An Investigation into the Influence of Non-Performing Loans on Lending and Capital: A Case Study of Commercial Banks in Kosovo

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Abstract: This research is part of a series of studies that evaluate the performance of commercial banks in Kosovo, including the composition of non-performing loans within the Banking System of the Republic of Kosovo. The primary objective of this paper is to analyze the impact of nonperforming loans on the banking sector in Kosovo. The study was conducted by examining financial indicators of commercial banks, such as first-tier capital, second-tier capital, total capital, and total loans. These indicators were obtained from the Central Bank of the Republic of Kosovo, and the analysis covers a 10-year period from 2012 to 2022. Consequently, several inquiries arise: Do nonperforming loans have a detrimental effect on other financial indicators in Kosovo's banking system? What is the influence of nonperforming loans on total capital? How do nonperforming loans affect lending activities? To address these questions, we conducted a comprehensive review of empirical studies employing the SPSS model to measure the impact of bad loans. The research encompasses the period from 2012 to 2022. Upon reviewing relevant international literature, it becomes evident that numerous studies establish a direct relationship between financial indicators and non-performing loans (Çollaku and Aliu, 2021). In contrast, our study focuses on examining the impact and interdependence of non-performing loans on those financial indicators.

Keywords: Non-performing loans, credit risk, lending, total capital and total loans.
JEL Code: G01 G21 G31.

INTRODUCTION

Despite significant advancements in structured risk management techniques, the exposure to risk remains high, creating conditions of systematic instability.

Numerous studies emphasize the crucial importance of strong and independent bank management, along with rigorous oversight by regulatory authorities, to effectively manage the risks faced by modern banks (Laryea, 2019; Stuart, 2020). Credit risk management is just one aspect that affects a bank's success, as indicated by various research findings. Athanasoglou (2022) discovered a negative correlation between non-performing loans and bank performance. Similarly, Tölö and Virén (2021) found that a bank's overall lending growth is highly sensitive to NPLs in its corporate loan portfolio, while lending to households and government entities is also influenced by NPLs in their respective portfolios. Furthermore, banking governance plays a pivotal role in determining bank performance (Acharya and Richardson, 2009; Kirkpatric, 2009; Diamond and Rajan, 2009).

Despite ongoing efforts to control banking lending activities, problem loans remain a significant concern. The Global Financial Stability Report by the International Monetary Fund (2007) highlighted considerable disparities in problem loan levels across various developed and developing countries. Studies by Keeton and Morris (1987) and Keeton (1999) demonstrated that high losses experienced by banks result from weak loan management processes, challenging economic conditions in specific regions, and the banks' willingness to extend loans even when problem loan ratios are rising rapidly.

The heightened presence of non-performing loans worldwide, particularly in Europe, led the researchers to analyze the status of NPLs in Kosovo. The primary objective of this research is to conduct a comprehensive credit analysis of commercial banks in Kosovo, with a particular focus on nonperforming loans. The concern surrounding non-performing loans in European countries, where bad loan levels are continually increasing, served as a motivation for this study. While Kosovo faces a similar financial situation, the difference is relatively low compared to other countries in the region. The study aims to investigate the impact of nonperforming loans on the banking sector, specifically on capital indicators and lending activities.

It is widely acknowledged that any increase in a bank's exposure to credit risk raises the likelihood of a financial catastrophe (Dineva, 2019).

LITERATURE REVIEW

The financial system's health plays a crucial role in a country, and the banking industry must maintain healthy profit margins and sufficient capital reserves (Al-Malkawi, 2019; Abiola and Olausi, 2014; Das and Ghosh, 2007). The failure

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of banks could potentially undermine a country's economic development. Assessing a company's financial performance involves its ability to generate new resources consistently. Banking performance can be measured using traditional and market-based metrics (Aktan and Bulut, 2008).

Kargi's study on Nigerian banks (2021) found that a bank's success is inversely proportional to how well it manages credit risk. The bank's profitability was negatively affected by the volume of loans and advances, nonperforming loans, and deposit levels. However, Kithinji (2018) examined the hypothesis that Kenyan commercial banks can enhance their bottom lines by implementing improved loan management. This study collected data on total loans, non-performing loans, and earnings. The findings revealed that the ratio of total mortgages to non-performing mortgages had no significant impact on banks' profitability.

The financial system is exceedingly complex worldwide, with banks being the primary source of external funds used to finance businesses (Mishkin, 2007). Banks hold a crucial position in the global economy, acting as financial intermediaries for private consumers, businesses, and governments. The theory of the banking system as a financial intermediary has been explored by numerous renowned economists and well-known journals, such as Diamond and Rajan (2009), Allen and Santomero (2001), and Matthews and Thompson (2005).

The classification and reporting of loans, both performing and non-performing, lack a relevant global standard. However, regulators and banks in many countries are moving towards adopting and adapting best practices (Grieser and Wulfken, 2009).

Sufian's research (2011) indicates that trends in credit risk are evident from the bank's provisioning within a year compared to total loans. Flamini, Schumacher, and McDonald (2009) define credit risk as the proportion of total loans to total assets. Credit risk is considered a critical issue in bank management by many authors, as it directly affects a bank's profitability.

Claudine and Felix's study (2018) explored how credit risk management influences the success of banks in emerging markets. They incorporated indicators of bank efficiency and profitability, such as ROE and ROA, into their model. The proportion of non-performing loans to total loans served as a good indicator of overall credit risk. Their research revealed a weak relationship between performance measurements and credit risk.

Alalaya and Khattab (2015) argued that commercial banks play a vital role in economic development, triggering economic growth as service providers within the community. Banks offer necessary services through monetary means in the form of loans or debts. They act as depository institutions, licensed by the country's authorities to receive financial means from individuals, enterprises, and other institutions. Additionally, banks serve as financial institutions available to customers seeking financial advice.

Ezike and MO (2013) examined the impact of capital adequacy on bank performance, analyzing the period from 2003 to 2007. They concluded that bank managers should focus on supervising bank efficiency, effectiveness, and risk management. Empirical literature on non-performing loans explains bank problem loans using specific internal variables related to bank management. Studies show that unsecured loans, in the form of non-performing loans, significantly impact banking operations.

Empirical research demonstrates that the level of non-performing loans is influenced by the economic environment. For instance, disposable income, monetary conditions, and unemployment strongly affect problem loans in European countries (Rinaldi and Sanchis-Arellano, 2006). Furthermore, empirical analysis indicates that GDP growth is a key factor contributing to problem loans (Beck, Jakubik, and Piloiu, 2013). Accounting for the impact of problem loans on other correlated variables is crucial, as they may adversely affect various aspects. Researchers in Nigeria analyzed the performance of banks under the influence of non-performing loans, examining financial reports from 2005 to 2011 (Abiola and Olaus, 2014).

Credit risk exists in various economic and financial situations, and both developed and transitioning countries encounter it. However, the trend of risk growth may differ. Risk-weighted loans, including non-performing loans, can influence the banking system, affecting profitability indicators and hindering banking business development. If not managed appropriately by bank management, such loans can negatively impact a country's economic development. Thus, credit risk management significantly influences the success of banks (Al-Malkawi et al., 2019; Abiola and Olausi, 2014; Kargi et al., 2021; Kithinji et al., 2018; Dineva et al., 2019; Athanasoglou et al., 2022).

METHODOLOGY

This paper focuses on analyzing the credit risk management, particularly problem loans, using financial data from commercial banks in the Republic of Kosovo. The main methods employed in this study are the structure index, dynamics index, and correlation analysis. For data processing and analysis, the statistical package SPSS 22 was utilized, enhancing the credibility of the research.

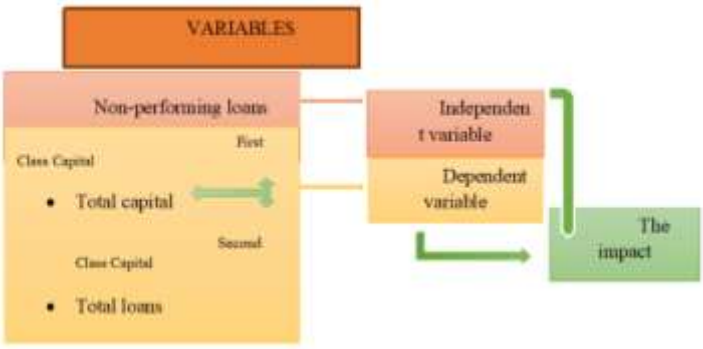

Fig. (1). Illustrates the conceptual model of variables used in the study.

To gather the necessary information, the researchers employed a quantitative research method, collecting data during the analyzed experiment. Several authors have previously employed different models to explore the impact of various factors on the level of problem loans.

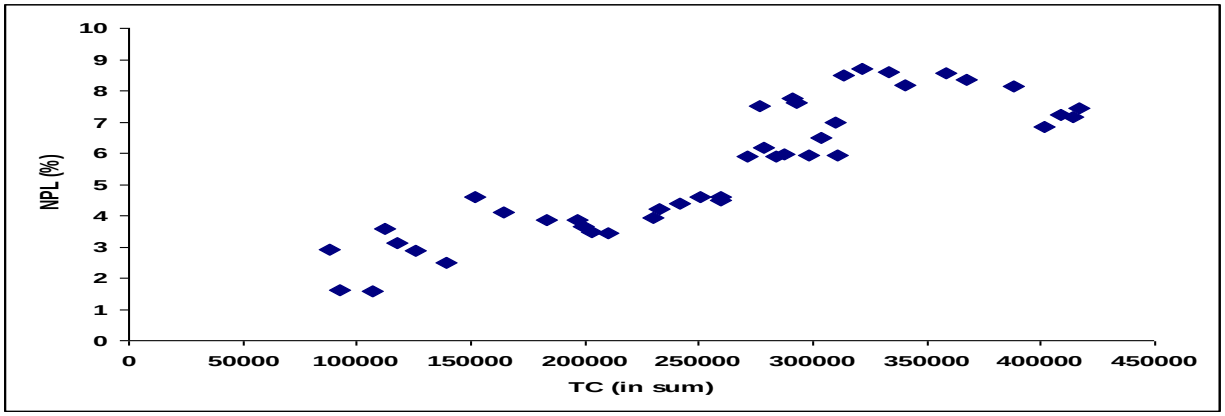

Fig. (2). Correlation between TC and NPL.
Source:Author's calculation.
Research results related to the first hypothesis.
Results by linear regression.

The examination period for this research spans ten years.

The linear regression model utilized in this analysis is as follows:

$Y = \alpha + \beta 1X1$

RESULTS AND DISCUSSION

This section presents the detailed results of the empirical study, focusing on examining the hypotheses regarding the correlation between non-performing loans and capital indicators. The study covers a 10-year period from 2012 to 2022, where a comparison of total capital, total loans, and non-performing loans was conducted.

To verify the first hypothesis, the researchers used total capital (TC) as a significant measure for banks concerning non-performing loans. They applied a statistical model using the SPSS 22 package.

Based on the data presented in Table **1**, it was found that there is a strong positive correlation (correlation coefficient r=0.878) between total capital and non-performing loans. The correlation coefficient indicates a high degree of positive relationship between these two variables.

At a 95% confidence level, the correlation coefficient falls between the values of 0.78 and 0.93, signifying a strong relationship. As total capital increases, non-performing loans also increase, and this increase is statistically significant (P<0.0001).

The graphical representation of this correlation is as follows:

Table 1. Correlation between TC and NPL.

Dependent Variable	Total Capital (in sum)
Independent variable	NPL (%)
Correlation coefficient (r)	0.878
95% confidence interval	0.78 - 0.93
The two - tailed P value	P<0.0001

Source: Author's calculation.

The first hypothesis (H1) aims to investigate whether the trend of nonperforming loans has a negative impact on capital indicators. To address this question and verify the hypothesis, a linear regression model was constructed using the SPSS 23 statistical package. This model was designed to establish a relationship between nonperforming loans (independent variable - Y) and total capital (dependent variable - X1).

The regression model obtained is represented as follows: Y = 118.631 + (1.597X1)

The results of the regression analysis, as presented in Table **2**, indicate that the model is statistically significant (F=35.452, p<0.05) with an explanatory power of approximately 93% (R=0.928). This high R-squared value suggests that the model explains a substantial portion of the variation in the dependent variable (total capital) based on the independent variable (nonperforming loans).

The findings of the study indicate that the independent variable, nonperforming loans, had no negative impact (B=1.597) on the dependent variable, which is the banks' total capital. This means that nonperforming loans did not lead to a decrease in the banks' total capital. The statistical analysis further supports this conclusion, as the t-value (t=5.344) is significant (p<0.05).

Theoretically, an increase in nonperforming loans is expected to have a negative impact on capital indicators, as it would lead to higher expenditures on loan losses, resulting in a reduction of net profit. This reduction in net profit, in turn, directly leads to a decrease in capital and capital adequacy ratios.

However, the research case in this study shows a different outcome. Despite the growth of nonperforming loans, the impact on reducing total capital was not observed. This is attributed to the fact that the banks' profits over the years have been significantly higher than the expenditures from bad debts (nonperforming loans).

In summary, the study's results suggest that nonperforming loans did not have a negative impact on the reduction of total capital in the banks under examination. The higher profita-

bility of the banks offset the effects of bad debt expenditures, resulting in no significant decrease in total capital.

Summary of the model

Table 2. Regression Model Results.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.928.	.861	.857	.37858

Source: Author's calculation.
a. Predictors: (Constant), Nonperforming loans.
b. Dependent variable: Total capital.
ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	262324.250	1	262324.250	35.452	.000.
	Residual	42336.937	38	1114,130		
	Total	304661.187	39			

a. Dependent variable: Total loans
b. Predictors: (Constant), Nonperforming loans
Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	118.631	10.061		1.791	,000
	Nonperforming loans	1.597	.104	.928	5.344	,000

a. Dependent variable: Total capital.

In conclusion, the research findings were thoroughly examined by comparing non-performing loans with Tier I capital, Tier II capital, and total capital. The linear regression model indicated that non-performing loans did not have a detrimental impact on the total capital of banks, as the coefficients were not statistically significant ($t = 5.344$, $p < 0.05$). This implies that non-performing loans did not result in a reduction of the banks' total capital. Although the growth of non-performing loans typically leads to a decrease in capital indicators due to increased expenditures on loan losses, this was not the case in our research. The banks' profits over the years were substantially higher than the expenses from bad debts (non-performing loans), which mitigated any potential negative effect on total capital and capital adequacy ratios.

Now, regarding the correlation between non-performing loans and lending in banks:

To address this question and verify the next objective, the researchers examined the relationship between total loans (TL) and non-performing loans (NPL) using a statistical model in the SPSS 22 package. The analysis revealed a very high positive correlation (correlation coefficient $r = 0.914$) between total loans and non-performing loans. At a 95% confidence level, the correlation coefficient falls between the values of 0.845 and 0.953, indicating a strong relationship. As total loans (TL) increase, non-performing loans also increase, and this increase is statistically significant ($P < 0.0001$). The graphical representation further reinforces this correlation, showing a clear upward trend when total loans increase, leading to a rise in non-performing loans.

In summary, the study's results indicate that non-performing loans did not adversely affect the banks' total capital. Moreover, a strong positive correlation was observed between total loans and non-performing loans, implying that an increase in total loans is associated with a proportional increase in non-performing loans in the banks under examination.

Table 3. Correlation between total loans and NP.

Dependent Variable	TL (in sum)
Independent variable	NPL (%)
Correlation coefficient (r)	0.914
95% confidence interval	0.845 - 0.953
The two - tailed P value	P<0.0001

Source:Author's calculation.

The second hypothesis (H2) aimed to investigate whether non-performing loans have an impact on a decrease in lending in the banking sector.

To address this question and verify the hypothesis, a linear regression model was constructed using the SPSS 23 statistical package. This model was designed to establish a relationship between non-performing loans (dependent variable - Y) and lending (independent variable - X1).

The regression model obtained is represented as follows: $Y = 92.665 + (-3.903X1)$

The results of the regression analysis, as presented in Table 34, indicate that the model is statistically significant ($F=27.629$, $p<0.05$) with an explanatory power of approximately 65% ($R=0.649$). This R-squared value suggests that the model explains 65% of the variation in the dependent variable (non-performing loans) based on the independent variable (lending).

The analysis further shows that non-performing loans have a negative impact on lending ($t=-5.256$, $p<0.05$). The coefficient ($B=-3.903$) confirms this result, indicating that lending has been decreasing over the years in the banking sector in Kosovo, while non-performing loans have been increasing.

Summary of the model: The linear regression model demonstrates that non-performing loans have a negative impact on lending in the banking sector. The analysis reveals that lending has been decreasing over the years as non-performing loans have been increasing, confirming the hypothesis that non-performing loans impact a decrease in lending.

Table 4. Regression Model Results.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1			.406	1.398

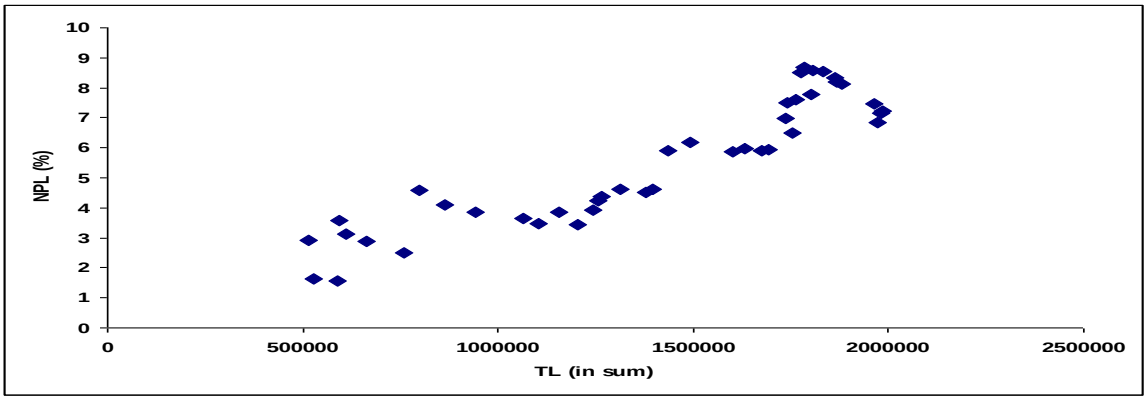

Fig. (3). Correlation between TL and NPL.
Source:Author's calculation
Research results related to the second hypothesis
Results by correlation

Source: Author's calculation.
a. Predictors: (Constant), Nonperforming loans
b. Dependent variable: Total loans
ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	43292.380	1	43292.380	27.629	.000[b]
	Residual	59541.874	38	1566.891		
	Total	102834.253	39			

a. Dependent variable: Total loans
b. Predictors: (Constant), Nonperforming loans
Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	92.665	1.180		14.037	.000
	Total loans	-3.903	.021	-.649	-5.256	.000

a. Dependent variable: Total loans

As mentioned previously, the verification of the hypothesis was conducted using a linear regression model, comparing non-performing loans with total loans. The results obtained and discussed are as follows:

The linear regression analysis demonstrated that non-performing loans have a negative impact on lending, as indicated by the significant t-value ($t=-5.256$, $p<0.05$). This negative impact is further confirmed by the coefficient ($B=-3.303$), showing the strength and direction of the relationship between these two variables.

To study the link between non-performing loans and lending, the researchers applied the ratio of total loans to problem loans. This ratio provides valuable insights into how non-performing loans affect the overall lending in the banking sector.

Based on the regression model, it was found that as non-performing loans increase, the lending in the banking sector decreases. This implies that a higher proportion of problem loans in relation to total loans negatively impacts the lending activities of banks. The decrease in lending can be attributed to the increased risk associated with non-performing loans, leading banks to become more cautious in their lending practices to mitigate potential losses.

In summary, the linear regression analysis confirms that non-performing loans have a negative impact on lending in the banking sector. As non-performing loans increase, the lending activities of banks decrease, reflecting a correlation between these two variables. The ratio of total loans to problem loans was instrumental in studying this relationship and shedding light on the dynamics between non-performing loans and lending in the banking sector.

CONCLUSION

Based on the results of the research, several key conclusions can be drawn regarding the impact of non-performing loans on the financial health of the banking system in Kosovo:

Non-performing loans are an important factor that can influence the financial health of the banking system. While in the Kosovo banking system, non-performing loans are relatively lower compared to other countries in the region, they still play a significant role in affecting various financial ratios and indicators.

The regression findings indicate that non-performing loans have an impact on almost all other variables, reaffirming their significance in shaping the overall financial health of the banking system. This impact highlights the importance of managing problem loans effectively to ensure the stability and sustainability of the financial system.

To reduce the number of non-performing loans, it is recommended that all banks be closely supervised by the Central Bank to protect against risk exposure. This is essential to safeguard the financial sustainability not only of individual banks but also of the entire financial system.

It is essential to pay attention to factors that may lead to an increase in non-performing loans, such as loan interest rates. Lowering interest rates can make loan repayments more manageable for borrowers and reduce the likelihood of loans becoming non-performing.

Banks should exercise caution in their lending policies and procedures, especially when approving large-value loans. Adherence to credit rules and procedures from loan application to disbursement is crucial to mitigate the risk of non-performing loans.

Thorough financial analysis of borrowers should be conducted by qualified professionals to assess the borrower's financial indicators accurately.

Early identification of risky loan portfolios and avoiding the approval of unsafe loan claims can help prevent loans from becoming non-performing.

If a loan defaults after approval, it should be managed effectively, and measures should be taken to adjust the loan repayment schedule based on the borrower's ability to pay, preventing it from becoming a non-performing loan.

The reduction of unemployment and overall economic development in the country can contribute to a decrease in non-performing loans, as a stronger economy improves borrowers' ability to repay loans.

In conclusion, managing non-performing loans effectively and implementing the recommended measures can contribute to maintaining a healthy and stable banking sector in Kosovo. The findings and recommendations from the research serve as valuable insights for policymakers and financial institutions to enhance risk management practices and maintain a sound financial system.

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