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# THE IMPACT OF THE NON-PERFORMING LOANS TO BANKS' PERFORMANCE: THE CASE OF THE REPUBLIC OF MACEDONIA

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**Abstract:** *The paper investigates the relationship between non-performing loans and the basic indicators for banks' performance. The analysis was conducted among the banking sector in the Republic of Macedonia for the period 2007-2015. The share of non-performing loans in total loans is one of the basic indicators for the quality of the credit portfolio in banks. The analysis of the movement and the level of non-performing loans is of great importance for identifying possible problems in bank risk management as a whole. With the application of correlation and regression method, we confirmed the findings of the consequences of non-performing loans on the performance of banks. The results indicate that a large share of non-performing loans to total loans leads to deterioration in the financial and liquidity position. There is a weak negative correlation between the rate of capital adequacy and non-performing loans ratio and that requires further research.*

**Keywords:** *non-performing loans, banks, credit portfolio, capital adequacy, return to equity*

**JEL Classification:** *G21, G01*

## INTRODUCTION

The development of banking and financial operations in the world, the globalization of relations among national economies, the volatility of the dynamics of developments on financial markets and the behavior of economic agents make banking operations a very risky field. Banks are exposed to different types of risks, but, in the traditional banking, credit risk is the primary reason for the failure or success of banks.

Forgetting about the risks in the process of credit approval, banks often come to a bitter conclusion when it is too late, when debtors will be faced with difficulties for repayment of annuities. Loans are the core of the banking activity with dominant share in banks' assets. The basic indicator for the quality of the credit portfolio of the banking sector is the share of non-performing loans in the total

loans. So, monitoring of the movement and the level of non-performing loans is of great importance for identifying possible problems in credit risk management and bank risk management as a whole.

Non-performing loans in banks' balance sheets and allocation of losses in the loan portfolio are one of the main reasons for negative financial and business results of banks. They affect the overall performance of the bank. Also, the level of non-performing loans in the country's banking system is the best indicator of the health in banking industry. Thus, this field deserves a special attention in the analysis.

The paper analyzes non-performing loans as a most important part of loan portfolio with direct consequences of the financial and solvent position and stability of banks. The research is focused on the analysis of banking system in the Republic of Macedonia for the period from 2007 to 2015. With statistical methods, a significant impact of the non-performing loans on banks' performance indicators was empirically confirmed.

The paper is organized as follows. First, it gives a brief survey of the main findings regarding the non-performing loans. Second, it reviews an analysis of non-performing loans and solvent position of the Macedonian banking system. Third, it conducts statistical analysis on the non-performing loans and some of indicators for financial stability on the banking sector in the Republic of Macedonia, and, finally, it offers some conclusions.

## REFERENCE REVIEW

Non-performing loans are the subject of interest for many authors. Bouwman(2013) explain the non-performing loans with the inefficient banks. The banks with lower profitability are tempted to resort to less reliable and risky credit investments to increase profitability and/or to meet the requirements of regulatory authorities. Maggi and Guida (2009) find that the effect of a change in the probability of an uncertain loan becoming non-performing is extremely costly for the banking system, effectively impacting the efficiency of the banking system.

Two sets of factors were identified in the literature to explain the development of non-performing loans over time (Aiyar et.al, 2015). According to the authors, one group focuses on external events such as the overall macroeconomic condi-

tions that affect the borrower's creditworthiness to repay loans, while the other group is more focused on the internal factors of the banks themselves.

Kozaric and Zunic (2015) analyze the relation between risks to which banks are exposed, the rate of non-performing loans and the rate of capital adequacy in the banking system of Bosnia and Herzegovina. They used the indicators of profitability ROAA and ROAE, risk weighted assets, the share of loans in total assets, the ratio of loans/deposits, ratio for the share of liquid assets in total assets and liquid assets terms of long-term obligations as indicators of bank's performance. They concluded that there is strong correlation between the rate of capital adequacy and non-performing loans, ROAA and ROAE. The non-performing loans have a strong negative correlation with indicators of participation of liquid assets in total assets and liquid assets in long-term liabilities. Authors recommend that banks in Bosnia and Herzegovina should pay more attention to non-performing loans which are one of the biggest dangers for their liquidity and stability.

Examination of the determinants of the already taken credit risk (*ex post*) is of vital importance for the regulatory institutions, and it concerns the financial stability and the management of banks, especially when the credit risk receives a form of non-performing loans. The determinants of non-performing loans are the research focus of many empirical papers. As the studies show, although banks develop sophisticated credit risk techniques primarily aimed at analyzing the borrower's creditworthiness (*ex ante*), materialized credit risk translates into non-performing loans (*ex post*) emerges from macroeconomic and bank specific developments. Some of the studies are listed below.

Beck, Jakubik and PiloIU (2013) from European Central Bank in their study "Non-performing loans. What matters in addition to the economic cycle?" analyze the macroeconomic determinants on non-performing loans in 75 countries for a period of one decade. They conclude that the growth of real GDP is the main driver for non-performing loans. Accordingly, the decline in global economic activity remains the most important risk for the quality of the bank loan portfolio. At the same time, they conclude that economic activity can't fully explain the development of non-performing loans in all countries and for the entire period of one decade, but other additional factors specific to individual countries also affect the growth of non-performing loans. Thus, the depreciation of the exchange rate leads to an increase in non-performing loans in countries with high share of foreign currency loans in banks' portfolios. For example, the depreciation of the local currency relative to the Swiss franc versus the euro con-

tributed to the deterioration of the quality of loans in some countries, such as Poland, Hungary and Croatia where, to a large extent, the share of approved loans is nominated in Swiss francs.

The Central Bank of Serbia examined the determinants of problem loans by applying a regression model in the period from 2009 to 2015. The results of the survey show that the exchange rate and real net wages affect with an equal delay of four months. The highest influence on the movement of problem loans is the exchange rate, and the smallest is the reference interest rate. The foreign exchange rate has a weaker effect on the problem loans of individuals in relation to the corporate sector. This is a consequence of the higher degree of dinarization of loans to the households of about 45% at the end of 2015 in Serbia.

Louzis, Voulsis and Metaxas (2010) research the macroeconomic and bank-specific determinants of non-performing loans - a comparative study of the credit portfolios of mortgage, business and consumer loans. They point out that non-performing loans in the Greek banking sector can be explained mainly by macro fundamental categories such as gross domestic product, unemployment rate, interest rates, and quality of loans management. In addition, they believe that macroeconomic and bank-specific determinants have different impacts depending on the type of credit product (consumer, business and mortgage loans). The authors conclude that there is a strong influence of examined macroeconomic factors on the level of non-performing loans, although the mortgage non-performing loans are the least affected by changes in macroeconomic conditions.

Nikolaidou and Vogiazas (2014) examine the determinants of credit risk in the Bulgarian banking sector during the decade 2001-2010 through the movement of non-performing loans. The survey shows that the movement of non-performing loans is significantly affected by the construction activity, the unemployment rate and credit growth, both in the short and long term. The conclusions are that the global financial crisis and the domestic regulatory framework for banks have a significant impact, but that the Greek crisis plays a nonmaterial role. This is explained with the effective regulation and strong supervisory cooperation between the central banks of Greece and Bulgaria.

Shingjergji (2013) researches the non-performing loans in Albania and concludes that there is a negative insignificant connection between the capital adequacy ratio and non-performing loans. The increased level of loans affects the increasing the level of non-performing loans. The net interest rate and the rate of return on

capital have a negative correlation, that is, the high amount of non-performing loans exacerbates the bank's performance.

There are several surveys that examine the determinants of non-performing loans in the Republic of Macedonia. Their conclusions are as follows.

The National Bank of the Republic of Macedonia (Ilievska, Vaskov and Debnik) conducted an empirical survey on the impact of the macroeconomic determinants of non-performing loans on the data base from 2003 to 2011: the growth of the gross domestic product, the basic interest rate, exchange rate, rate of inflation, export, the ratio of loans in gross domestic product, employment rate and net - wage growth. The results point out that inflation and the real exchange rate have the most statistically significant and positive impact on non-performing loans. At the same time, both the basic interest rate and the ratio of loans in the gross domestic product have a positive impact. Only the growth of the gross domestic product, the net increase in wages and exports have a negative impact on the growth of non-performing loans.

Poposka (2015), using the regression analysis, concludes that liquid assets to total assets, operating costs / non-interest expenses, capital adequacy ratio, net interest income / total income have a key influence on the movement of non-performing loans. The author discovers that there is no significant dependence between the growth of real GDP and the movement of non-performing loans in the analyzed period from 2004 to 2014, confirming the hypothesis that the financial crisis did not have a major effect on the movement of non-performing loans in the Republic of Macedonia.

Kjosevski (2015) explores the bank specific and macroeconomic determinants of non-performing loans in the Republic of Macedonia, making a comparative analysis of loans to enterprises and households for the period from 2003 to 2014. The results show that the ROA has a significant impact on non-performing loans, which is higher for the corporate sector than for households. Credit growth has a significant negative impact, where the increase of loans by 1% in enterprises causes a decrease of non-performing loans for 0.19%, and the increase of loans by 1% cause a decrease of non-performing loans for 0.08%. Solvency is statistically significant and positive.

Regarding the macroeconomic variables, the growth of gross domestic product causes a decrease in non-performing loans both for enterprises and households.

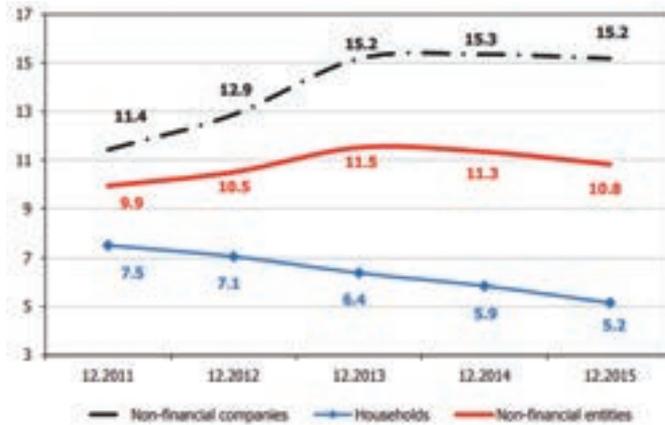
The increase in the economic growth by 1% reduces the credit risk, i.e. non-performing loans by 0.16% in enterprises and 0.08% in households. This confirms the theoretical assumptions that in periods of expansion the creditworthiness of enterprises and households increases and they can regularly service their loans. The unemployment rate has a positive and statistically significant impact on non-performing loans at the level of 5% in both sectors. The author concludes that the global economic crisis had more influence on the growth of non-performing loans in enterprises (2.71) than in households (0.18).

### **NON-PERFORMING LOANS IN THE REPUBLIC OF MACEDONIA**

The banking sector in the Republic of Macedonia is characterized by traditional approach to credit activities. The total credit exposure in the period from 2007 to 2015 has registered continuous growth although with different intensity.

The share of NPL in total loans of non-financial entities had the historically lowest level in 2008 and was followed by a steady increase until 2013. In 2014, the annual growth rate of non-performing loans was reduced to a one-digit level of 8.3%. In 2015, the annual growth rate of the non-performing loans fell to 4.7%, which is the lowest rate in the post-crisis period, after 2008. The increase in the non-performing loans and its variability originates exclusively from the changes in the non-performing loans to corporate sector, whose annual growth rate mainly registers a downward trend and at the end of 2015 it equals 5.9%. At the end of 2015, the share of the non-performing in the total loans of the corporate sector equals 15.2%. The non-performing loans to corporate clients have a dominant position, whose share is growing. Thus, at the end of 2009 their share was around 65%, and at the end of 2015 it reached nearly 80%. The share of the non-performing loans is especially characteristic for the activities “wholesale and retail trade”, “construction” and “activities related to real estate” and “transport and storage”.

The changes in the non-performing loans to households are relatively small and stable. The highest share of the non-performing loans in the total loans to households by credit products was registered in the credits based on issued credit cards and overdrafts on the current accounts (9.7% and 7.5%, respectively).

**Graph 1.** The share of non-performing loans in total loans (for non-financial entities) in %

**Source:** NBRM, Report on the risks in the banking system of the Republic of Macedonia in 2015

The non-performing loans are fully covered with the total calculated impairment in the whole period of analysis (in 2013 -103.3%, 2014 -104.7% and in 2015 -108.4%) which provides a satisfactory capacity of the banking system to absorb unexpected credit losses. This arises from the faster growth of the impairment from the growth of non-performing loans. So, the threat for the own funds of the banking system from possible full default is minimal. Thus, in the event of an extreme scenario of the inability to collect non-performing loans in full, the own funds of the banking system would decrease by 8.3% and the capital adequacy ratio would be reduced by 1.3 percentage points (NBRM, Risk Report in the banking system in the Republic of Macedonia in 2015).

Macedonia, compared with CESEE countries with non-performing loans ratio from 10.3% is a little above the average.

Non-performing loans ratios remain persistently high in other countries, exceeding 10% in 10 of the 18 CESEE countries. However, the NPL coverage ratio (measured as the proportion of loan loss provisions to NPLs) is very high in Macedonian banking system (86.7%) compared with other CESEE countries (table 1).

Macedonian banks operate profitable. Return on assets is 1.1%, and return on equity is 10.4% (in 2014: 0.8% and 7.4% respectively). Banks have a conservative approach to liquidity management. The average annual share of the liquid assets in the total assets of the banks is above 35% and covers around 60% of the

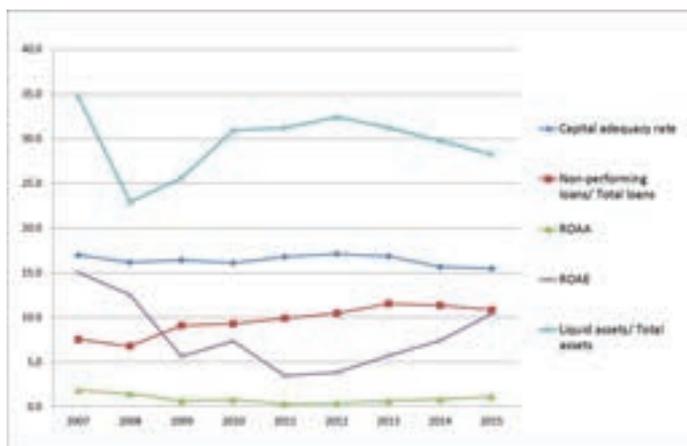
total liabilities, which is satisfactory and enables the banks to work smoothly. Other liquidity indicators show that the liquidity of the banking system is at a satisfactory level. The movement of the capital adequacy ratio, liquidity and profitability indicators as well as non-performing loans ratio is given in Graph 2.

**Table 1.** NPL in CESEE countries (31.12.2015)

Country	NPL volume (€ billion)		NPL ratio (%)		NPL coverage ratio (%)		Net NPL / Capital		Market Share NPLs		Market Share Loans	
	Dec-15	Variation (%)#	Dec-15	Δ* (%)	Dec-15	Δ (%)	Dec-15	Δ (%)	Dec-15	Δ (%)	Dec-15	Δ (%)
Albania (AL)	0.8	▼ (18.8)	18.2	▼ (4.8)	70.8	▲ 8.7	24.0	▼ (6.8)	1.4	▼ (3.2)	0.6	— 0.0
Bosnia & Herzegovina (BA)	1.1	▼ (0.2)	13.7	▼ (0.5)	71.2	▲ 1.5	26.4	▼ (1.6)	2.1	▲ 0.1	1.2	— 0.0
Bulgaria (BG)	5.7	▲ 20.0	20.6	▲ 8.9	48.8	▼ (0.7)	52.1	▲ 6.6	10.9	▲ 2.8	3.8	▼ (0.2)
Croatia (HR)	6.0	▼ (8.4)	16.3	▼ (0.4)	61.9	▲ 11.0	34.2	▼ (0.1)	10.8	▲ 0.4	5.1	▼ (0.2)
Czech Republic (CZ)	6.4	▲ 1.7	5.5	▼ (0.1)	46.1	▼ (1.6)	22.2	▼ (0.8)	11.6	▼ 0.9	16.2	▲ 0.3
Estonia (EE)	0.2	▼ (28.8)	1.0	▼ (0.4)	29.2	▲ 4.0	5.7	▼ (1.2)	0.3	▼ (0.1)	2.8	▲ 0.1
Georgia (GE)	0.3	▼ (4.8)	2.7	▼ (0.1)	35.7	▼ (1.8)	5.8	▲ 0.8	0.3	— 0.0	0.9	— 0.0
Hungary (HU)	5.1	▼ (18.5)	11.7	▼ (4.0)	69.8	▲ 9.9	18.5	▼ (0.8)	9.2	▼ (3.7)	6.1	▼ (0.9)
Kosovo (KV)	0.1	▼ (20.5)	6.2	▼ (2.2)	90.5	▲ 0.3	9.0	▼ (1.7)	0.2	— 0.0	0.3	— 0.0
Latvia (LV)	0.9	▼ (12.3)	6.8	— 0.0	77.8	▲ 0.6	9.2	▼ (1.7)	1.6	▼ (0.1)	2.6	▼ (0.5)
Lithuania (LT)	0.7	▼ (26.1)	3.7	▼ (2.3)	38.8	▲ 6.5	21.8	▼ (1.2)	1.9	▼ (0.4)	1.8	— 0.0
Macedonia (MK)	0.5	▲ 8.7	10.3	▼ (0.5)	86.7	▲ 6.8	8.8	▼ (1.1)	0.9	▲ 0.1	0.7	— 0.0
Montenegro (ME)	0.3	▼ (25.1)	12.3	▼ (4.3)	48.4	▲ 2.8	18.2	▼ (1.5)	0.5	▼ (0.1)	0.3	— 0.0
Poland (PL)	12.1	▼ (4.3)	4.3	▼ (0.5)	70.1	▲ 0.8	10.2	▼ (1.9)	21.8	▲ 0.5	18.8	▲ 1.4
Romania (RO)	6.5	▲ 1.4	13.5	▼ (0.1)	57.4	▼ (2.5)	26.2	— 0.0	11.8	▲ 0.9	6.7	▲ 0.1
Serbia (RS)	3.5	▼ (0.2)	21.6	▲ 0.1	82.3	▲ 7.4	25.9	▼ (0.1)	6.8	▲ 0.4	2.2	▼ (0.1)
Slovakia (SK)	2.3	▼ (1.6)	4.9	▼ (0.5)	54.1	▲ 4.9	13.9	▼ (1.9)	4.1	▲ 0.2	6.4	▲ 0.3
Slovenia (SI)	3.0	▼ (27.2)	10.0	▼ (1.8)	86.8	▲ 3.9	25.0	▼ (1.4)	3.5	▼ (1.2)	4.2	▼ (0.5)
CESEE	55.5	▼ (6.5)	7.7	▼ (0.7)	68.9	▲ 1.5	12.8	▼ (1.4)	108.8	▲ 6.8	106.8	— 0.8
Cyprus	27.8	▼ (8.8)	47.7	▲ 2.8	37.2	▲ 6.1	268.8	▼ (2.9)	—	—	—	—
Greece	87.2	▼ 12.8	36.6	▲ 2.9	67.8	▲ 12.0	80.8	▼ (0.7)	—	—	—	—
Ukraine	14.2	▼ 8.2	28.0	▲ 9.1	64.6	▲ 0.6	129.0	▲ 68.0	—	—	—	—
Grand Total	184.7	▲ 8.4	17.8	▲ 0.5	68.9	▲ 7.3	36.9	▼ (7.2)	—	—	—	—

Source: Vienna Initiative, NPL Monitor for the CESEE, 2H 2016, p.2

**Graph 2.** The basic banks performance indicators

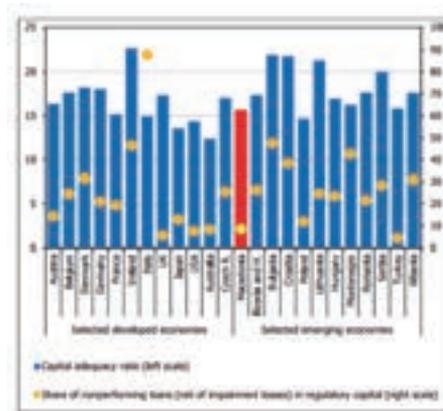


Source: NBRM, Report on the risks in the banking system of the Republic of Macedonia in 2015

Capital is the main pillar of the security and stability of banks in terms of the possibility of absorption of potential losses from the credit risk. For this reason, the capital adequacy analysis is an important part of the analysis of the overall performances of the banks' operations. Banks in the Republic of Macedonia maintain a relatively high capital adequacy ratio. Over the past decade, the rate of adequacy, although showing cyclical movements, is maintained at a level twice the legally prescribed minimum level of 8%. On 31.12.2015 it was 15.5%. In 2015, indicators of solvency and capitalization of the banking system were dwindling due to accrual reduction in subordinated instruments, but also due to the accelerated growth of banks' activities.

The analysis shows that the banking system is a stable and reliable sector in the economy. The Macedonian banking system has higher capital adequacy compared to the banking systems of only three (Italy, the United States and Australia) from the analyzed twelve developed economies and in relation to the banking system of only two (Poland and Turkey) of the selected twelve emerging economies (Graph 3).

**Graph 3.** Capital adequacy ratio and share of net nonperforming loans in own funds, for selected developed and emerging economies in 2015 in %



**Source:** NBRM, Report on the risks in the banking system of the Republic of Macedonia in 2015

Exposure of banks to other risks is not significant. As a result of the dominance of the euro in the foreign currency operations of the banks and the applied strategy of stable nominal exchange rate of the Denar against the Euro, the significance of the currency risk for the banks is minimized. Market risks are minimal, due to the weak activity of banks in the trading activities in financial instruments. The risk of changing interest rates in the banking book is still immaterial for

the banks. This mainly arises from the application of adjustable interest rates by banks, which minimize the risk of changing interest rates in the banking portfolios, but increase the indirect credit risk.

## **EMPIRICAL RESEARCH: THE CASE OF NON-PERFORMING LOANS IN THE REPUBLIC OF MACEDONIA**

Any decision related to the placement of assets affects its exposure to risk and hence on the overall performance of the banking institution. The analysis of the results of the banks includes all areas of the bank's operations, such as profitability, asset quality, liquidity, solvency position of the bank that are interconnected in causative consequential relations.

The main financial indicators used in the statistical analysis are: capital adequacy ratio (CAR), the rate of return on average equity to measure the performance of the bank in the use of equity (ROAE), the share of non-performing loans of non-financial entities in total loans to non-financial entities (households and the corporate sector) and liquidity indicators, the share of liquid assets in total assets and coverage of the short –term liabilities with liquid assets.

The calculation is taken by annual changes in the defined indicators in the period from 2007 to 2015.

The calculated coefficients of correlation between the ratio of non-performing loans and specific indicators that show the degree and direction of their connection are given in the following table:

**Table 2.** Coefficients of correlation

<b>Indicators</b>	<b>Pearson correlation coefficient with the share of non-performing loans to total loans</b>
Capital adequacy ratio (CAR)	-0.15890
Return on average equity (ROAE)	-0.642901
The share of liquid assets in total assets	0.311755
Liquid assets / short-term liabilities	0.74202

**Note:** The author's calculations

Capital adequacy ratio has shown cyclical movements, but in relation to non-performing loans shows weak negative correlation. The higher amount of non-performing loans caused higher impairment losses. They have impact on the financial result and can significantly reduce the solvency position of the bank. However, the explanation for the weak negative correlation may be required in the completed recapitalization of certain banks in the analyzed period and corrective measures imposed by the National Bank of the Republic of Macedonia for banks that have higher levels of non-performing loans to maintain capital adequacy ratio on a higher level. The Macedonian banking system consists of a small number of banks (15) and the regulator has frequent on-site controls and monitoring the risk profile of the loan portfolio to intervene in case of need to provide financial stability. These factors probably contribute to the weak correlation, and this connection between capital adequacy ratio and non-performing loans should be subject to additional, deeper and more extensive researches.

Weak, positive correlation between the share of non-performing loans with the share of liquid assets in total assets leads to the conclusion that non-performing loans affecting banks' liquidity position. Banks are cautious with liquidity risk management in terms of increased amount of non-performing loans, store a larger amount of liquid assets, thus increasing their share in total assets. The same explanation applies to the relatively high positive correlation between non-performing loans and coverage of short-term loans with liquid assets.

The rate of return on equity (ROAE) and the ratio of non-performing loans have a moderately high negative correlation of 0.64, indicating that the rise in non-performing loans decreasing return on equity invested in the bank or maximization of shareholder wealth is affected by movements of non-performing loans.

Moderately high negative correlation has imposed the necessity to expand the analysis of the indicators by applying the technique of regression analysis. Dependent variable is the indicator of return on equity (ROAE) and the independent variable is the indicator for share of non-performing loans to total loans. The regression equation is based on empirical data, and its calculation will determine how the change in the movement of non-performing loans has affected the movement of the indicator of return on average equity.

The coefficient of determination is  $R^2 = 0.4133$  a model explains 41.33% of the variation. From the regression equation  $y = 22,755 - 1,5401X$ , we can conclude that if the non-performing loans ratio is increased by 1%, then the rate

of return on equity will be reduced by 1.54 percentage points. Correlation and regression analysis suggests that problems related to non-performing loans may significantly affect the profitable position of banks.

The achieved results can be compared with the results in similar studies conducted in the Republic of Macedonia. The conclusions are almost the same. For example, Iloska (2014) concludes that the high level of provisions against total loans affects the performance of banks adversely. So, the banks in Macedonian banking system need to improve profitability by improving screening and monitoring of credit risk. Davcev and Hourvouliaades (2009) discovered significant relationship of the return on assets and return on equity ratios with the loan loss, equity size and operating expenses in the banks.

## CONCLUSION

The banking sector in the Republic of Macedonia is characterized by traditional approach to credit activities. The level of non-performing loans as well as the high percent of the total provisions to non-performing loans, demonstrates the conservative approach and the high level of security of the banking system. In the sectoral allocation of non-performing loans, the dominant position is the loans of corporate clients, whose share is growing. The capital adequacy ratio is twice higher than the prescribed minimum, which is in the foundations of the resilience of the banking system of the Republic of Macedonia.

The results of analysis show that there is a moderately high negative correlation between the rate of non-performing loans and rates of return on equity. Non-performing loans increase impairment losses and have impact on the financial result, can reduce the liquidity and solvency position of the bank.

This paper will contribute to the existing literature by analyzing the greatest problem to which banks are exposed - non-performing loans and their mutual interactions with basic banking risk indicators. The research gives a good insight to banks managers to pay more attention to non-performing loans and to develop efficient risk management methods.

The non-performing loans are a key component of the overall risk management approach in general and an important imperative for long-term success of each banking institution. The management of the bank is responsible for maximizing profits to the shareholders, but they are also responsible to the regulatory institu-

tions and the public for providing a healthy and safe bank. The issue of resolving non-performing loans is a necessary precondition to achieve a healthy and sound banking sector.

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## APPENDIX

Regression analysis between non-performing loans ratio and rate of return on equity (ROAE)

Regression Statistics	
Multiple R	0.642901409
R Square	0.413322221
Adjusted R Square	-1.285714286
Standard Error	3.237898754
Observations	9

ANOVA					
	df	SS	MS	F	Significance F
Regression	9	51.70275	5.744751	4.931592	#NUM!
Residual	7	73.38792	10.48399		
Total	16	125.0907			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
X Variable 8	22.75501138	6.765334	3.363472	0.012027	6.75754	38.75248	6.75754	38.7524831
X Variable 9	-1.540119889	0.693523	-2.22072	0.061812	-3.18004	0.099802	-3.18004	0.09980173