IMPACT OF MACROECONOMIC FACTORS IN NONPERFORMING LOANS IN KOSOVO

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Abstract: An efficient and developed banking system is essential for the growth of any economy and the purpose of any banking system is to operate profitably in order to maintain sustainability and financial stability. Banks carry out many activities to make a profit, and the main activity of each bank is lending, thus enabling consumption and investment in the economy. Despite the importance of this activity in terms of income for banks, the lending process is not as easy as one might imagine. During this activity, banks faced delays from borrowers, which resulted in non-performing loans, as an obstacle to the efficiency of banking activities. The level of these loans varies from country to country and is nowadays considered as an integral part of the commercial banking of each country. There are many factors that directly or indirectly affect the level of these loans and the key influential factors are considered the macroeconomic factors. They are considered to be the main cause of the increase in non-performing loans as they generally affect all sectors of the economy. As a result of the negative reversal of these factors, borrowers will encounter liquidity shortages, which in turn will increase the likelihood of delays in fulfilling liabilities to the bank, in this case directly affecting the level of nonperforming loans. The key macroeconomic factors examined in the literature are Economic Growth, Unemployment, Inflation, Credit Interest Rates and Exchange Rates.

The purpose of this paper is to analyze the impact of macroeconomic factors such as GDP Growth, Inflation, Interest Rates on credits and Unemployment on the level of non-performing loans in Kosovo by looking at macroeconomic indicators over the period 2010 - 2018. The purpose of this paper is to analyze the impact of macroeconomic factors such as GDP Growth, Inflation, Interest Rates on the credits and Unemployment on the level of non-performing loans in Kosovo by looking at macroeconomic indicators over the period 2010 - 2018. A multiple regression model was applied to see the effect of these factors on the level of non-performing loans in Kosovo over the years taken in the study. To realize the purpose of the study through this model are defined macroeconomic factors as independent variables as necessary for analysis and is seeing their impact in non-performing loans defined in study as the dependent variable. The results show that interest rates are considered as the main macroeconomic factor affecting the level of nonperforming loans in Kosovo and is the main factor positively related to this type of loans. In recent years, the decline of interest rates in the banking sector has had a positive impact on the decline of non-performing loans, which has increased the financial stability within this sector.

Keywords: non-performing loans, macroeconomic factors, banking system.

1. INTRODUCTION

The stability of the financial system is considered as a fundamental condition on which economic growth is based. In our country, as in most other countries, the financial system is dominated by commercial banks, therefore the sustainability of these banks is considered essential for financial stability. And to be stable, commercial banks seem to carry out sustainable and profitable activities. Among the activities they carry out, lending is considered the main income-generating activity for banks. Despite the importance of this activity in terms of assets and their income, the lending process is not as easy as imagined. Lending requires banks to assess the creditworthiness of borrowers and their ability to repay loans taken on time, otherwise lending can create a major problem for banks known as non-performing loans.

In recent years, non-performing loans have received the attention of many scholars in various countries, because the growth of these types of loans exacerbates the negative effects on the financial system, which may also affect the economic development of countries. Different criteria are used for the classification of non-performing loans depending on the countries. The BASEL III committee states that a non-performing loan (NPL) is a loan that has not been repaid for 90 days or more.

The level of these loans varies from country to country and is the result of many factors. The level of NPLs can be attributed to both specific banking conditions and macroeconomic factors. These factors can be considered as internal and external factors, while our study focuses only on external factors otherwise called macroeconomic factors. According to Kuzucu, N and Kuzucu, S. (2019), the main macroeconomic factors examined in the literature are mainly GDP Growth, Unemployment, Inflation, Interest rates on loans and Exchange rates. Increased of non-performing loans are likely to hinder economic growth and reduce economic efficiency.

This paper aims to study the impact of macroeconomic factors such as Inflation, Economic Growth, Unemployment and Interest rates on the level of non-performing loans of the banking sector in Kosovo.

Data obtained from the IMF and the World Bank on macroeconomic factors such as GDP Growth, Inflation, Interest Rates and Unemployment and other information provided by the banking system enable us to successfully perform this analysis. Through regression analyses, we see the impact and extent of impact of each of these factors on the level of non-performing loans.

2. LITERATURE REVIEW

In recent years, non-performing loans have attracted the attention of many scholars around the world, since their growth sends easily in bankruptcy. According to Ouhibi and Hammami (2015), this is because non-performing loans serve as a guide to asset quality, credit risk and efficiency in allocating resources to the manufacturing sector. The main activity of banks is lending, and banks carry out this activity using customer deposit amounts. Credit creation activity is an income generating process that enables the bank to not only generate income but also exposes the bank to a high risk that it may send to bankruptcy. Some of the loans granted have significant risk and may endanger the health of the bank (Alexandri & Santoso, 2015). According to many researchers, the cause of bankruptcy is the quality of assets which is an important predictor of bank insolvency and banks that are on the verge of bankruptcy usually have a high level of nonperforming loans.

Non-performing loans have become an important part of every country's commercial banking. In recent years, the literature examining NPLs has expanded in line with the interest offered to understand the factors responsible for financial vulnerability. NPLs create problems for the balance sheet of the banking sector on the asset side and negatively affect the income statement as a result of loan loss provisioning (Kumar & Tripathi, 2012). Due to their impact on the financial performance of banks, it is necessary to study non-performing loans and the factors that influence their level.

According to studies on nonperforming loans, various researchers have tried to link the level of non-performing loans directly with two categories of factors: macroeconomic factors and specific banking factors. According to them, the level of non-performing loans may be influenced by the specific banking factors that are under the management of the bank and the macroeconomic factors which are also at the focus of our study.

Macroeconomic factors are considered as exogenous forces affecting the performance of commercial banks. Banks predict that if a recession occurs, firms and households will face liquidity shortages, which in turn will increase the likelihood of delays in meeting their financial obligations (Jimenez and Saurina, 2006).

Rejha (2016) studied the determinants of non-performing loans in the Jordanian banking sector during the period 2008 - 2012. He studied the effect of specific and macroeconomic factors on the level of non-performing loans in the country's banking sector. Concerning macroeconomic factors, he concluded that economic growth and the level of inflation have a negative and significant effect on non-performing loans.

Louzin, Valdis and Metaxas (2010) conducted a study of the 9 largest Greek banks for the period 2003 - 2009 and found that real GDP growth rate, interest rate and unemployment rate affect the level of nonperforming loans. According to them, an increase in unemployment and interest rates positively affects non-performing loans, while GDP growth is negatively correlated with non-performing loans, a finding that is consistent with the literature.

Massai and Jouini (2013) estimated the determinants of non-performing loans for a sample of 85 banks in three countries (Italy, Greece and Spain) for the period 2004 - 2009. A panel data method is used for economic variables such as GDP growth rate, unemployment rate and real interest rate. The results show that GDP growth rate is negatively related to non-performing loans, while unemployment rate and real interest rate have a positive impact on the level of non-performing loans.

Another study was conducted in the Eurozone countries by Makri, Tsagkanos and Bellas (2014). They used a dynamic panel regression method for 17 countries in the Eurozone for the period 2000-2008. The overall results of this study showed strong correlations between nonperforming loans and various macroeconomic factors such as public debt, unemployment and GDP Growth rate. Another study carried out in European countries, in this case in 28 EU countries, is the study conducted by Roman and Bilan (2015). This study covers the period from 2000 to 2015. According to this study, macroeconomic conditions have a strong and decisive impact on the quality of non-performing loans portfolio in these countries. The ratio of non-performing loans increases when the level of economic growth decreases and when unemployment increases.

Adeola and Ikpesu (2017) conducted a survey in the banking sector in Nigeria. The study covers the period from 2003 to 2014. According to the authors, GDP Growth and Inflation have a positive relationship with nonperforming loans. Another study in Nigeria for the non-performing loans is the study of the authors Olayinka & Mofoluwaso

(2014), covering the period 1981 - 2011. The results of their analysis show that real GDP growth tends to reduce nonperforming loans both in the short run and in the long run.

Another study carried out in Kenya by Wairimu and Gitundu (2017) examined the determinants of non-performing loans for the period 1998 - 2015. The empirical results of this study showed that inflation rate, interest rate, GDP growth, public debt and exchange rate were not statistically significant, while unemployment and remittance rates were statistically significant.

3. RESEARCH METHODOLOGY

The paper is based entirely on secondary data to carry out the empirical part of the study but also the theoretical part based on past studies to provide a theoretical treatment of the problem studied. Since the main purpose of this paper is to study the impact of macroeconomic factors on the level of non-performing loans in Kosovo, the paper analyzes non-performing loans and macroeconomic factors which we have considered more appropriate in this case. The paper explains the relationship between these factors and non-performing loans and over the main purpose of the paper builds the econometric model as will be discussed below.

Data collection and processing

The study covers the period from 2010 to 2018. The data needed to complete the paper were obtained from the database of the International Monetary Fund and the World Bank, which provides public access to a large number of macroeconomic factors. Annual reports of the banking sector in Kosovo have also served us in certain situations.

In order to carry out the desired empirical analysis which gives us answers about the relationship between the selected factors and the non-performing loans, for analysis we have defined 5 variables, one of them dependent and 4 independent variables. We selected the level of non-performing loans as the dependent variable, while to see the sensitivity of these loans to certain macroeconomic factors, we chose 4 factors as independent or explanatory variables such as: GDP Growth, Inflation rate, Interest rate in credit and Unemployment rate.

All these variables have been studied for a period of 9 years, namely from 2010 to 2018. SPSS version 23 statistical software was used to perform the empirical analysis. The processing process has gone through a series of stages. Initially, was performed the selection and coding of the variables and later on the descriptive statistics were extracted and regression analysis presented the main findings of the study.

Specification of econometric model

Through the construction of the econometric model we will see the degree of impact of each of the factors taken into consideration on the level of non-performing loans. The following equation presents the econometric model for the selected variables, where non-performing loans are expressed through the Non-performing Credit Ratio (NPLR), which report on the econometric equation is given as an explanatory or dependent variable (Y) and such factors as GDP Growth, Inflation rate, Credit interest rate and Unemployment rate are given as explanatory or independent variables (X1, X2, X3 and X4).

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots \beta_n X_n + \varepsilon_i$$

Y = Non-performing loans ratio (NPLR)
X1 = Level of GDP Growth (GDP Growth)
X2 = Inflation rate (INFR)
X3 = Interest rate (IR)
X4 = Unemployment rate (UNEMP Rate)
β_0 = represents a constant, or the value of Y when all values of X are zero
β_1 to β_4 = regression coefficients for the relevant variables
ε_i = Error term that includes the effect of variables not included in the model.

Definition of variables:

Non-performing loans (NPLs). The ratio of non-performing loans reflects the credit quality of the bank and is considered as an indicator of credit risk management. NPLs in particular show how banks manage their credit risk because it determines the percentage of the amount of credit losses in relation to the total amount of the loan (Hosna el. Al., 2009).

Level of GDP Growth (GDP Growth). GDP is the market value of all final goods and services produced in one country over a given time. GDP is one of indicators of the health of economy and its growth is considered a symbol of the country's progress. A low growth rate in developing countries indicates that one country is suffering from recession. As for the relationship of GDP growth with nonperforming loans, it is expected to be negative based on many studies conducted in different countries. Economic growth usually increases income, which eventually increases the ability of the borrower to repay the loan, which in turn affects the reduction of non-performing loans (Khmeraj & Pasha, 2009).

Inflation Rate (INFR). Inflation refers to the overall rise in prices of goods and services in an economy. The relationship between inflation and non-performing loans is unclear. Even with inflation, there is empirical evidence of a positive relationship with non-performing loans (Khemraj & Pasha, 2009; Fofack, 2005). High inflation can improve borrowers 'ability to repay by lowering the real value of outstanding debt but on the other hand, increasing inflation can also weaken borrowers' credit repayments by lowering income. Thus, according to the literature, the relationship between inflation and non-performing loans may be positive or negative depending on the operation of the economy.

Credit interest rate (IR). The interest rate is considered as an important and influential factor on the level of non-performing loans. There is empirical evidence of a positive relationship between interest rate on loans and non-performing loans (Nkusu, 2011; Adebola, Yusoff, & Dahalan, 2011; Louzis, Volundis, and Metaxas, 2012). An increase in the interest rate weakens the borrower's ability to repay the loan, thus interest rates are positively related to non-performing loans (Nkusu, 2011). Ferhan et. al. (2012) argue that banks with aggressive lending policies that charge higher interest rates on loans faced more with non-performing loans.

Unemployment rate (UNEMP). With regard to unemployment as a macroeconomic factor and having an impact on the level of nonperforming loans, it is reasonable to think that an increase in unemployment should adversely affect household cash flow and increase the debt burden. For firms, rising unemployment may signal a decline in output and consequently a decrease in demand. There is empirical evidence for the positive relationship between unemployment and non-performing loans (Nkusu, 2011). Increasing unemployment increases the debt burden on households by preventing loan repayment and by increasing non-performing loans.

4. RESULTS OF THE STUDY

The empirical results for the relation between nonperforming loans and macroeconomic factors are given by realizing the econometric model presented above for the period 2010 - 2018 data. This model is implemented using statistical software SPSS version 23.

Descriptive statistics

Table 1 summarizes the descriptive statistics for all variables taken into account (NPLR, GDP Growth, INFR, IR and UNEMP Ratio).

Table 1. Përmbledhje e statistikave përshkruese për variablat e marra në studim

Descriptive Statistics				
	Minimum	Maximum	Mean	Std. Deviation
NPLR	2.74	8.54	5.8444	2.06036
GDP Growth	1.19	4.80	3.5700	1.05996
INFR	-.53	7.33	2.0067	2.34959
IR	6.65	14.36	10.2711	3.03764
UNEMP Rate	27.47	45.40	33.5500	5.77133

According to the table, for the period under study (2010 - 2018) the subordinate variable NPLR marked an average of 5.84%, with a value ranging from 2.74 minimum to 8.54 maximum which was recorded in 2013. Non-performing loans in Kosovo have been steadily declining in recent years and the lowest value is marked in 2018. In terms of macroeconomic factors, GDP growth recorded an average of 3.57, with a minimum value of 1.19 and a maximum value of 4.80. Inflation rate as another macroeconomic variable during the study period showed an average value of 2%, with a minimum value of -0.53 and a maximum value of 7.33%, which belongs to 2011. Another and very important variable for the study is the interest rate on the loan. The average interest rate on loans for the period under study was 10.27%. The maximum value of interest rates during this period was 14.36%, value that belongs to the first year taken in the study. Interest rates on loans in the banking sector in Kosovo according to the data obtained in the study have gone down each time reaching the minimum value at around 6.65% in 2018. Unemployment as a factor has moved from 27.47% minimum value to 45.40% maximum value, with an average of 33.55%.

Regresion results for econometric model

The linear regression model for non-performing loans is presented below:

$$\text{NPLR} = \beta o + \beta 1(\text{GDP Growth}) + \beta 2(\text{INFR}) + \beta 3(\text{IR}) + \beta 4(\text{UNEMP Rate}) + \epsilon i$$

By using the econometric model constructed earlier and comparing the coefficients next to each independent variable, it will be determined which variable has the greatest impact on the level of non-performing loans.

Table 2 summarizes the linear regression model with the following data: adjusted R, R^2 and R2 as well as estimated standard error.

According to the value of R we can conclude that the dependent variable has a strong correlation with the independent variables at the level of 0.923 respectively 92.3%. The most important value of the table is the value of R Square (R^2). According to the results, the value of R Square is seen to be 0.852, which means that 85.2% of the change in the dependent variable is explained by the independent variables obtained in the study. GDP growth, Inflation rate, Credit interest rates and Unemployment represent 85.2% of the change in the level of non-performing loans, while the remaining 14.8% are explained by factors not included in the model.

Table 2. Summary of the econometric model

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.923[a]	.852	.703	1.12196
a. Predictors: (Constant), , GDP Growth, INFR, IR, UNEMP Rate				
b. Dependent Variable: NPLR				

In the following table (Table 3), the coefficients of the independent variables are presented which determine in this case their impact on non-performing loans.

Table 3. Coefficients of the independent variables

Coefficients[a]					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	5.011	4.256		1.177	.304
GDP Growth	-.393	.552	-.202	-.711	.516
INFR	-.480	.344	-.547	-1.394	.236
IR	.892	.285	1.315	3.134	.035
UNEMP Rate	-.178	.103	-.498	-1.730	.159
a. Dependent Variable: NPLR					

According to the results of the coefficients table, we build the econometric model for non-performing loans:

NPLR = 5.011 – 0.393(GDP Growth) -0.480(INFR) + 0.892(IR) – 0.178(UNEMP Rate) + Ɛi

The results presented in the coefficients table show us the importance of the impact of each variable on non-performing loans. The first variable 'GDP Growth' is seen to have a negative impact on nonperforming loans, which is consistent with the literature studied, but this impact is statistically insignificant based in parameters of acceptability (p = 0.516; 0.516>0.05).

Inflation rate is also seen to have a negative impact on non-performing loans, which is also insignificant based on statistical parameters (p = 0.236).

Econometric results give us the most important link of the study variables in Credit Interest Rates (IR). According to the results, interest rates on loans have a positive and statistically significant impact on the level of non-performing loans (p = 0.035). The higher interest rates increase the non-performing loans, while the lower interest rates on the loans reduce the non-performing loans, which also characterized the period of study. A 1% increase in interest rate will increase nonperforming loans by 0.892. This makes the interest rate on loans as the main macroeconomic variable affecting the level of non-performing loans in the banking sector in Kosovo. This is in line with the theory that higher interest rates on loans would lead to an increase in non-performing loans.

For the last variable 'Unemployment rate' (UNEMP), the results show a negative relationship with non-performing loans, which is considered to be opposite to previous studies, but a relation that is not significant (0.159). This is due to the fact that during the period from 2010 to 2018 there has been a decline in employment and an increase in certain years, which has contributed to the lack of expected impact of the study. This is due to the fact that during the period from 2010 to 2018 there has been a decrease in unemployment as well as an increase in certain years, which has contributed to the lack of expected impact of the study.

5. CONCLUSION

Non-performing loans are an integral part of the banking sector on the basis of which the overall financial stability is measured. Interest in studying non-performing loans has increased in recent years because an uncontrolled increase in them could lead to possible bankruptcy of the banking system as a whole. Increasing of non-performing loans researchers associate with two types of factors, specific banking factors and macroeconomic factors that are also the

focus of this study. Macroeconomic factors are considered as exogenous forces affecting the performance of commercial banks.

Our study examined the impact of some of the macroeconomic factors on the level of non-performing loans for the period 2010 - 2018. Factors taken into study are GDP Growth, Inflation, Credit Interest Rate and Unemployment. Based on the findings of the study conducted through the regression analysis performed within the statistical program SPSS Version 23, we came to the following conclusions:

In the study is seen a high sensitivity of non-performing loans to the macroeconomic factors taken in study. The change in non-performing loans resulted to be 85.2% dependent on the macroeconomic factors taken into the study (GDP Growth, INFR, IR and UNEMP Rate). Regarding the relationship between nonperforming loans and macroeconomic factors, are seen different relationships depending on the case. Only one macroeconomic factor showed a positive and statistically significant relationship, while all other factors showed a negative relationship.

Regarding the relationship between GDP Growth and non-performing loans, we find that this relationship is negative, which is consistent with more studies conducted under the same theme.

GDP growth adversely affects the level of non-performing loans, ie an increase in the level of GDP reduces non-performing loans on banking sector. In our study, this relation did not appear to be statistically significant. Negative relationships, the results of the study also gave us to the inflation and unemployment rates, which also are insignificant relationships in our study. The impact of inflation on previous studies has not been clearly defined because it can be both positive and negative, depending on the operation of the economies of the countries, while in the case of the unemployment rate the positive relationship appears to be opposite to previous studies.

The most important factor of the study has turned out to be the credit interest rate. The impact of credit interest rate in non-performing loans is positive and statistically significant. The reduction of credit interest rates in the banking sector in Kosovo has affected the reduction of non-performing loans of this sector during the period under study. The banking sector is considered to be stable as a result of the good credit management by commercial banks in the country, which has led to the reduction of non-performing loans.

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