries, a literature review, purpose, and methodology, in brief. The second section mainly talks about the banking system and lending from 2010 to 2022. While the third section briefly presents the methodology used to achieve the objectives of this study by doing a more detailed analysis of the data. The results of the study are presented in the fourth section while discussions are in the fifth section. The last section includes the conclusions and gives recommendations.

2. LITERATURE REVIEW

In the context of financial crises, several research projects are conducted across the globe. According to these analyses, low asset quality is a leading cause of bank collapse. Poor asset quality, such as impairing loans, has been shown by Laryea et al.

(2019) to have a negative impact on a bank's profitability since interest revenue is a significant contributor to a bank's net income. The Banker (2006) claims that nonperforming loans were at historically high levels in the commercial banking industry worldwide. According to The Banker (2006), weak credit risk management, an overabundance of outside interference in the lending process, and irregular or insufficient credit guarantees as contributing factors to the rise in non-performing loans. We believe that problem loans are loans where the borrowers have stopped payments or have significantly delayed their repayment. Here is how NPLs can affect a bank's profitability: reduced interest income, increased provisioning costs, write-offs and losses, operating costs, capital adequacy, and regulatory impact. It is, therefore, important for banks to actively manage and minimize NPLs through effective credit risk management practices, such as rigorous credit underwriting, proactive monitoring of borrower creditworthiness, and credit restructuring or recovery strategies in time (Kargi, 2021). By reducing NPL levels, banks can mitigate the detrimental impact on profitability and maintain a healthier financial position. The rise of these elements has a detrimental effect on banks' profits. Because of the critical role loans play in the banking industry and the damage they may do to the economy, understanding the connection between credit danger and financial institution profitability is crucial. While some studies find a positive correlation between credit risk and financial institution performance, the vast majority of studies find the opposite to be true. Credit risk management is only one component that has been shown to affect a bank's success, according to a different set of research. In their research, Athanasoglou et al. (2008) discover that credit risk correlates negatively with bank performance.

According to the research conducted by Kargi (2011) on Nigerian banks, banks' success is inversely proportional to how well they handle credit risk. It was shown that the bank's profitability was negatively affected by loan and advance volume, nonperforming loans, and deposit levels. Kithinji (2018) tested the hypothesis that commercial banks in Kenya may improve their bottom lines by implementing better credit risk management. Total loans, non-performing loans, or earnings were all collected for this study. Findings demonstrate that ratio of total mortgages to non-performing mortgages has no meaningful effect on banks' profitability. However, it should be mentioned that there were a number of issues that impacted bank performance. Brigham and Houston (2018) provide a comprehensive overview of financial management concepts and discuss the importance of various financial ratios, including ROA and ROE, for evaluating a company's performance. It is explained how these metrics can be used to assess profitability and efficiency. In our work, we have used the financial reports of banks of the Western Balkan. Also, Palepu et al. (2017) focus on financial statement analysis and valuation techniques. The authors highlight the importance of ROA and ROE in evaluating a company's financial performance. They provide examples and case studies to demonstrate how these metrics can be used to assess profitability and measure the return generated by assets and capital as we work with the market for credit banks.

In their research, Felix and Claudine (2018) examined how credit risk management affects the success of banks in emerging markets. Indicators of a bank's efficiency and profitability, such as its ROE or ROA, were incorporated into the model. Non-performing loans as a proportion of total loans were a good indicator of the overall credit risk. As a result of their research, they have determined that there is a weak relationship between performance measurements and credit risk. We can give special emphasis to a state like Kosovo, where it has achieved significant progress in the banking sector in all aspects, regardless of the crises that were around the world, such as the pandemic, the now-ending war in Ukraine, global inflation, and the rise in interest rates that continues to be discussed in many countries. But in the years, we are talking about, the most important thing is the access to bank accounts by the population, which has increased by 31.8% from 2011 to 2021, according to the latest report of the Financial Inclusion Index ("Findex") from the World Bank (Demirgüç-Kunt et al., 2021). So, in 2021, 58% of adults in Kosovo have access to bank accounts, marking a significant increase from the 44%, reported in 2011. This continued growth shows that the banking sector is making significant progress in improving access to financial services, including access to bank accounts, where consequently, there is a need for credit and comprehensive development, this applies to all countries.

3. METHODOLOGY

This research examines the banking system of the Western Balkan countries from 2010 to 2022, and its data collection includes information from 26 credit banks. Bank-specific information is collected directly from the reports of the central banks of the respective countries such as Kosovo, Albania, Bosnia and Herzegovina, North Macedonia, Montenegro, and Serbia. The central banks of the countries that make up the Balkan Republic are reliable sources of macroeconomic data, in addition to these, we have also made several reviews of the reports of the European Bank and the International Monetary Fund (IMF), which have helped us to analyze and compare the reports of the respective banks, but we have not used them directly. The data and their determination are presented in the euro currency and in total loans (TL). In the research, profitability metrics ROA and ROE are calculated using two separate panel regression models. Several estimated models are also used to examine the impact of ownership structures on banks' bottom lines. In this model, editing risk serves as the only exogenous factor; all other variables are measures of banking, sectoral and macroeconomic performance. Further, the correlation coefficients for the independent and dependent variables of the regression analysis are presented. Based on the calculated correlation matrix, we know that there is a weak relationship between the independent variables.

3.1. Selecting relevant variables

ROA or *ROE* are employed as profitability measures in the research.

For a quick summary of the indicators, consider the following:

• Profit after tax as a percentage of total or average assets is the key performance indicator for gauging a bank's asset utilization and a company's capacity to generate profits from those assets. This metric is also known as *ROA*.

• *ROE* is net income divided by total or average stockholder equity. A measurement of a bank's capacity to turn a profit on shareholder capital, this ratio measures the return on equity.

We used this method because it is adequate for measuring the performance of banks in general, so the following part is an additional clarification for the readers: ROA and ROE are financial performance metrics used to rate the profitability and efficiency of a company.

Return on assets (*ROA*): Measures how effectively a company uses its assets to generate profits. It shows the profitability of a company in relation to its total assets. The formula for *ROA* is: *ROA = Net income / Average total assets.*

Net income represents the company's total income after deducting all expenses, taxes, and interest. Average total assets are the average value of the company's total assets over a given period, usually calculated as the average of the beginning and ending assets. ROA provides insight into how efficiently a company is using its assets to generate profits. A higher ROA indicates better asset utilization and profitability.

Return on equity (*ROE*): Measures the return generated by the investment of shareholders' capital in a company. It shows the profitability of a company relative to its shareholders' investments. The formula for *ROE* is: *ROE = Net income / Average shareholders' equity*.

Net income represents the company's total income after deducting all expenses, taxes, and interest. Average shareholders' equity is the average value of the company's shareholders' equity over a given period, usually calculated as the average of the initial and closing equity.

ROE shows how effectively a company generates profits from the capital invested by its shareholders. A higher ROE indicates better profitability and efficiency in the use of equity capital. Both ROA and ROE are financial ratios widely used to evaluate a company's performance and compare it to industry peers. However, it is important to consider industry norms, company size, and other relevant factors when interpreting these ratios, as standards for what is considered good or bad can vary across sectors (Furhmann, 2022).

3.2. Profitability determinants

Profitability was determined using a group control parameter that is unique to banks, the industry, and the macroeconomy, as well as a metric of credit risk.

• Non-performing loan-to-loan ratio (*NPL/TL*) is utilized as a measure of credit risk in this analysis. As a key predictor of a bank's credit risk and loan quality, this metric is widely considered to be among the most influential in the field. The smaller the ratio, the higher the quality of assets and the lower the amount of dubious loans, and the lower the credit risk.

• The ratio of shareholders' equity to total assets (*TC/TA*) is the definition of "capitalization". It is a key metric for analyzing the health of financial organizations. The infusion of funds is anticipated to have a beneficial impact on bank earnings.

• In addition to being a representation of asset quality (*TL/TA*), this variable also serves as an indication of liquidity. It is calculated as the sum of all loans divided by the value of all assets. As interest income is such a significant part of a bank's revenue stream, it stands to reason that a bank with a greater loan-to-assets ratio would be more profitable. Credit total asset ratio is a signed variable that changes as a function of the percentage of non-performing loans to the total.

• The natural logarithm of total assets was utilized as a surrogate for bank size in the research, denoted by the variable of bank size. With a big asset base, a bank may form a portfolio with a wider range of investments. They may thus cut their losses and boost their gains. Yet, banks benefit from a reduced cost advantage and higher profits as a result of scale and scope efficiencies.

• One such variable is the "ownership dummy" (*OWN*), whose purpose is to assess how various forms of ownership influence profits. For any deposit bank that accepts public capital, private capital, or foreign capital, a dummy variable is created. The value is "1" if the bank is owned by the government (or a foreign government), and "0" otherwise.

• While calculating the concentration ratio (*CR3*), the three biggest banks' assets are compared to the whole banking industry's assets. The impact of concentration on profits has been seen both positively and negatively in the academic literature.

• To illustrate expansion in the economy, one measure is the gross domestic product (*GDP*) growth rate (*GDPR*). Consequences favorable to income are anticipated.

• Inflation, measured by the consumer price index (*CPI* or *INF*), is a major factor in determining how well banks do. Little is known ahead of time about how inflation would affect banks' bottom lines.

3.3. Descriptive statistics

State-owned banks had an NPL/TL ratio of around 4%, while private banks had a rate of about 3% and foreign banks had a rate of about 9%, as seen in the Table 1 below. NPLs at international banks, on average, are greater than at domestically controlled and privately held financial institutions. State-owned banks have an average *ROA* of 1.8%, whereas private banks have a *ROA* of 1.3%, and foreign banks have a *ROA* of 1.4%. *ROE* is the other profitability statistic. State-owned banks often have a greater *ROE* than either private banks or international banks. Foreign banks have a higher average capital ratio than domestic ones, at 1.8%. As it goes

above, *ROA* is a financial ratio used to measure a company's profitability in relation to its total assets. In this case, *ROA* of 1.8% means that, for every unit of assets that the company has, it generates a return of 1.8%.

In other words, if a company has 1 million euros in total assets and its *ROA* is 1.8%, it would generate a net income of 18,000 euros (1 million euros × 1.8%) from those assets. The higher the *ROA* percentage, the more efficiently a company is using its assets to generate profits. It is important to note that *ROA* percentages can vary significantly between industries, and what constitutes a good or acceptable *ROA* depends on the specific context and industry norms (Palepu et al., 2017). Comparisons with industry averages or competitors can help provide a better understanding of a company's performance relative to its peers. Comparatively speaking, state-owned banks are larger and have a greater concentration ratio (*CR3*) than both privately-owned and international banks.

3.4. Inference and model specification

In our research, we used the regression model as this is the most adequate model for measuring the variables we used. The data was analyzed through the panel regression model that we have specified in Eq. (1) below.

$$Z_{it} = \beta_i + yY_{it} + \varepsilon_{it} \quad (1)$$

where,
Z_{it} = Income for bank i in time period t;
β_i, y = Vector of regression coefficients;
Y_{it} = Explanation-focused variables;
ε_{it} = The error term.

This is the empirical model that will be estimated:

$$\begin{gathered} Z_{it} = \beta_0 + y_1(NPL/TL)_{it} + y_2(TC/TA)_{it} + y_3(TC/TA)_{it} + \\ y_4(SIZE)_{it} + y_5(OWN)_{it} + y_6(CR3)_{it} + \\ y_7(GDPG)_{it} + y_8(INF)_{it} + y_9(CRISIS)_{it} + \varepsilon_{it} \end{gathered} \quad (2)$$

where, Z represents a profitability metric in terms of *ROA* and *ROE*.

4. RESULTS

Results from a panel regression analysis of *ROA*, *ROE*, and selected macroeconomic and industry factors are shown in the table below. The table displays the Wald test statistics for all three regressions, demonstrating a statistically significant model fit to the panel data.

Table 1. Dependent factors

Variable	*Model 1*	*Model 2*	*Model 3*
Bank size	0.133** (0.052)	0.137*** (0.052)	0.117** (0.052)
Capitalization	0.808*** (0.159)	0.805*** (0.159)	0.796*** (0.158)
Value of assets	-0.365*** (0.108)	-0.377*** (0.108)	-0.372*** (0.107)
Financial danger	-0.284*** (0.061)	-0.289*** (0.061)	-0.286*** (0.061)
Ownership dummy (*D1*)	0.300 (0.331)		
Ownership dummy (*D2*)		0.338** (0.162)	
Ownership dummy (*D3*)			-0.395** (0.157)
CPI inflation (*INF*)	0.889*** (0.233)	0.878*** (0.229)	0.874*** (0.229)
CRISIS	-0.456* (0.239)	-0.461* (0.235)	-0.460* (0.235)
GDPG	-0.134 (0.100)	-0.135 (0.098)	-0.133 (0.098)
CR3	3.085*** (0.671)	2.966*** (0.671)	2.778*** (0.676)
R-squared	0.321	0.277	0.284
Hausman test	0.152	0.223	0.070
Wald Chi-square	95.63	101.24	103.48
Probability	0.000	0.000	0.000
Model selection	RE	RE	RE
Total observations	338	338	338

The results of a Hausman specification test performed to identify the model most accurately representing the data in the sample are reported in the table. This means that any model of the capital structure may make use of random influences. Table 1 displays random-effects estimates. Credit risk correlates negatively and significantly with *ROA*. This finding is supported by developments like increased bank loan supply and ineffective administration of credit monitoring and borrower screening. The rise in income-less, unsecured assets accounts for the negative correlation. When banks grow their holdings of unsecured assets, they must increase their provisions to account for inevitable credit losses. Consequently, banks' profits will decrease as a result of an increase in unsecured assets. That credit risk is a key measure of a bank's health is corroborated by the results. As a result, the Balkan countries' banking industry is reminded that credit risk remains a major issue.

Capital ratio (*TC/TA*) estimates are statistically significant and favorable. That is why it is clear that more profitable banks have solid capital structures. Another factor is that the cost of finance is low and earnings are high at the well-capitalized banks since they need less money from outside sources. It is worth noting that to determine the statistical significance and favorability of *TC/TA*, a comprehensive analysis is required, including the specific context, industry norms, and relevant statistical tests (D'Amato, 2020). All of these are taken as examples to get to the bottom of the analysis.

Statistical significance: To assess the statistical significance of an equity ratio estimate, statistical tests, such as t-tests or regression analysis, can be used. These tests can help determine whether the estimated equity ratio is significantly different from a reference value or whether there are significant differences between groups. It is

important to consult a statistician or perform appropriate statistical analysis using relevant data to assess the significance of the capital ratio estimate.

Favorability: Determining whether a capital ratio estimate is favorable depends on various factors, such as industry standards, regulatory requirements, and the company's specific goals and risk appetite. Comparing the capital ratio estimate to industry averages or regulatory thresholds can provide insight into its favorability. In addition, analyzing the impact of the capital ratio on the company's financial stability, risk management, and growth prospects can help assess its favorability in achieving the desired objectives. What we have done in this work is the determination of the capital valuation ratio, which we have used data from credit banks, where credit risk is shown in a form, as well as the main factors of determining the profit of a bank, as well as the risk from excessive liquidity, which is not even in favor of the industry.

The asset quality (*TL/TA*) has a negative and statistically significant (at the 1% level) effect on *ROA*. In this case, the negative coefficient suggests that a bank with large liquidity is unprofitable. This finding, which is at odds with the academic literature, might be assessed in light of the banking system in Balkan countries. The growth of non-performing loans in the global banking system, particularly in the post-crisis period, is viewed as a crucial sign of the fragility of the Balkan countries' banking industry. Banks' liquidity risk rises when the proportion of non-performing loans to total assets rises. This means that, unexpectedly, bank earnings are falling. The size of a bank (*SIZE*) is significantly correlated with its profitability. With the expansion, a bank may take advantage of economies of scale to lower costs and boost profits. Analysis of the effect of ownership on bank profitability yields varying outcomes depending on the kind of capital structure used. For the first model, the contribution of publicly-owned financial institutions (*D1*) to bottom-line success is not statistically significant. State-owned banks exist, first and foremost, to provide societal benefit. Because of this, public banks prioritize enhancing the common good above maximizing profits. Model 2 predicts a favorable and statistically significant impact of privately held banks on profitability. Privately held banks, in contrast to state-owned banks, prioritize increasing their profits. According to Model 3, there is a negative and statistically significant effect of foreign banks on profitability. There is a statistically significant positive value for the concentration coefficient of banks. The findings provide credence to the argument that dominant financial institutions enjoy more profitability.

When considering the effects of macroeconomic factors, the GDP growth rate has little bearing on return on investment (*ROI*). The variable of inflation has a positive and statistically significant influence on *ROI*. Lastly, at the 10% level of significance, the crisis variable's coefficient is negative. Reports indicate that banks' bottom lines have taken a hit due to the ongoing financial crisis. Financial institutions' bottom lines have taken a hit due to the current economic crisis.

Table 2. Return on equity

Variable	*Model 1*	*Model 2*	*Model 3*
Financial danger	-0.283*** (0.064)	-0.288*** (0.064)	-0.285*** (0.064)
GDPG	-0.141 (0.106)	-0.142 (0.104)	-0.139 (0.104)
Bank size	0.140*** (0.053)	0.143*** (0.053)	0.122** (0.054)
Capitalization	-0.165 (0.168)	-0.169 (0.167)	-0.179 (0.166)
Value of assets	-0.353*** (0.113)	-0.366*** (0.113)	-0.359*** (0.113)
Ownership dummy (*D1*)	0.292 (0.333)		
Ownership dummy (*D2*)		0.353** (0.169)	
Ownership dummy (*D3*)			-0.414** (0.165)
CPI inflation (*INF*)	0.909*** (0.247)	0.897*** (0.243)	0.892*** (0.242)
CRISIS	-0.466* (0.245)	-0.472* (0.249)	-0.471* (0.249)
CR3	3.209*** (0.699)	3.076*** (0.701)	2.871*** (0.707)
R-squared	0.306	0.259	0.279
Wald Chi-square	84.98	90.70	92.71
Hausman test	0.182	0.278	0.092
Probability	0.000	0.000	0.000
Model selection	RE	RE	RE
Total observations	338	338	338

The impact of credit risk and control factors on *ROE* is estimated and shown in Table 2 above. By comparing the tables, it is clear that the *ROA* variable's coefficients and outcomes are quite close to those of the *ROE* variable. The results are summed up as follows.

The ratio of non-performing loans to total loans (*NPL/TL*) is inversely related to *ROE*. The capital ratio (*TC/TA*) has a favorable and statistically significant impact on *ROE*. Quality of assets (*TL/TA*) is inversely connected to *ROI*. The asset quality and return on equity both decline as the proportion of bad loans rises. There is a positive and statistically significant association between bank size (*SIZE*) and *ROE*. As can be shown in Table 2, state-owned banks (*D1*) have a negligible impact on profits. Both *D2* and *D3* have statistically significant coefficients for privately held banks and foreign banks, respectively. Privately held banks have a positive coefficient (*D2*), whereas banks with foreign ownership have a negative coefficient (*D3*). An increase in bank concentration tends to increase *ROE*. Profitability improves with increasing levels of concentration. The pace of economic growth is negligible. The correlation between inflation and *ROE* is positive and statistically significant. Ten percent (10%) *ROE* has been significantly impacted negatively by the crisis.

5. DISCUSSION

The results of the study show a negative relationship between non-performing loans (NPLs) or total loans (TL) and return on assets (ROA) and return on equity

(ROE), this indicates that higher levels of non-performing loans or TL are associated with lower profitability for financial institutions. To put it simply, here is what these findings mean:

Negative impact on ROA: Return on assets is a measure of a bank's profitability relative to its total assets. A negative relationship between NPL/TL and ROA suggests that as NPLs or TLs increase, bank profitability decreases. This implies that the bank is less efficient in generating profits from its assets due to the presence of non-performing loans or higher credit levels.

Negative impact on ROE: Return on equity measures a bank's profitability relative to its shareholders' equity. When there is a negative relationship between NPL/TL and ROE, it suggests that higher levels of NPLs or TL erode the bank's ability to generate returns for its shareholders. This can be attributed to increased provisioning expenses, potential write-offs, and losses related to non-performing loans, or the impact of high loan levels on the bank's overall profitability.

The finding in this paper is consistent with what has been previously written on this topic. Because of this inverse correlation, banks' profits fall when the NPL/TL ratio increases since they have less available capital with which to fund their investments and operations. One of the major issues facing the Balkan countries' banking industry is credit risk, which has a negative effect on the institutions' bottom lines. Hence, it was advised that banks put their money into high-profit-generating activities that would swiftly expand their capital.

Credit risk management becomes more crucial as a result of its impact on performance. A bank's success depends heavily on its ability to implement and maintain an efficient credit risk management mechanism. There has to be a greater emphasis on credit risk management in financial institutions, especially with regard to loan oversight. More attention has to be paid by managers to the latest methods for managing credit risk. Banks' efforts to diversify their sources of revenue boost the efficiency with which they handle credit risk.

The goal of this research was to analyze the effect of credit risk on the profitability of banks in the Balkan countries' banking industry from 2010 to 2022. Bank profitability is represented by ROA and ROE, while credit risk is represented by non-performing loans to total loans in order to analyze the correlation between the two. The model includes credit risk, together with control factors and macroeconomic variables. The independent variables hardly even correlate with one another. Coefficient estimates are obtained using the panel random effects model since it provides the greatest fit to the data structure according to the Hausman test.

6. CONCLUSION

By achieving these objectives, the research aims to contribute to the understanding of credit risk management in commercial banks in Balkan countries, provide empirical evidence to assist policymakers and banking regulators, and offer recommendations to enhance the financial performance of banks in the region. Ultimately, this research is essential for fostering a resilient and stable banking sector in the Balkan countries and promoting sustainable economic growth. Credit risk, liquidity risk, operational risk, currency risk, interest rate risk, and political risk are all threats that banks and other financial organizations must contend with. If a bank is unable to make its loan payments, it faces the bankruptcy risk associated with bad credit. The asset-liability structure of the economy, both on the micro and macro levels, is largely attributable to this variable. The results for ROA and ROE are consistent with each other, as predicted by the random effects hypothesis. The following is an explanation of the combined effects of the various control variables. Profitability is positively and significantly correlated with the capital ratio (TC/TA) (ROA and ROE). The ratio of capital to total assets (TC/TA) is positively and significantly correlated with financial success (ROA and ROE). This discovery suggests that the microeconomic variable shocks that cause a decline in bank capital are the primary drivers of financial crises. Quality of assets (TL/TA) inversely correlates with financial returns (ROA and ROE). As a result, it explained that banks face a basic risk element when their obligations grow at an unsustainable rate. Increasing bank size (SIZE) increases profitability (ROA and ROE). The existence of economies of scale for financial institutions is shown by this outcome.

For banks with a majority of state ownership (D1), the impact on profitability (ROA and ROE) is insignificant, but for banks with a majority of private ownership (D2) and banks with a majority of foreign ownership (D3), the effect is negative. It suggests that financial institutions have not reaped the full benefits of the improving domestic and global economy. Banking concentration (CR3) correlates positively and significantly with earnings. The pace of economic growth is negligible. Inflation was shown to have a significant and favorable impact on profits (ROA and ROE). The crisis variable has a detrimental impact on ROI and ROE. Hence, the report recommended that financial institutions prioritize capital-intensive activities that provide high returns. It is also fair to say that credit risk, which has a negative impact on banks' financial performance, is a significant issue facing the Balkan countries' banking industry.

For the future, it is important to know some limitations of the research. Sample size and representation: The paper has limitations regarding the sample size and the representation of credit banks in the Balkan countries included in the study. If the sample size is small or not sufficiently diverse, the findings may not be generalizable to the entire population of banks in the region. Then, the availability and quality of data: The availability and quality of data used in the study can affect the reliability and validity of the findings. If the data used to assess credit risk and financial performance is incomplete, inconsistent or of poor quality, it may limit the accuracy and generalizability of the results. Causality and direction: Establishing causality between credit risk and financial performance can be challenging. The paper may face limitations in determining the direction of the relationship, as credit risk may affect financial performance, but financial performance may also affect credit risk.

Contextual factors: The paper may not fully address the contextual factors that may influence the relationship between credit risk and financial performance in Balkan countries. Economic, regulatory, and institutional differences between countries may affect the dynamics of the relationship and limit the generalizability of the findings. As well as time frame and data period: The paper is limited by the specific time period or data period covered. Economic conditions, regulatory environments, and banking practices may evolve over time and the results may not reflect the current state of credit risk and financial performance in the Balkan countries. These are just some general limitations that may be important to keep in mind for further work because we have already passed these stages. It is important to review the specific details of the paper to identify its particular limitations and to consider how they may affect the interpretation of the results.

It is important to continue this work in the years to come, regardless of the difficulties that every author may face during the research. The focus of the paper on the Balkan countries provides valuable insights into the specific dynamics of credit risk and financial performance in that particular region. This can serve as a basis for further research that digs deeper into the unique characteristics, challenges, and opportunities faced by banks in the Balkan countries. The paper may introduce new methodologies, variables, or models for assessing credit risk and financial performance in commercial banks. Future researchers can evaluate and improve these methodologies or explore alternative approaches to gain a more complete understanding of the relationship. The findings of the paper may have implications for policymakers, regulators, and financial institutions in the Balkan countries or beyond. Understanding the impact of credit risk on financial performance can inform policy decisions, risk management strategies, and regulatory frameworks. Future research could focus on exploring policy implications and recommending best practices based on study findings. Overall, the importance of the paper for future research lies in its regional focus, potential generalizability, methodological contributions, policy implications, consideration of temporal dynamics, and identification of gaps.

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