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# IMPACT OF MACROECONOMIC FACTORS ON NON- PERFORMING LOANS (NPL) IN THE BANKING SECTOR IN KOSOVO

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## Abstract

Over the last few years, more precisely, since the end of the global financial crisis, academic circles have increased their interest in the NPL and the empirical bibliography provides valuable information on the factors that influence them. According to studies conducted on non-performing loans, various analysts have tried to correlate the level of non-performing loans directly to two categories of factors: (1) macroeconomic factors and (2) banking or banking specific factors.

Consequences in the banking industry as a result of non-performing loans may be large if no preventive steps are taken. Non-performing loans negatively affect the performance and stability of the banking industry, increasing provisioning, lending and in more severe cases may result in a financial institution in insolvent condition. The banking industry in Kosovo has also been very careful in terms of managing credit portfolio quality, so the rates of these loans are very low, which has made confidence in this sector to be even higher.

The research will address the problem of NLPs through the econometric model, where the macroeconomic factors that are addressed in the research are: GDP, inflation, unemployment rate and interest rate, while banking factors are ROEA, ROAA and CAR. The research covers the period 2007-2019. The research results showed that inflation and interest rates have an impact on the JCEs in the banking sector in Kosovo.

**Key words:** *NPL, Inflation, Interest Rate, Macroeconomic Factors, Banking Factors*

## 1. Entry

In the last decade, non-performing loans have received a great deal of attention almost all over the world as their large and uncontrolled growth would lead to the possible bankruptcy of the banking system as a whole. We should also mention the fact that according to many researchers it is proven that the cause of bank bankruptcy is the quality of assets, which is an important predictor of insolvency of banks and banking financial institutions that are on the verge of bankruptcy have very high levels of non-performing loans just before filing for bankruptcy. According to studies conducted on non-performing loans, various analysts have tried to link the level of non-performing loans directly to two categories of factors: (1) macroeconomic factors and (2) factors of banking nature or specific banking. There is much debate as to whether non-performing loans are one of the main causes of economic stagnation problems and that any non-performing loans are seen as a mirrored image of failed venture. Another explanation for the high credit losses is the occurrence of banks in areas with poor economic conditions. But even specialization in a certain category of lending can increase the probability of losing a loan. Thus for example, intra-category loans may have a higher average probability of default than loans in other categories or by investing heavily in one category the bank reduces the degree of portfolio diversification as a whole. The large variation in the level of credit losses between different markets suggests that banks would be less vulnerable to the fate of individual areas or industries if they were to lend over a wide geographical area. The results of this study suggest policy makers to promote greater diversification to curb excessive risk taking.

The consequences in the banking industry as a result of non-performing loans can be great, if preventive steps are not taken. Non-performing loans negatively affect the performance and stability of the banking industry, increasing provisioning, shrinking lending and in more severe cases can bring a financial institution into insolvency. The banking industry in Kosovo, also in terms of loan portfolio quality management, has been very careful, thus making the rates of these loans very low, which has made the trust in this sector even higher.

It is common for financial institutions to play a vital role in the economy by allocating capital from surplus agents to deficit agents in various economic sectors (Fukida, Dahalan, 2012). This means that a sound banking sector is necessary for economic growth because it ensures macroeconomic stability and develops sound financial institutions (Jovovi., 2014). However, over the past two decades, the liberalization process has strengthened competition between

banks. Competition increased banks' credit risk by affecting their loan portfolios in relation to bad credit review procedures and ease of borrowing criteria (e.g. Manove et al. (2001), Bolt, Tieman (2004)). , Jeong, Jung (2013)). led to a significant increase in non-performing loans (NPLs), which affects the liquidity and profitability of banks and thus the financial stability of the banking system and macroeconomic stability in general. Many indicators are used to measure banks' lending activity, but the most commonly used indicators to identify credit risk are non-performing loans to total loans (NPLs) and loan loss provisions to total loans (LLPs). over the last decade, the credit quality of the loan portfolio remained relatively stable. Subsequently, the quality of banks' lending activity deteriorated significantly. The deteriorating quality of banks' loan portfolios caused concerns in the banking sector in developed and emerging economies. The problem of increasing NPL ratio is evident in the banking sector in many countries. Saba (2012) points out that since 2008 the level of NPLs has increased significantly and the link between NPLs and declining bank credibility is considered a major factor in credit policy failure. It is well known that the stability of the financial sector and its likelihood of anxiety depend heavily on the share of NPLs; so NPLs serve as a common indicator in the financial sector. A number of studies have shown that excessive credit growth often precedes the financial crisis.

Kosovo compared to other countries in the region has lower interest rates on non-performing loans, including Albania, Macedonia, Montenegro, Serbia, etc. According to the World Bank, at the end of 2015, Kosovo registered a percentage of non-performing loans of 7.1% in relation to the total loans that the banking industry has issued to its customers. This lower level compared to all other countries presented for comparison, indicates the high quality of the loan portfolio that the banking industry in Kosovo has to their customers.

## **1.1 Research goals**

The purpose of this paper is to study what are the main reasons for the increase in the level of non-performing loans in the banking system of Kosovo. The study of the relationship between non-performing loans and some macroeconomic and banking factors enables the discovery of the manner and extent of their impact on determining the level of non-performing loans. On this basis, the paper aims to analyze the effectiveness of measures taken by the banking system in Kosovo and contributes to determining further steps to reduce the level of non-performing loans. Given that in recent years after the global financial crisis, non-performing loans have increased almost worldwide, this phenomenon has been observed in the banking system in Kosovo. For this purpose, an econometric model analyzes the relationship between the level of non-performing loans and the main macroeconomic and banking factors in the banking system in Kosovo. The econometric model aims to verify the links between the dependent variable which is the level of non-performing loans and independent variables, which we will divide into two categories: macroeconomic variables and banking variables.

The objectives of this paper will be divided into two main directions:

1. Analysis of the literature related to the field of research on non-performing loans and methods of credit risk assessment;
2. Analysis of the current situation of the banking system in Kosovo regarding the credit system and non-performing loans;

## **1.2. Research questions**

The research questions of the paper are:

1. Which macroeconomic factors influence KJPs the most?
2. Which banking factors influence NPLs the most?
3. What correlation is there between inflation and NPL?
4. What correlation is there between the interest rate and the NPL?

### 1.3. Research hypotheses

The research hypotheses are:

**H<sub>0</sub>**: GDP growth has no impact on the level of non-performing loans;

**H<sub>1</sub>**: GDP growth has an impact on the level of non-performing loans;

**H<sub>0</sub>**: Inflation rate has no impact on the level of non-performing loans;

**H<sub>2</sub>**: Inflation rate has an impact on the level of non-performing loans;

**H<sub>0</sub>**: Interest rate has no impact on the level of non-performing loans;

**H<sub>3</sub>**: The interest rate has an impact on the level of non-performing loans;

**H<sub>0</sub>**: With the increase of interest rates, non-performing loans will decrease;

**H<sub>4</sub>**: With the increase of interest rates, non-performing loans will increase;

## 2. Literature review

### 2.1. Conceptual model of research

In recent years, more precisely, since the cessation of the global financial crisis, academic circles have increased their interest in NPL and the overview of the empirical bibliography provides valuable information on the factors that influence them. However, research results need to be taken with caution, and they are difficult to compare, as a definition of NPL used in all, or at least, in most countries does not exist. Although there is no internationally accepted definition, the most commonly used definitions are those given by the International Monetary Fund (IMF) and the Basel Committee on Banking Supervision (BCBS).

According to the definition given by the IMF, NPL is a loan where the debtor is late for at least three months (90 days) with the payment of principal and / or interest in connection with the term specified in the loan contract; and a loan where the interest amount of three months (90 days) or more was capitalized (reinvested in principal amount), refinanced, or its overdue payment agreed (IMF, 2006). According to the definition given by BCBS, it is also recommended to follow

the "90 days" rule, ie it is considered that there is a failure to fulfill the obligation if the debtor is late with the obligations to the bank for more than 90 days (BCBS, 2006).

The most commonly used criteria for differentiating NPL national definitions is the deferral of the number of days in fulfillment of obligations to the bank, but it is not the only criterion. In addition, the criteria of the debtor's financial capacity and the fact whether a lawsuit has been initiated against the debtor, whether the NPL has been presented in Gross Amount or Net, and often the criteria of guarantee and collateral are also used. However, most of the research conducted relates to the factors influencing NPL, while only a few studies have addressed the definition itself.

One of the earliest studies on the determinants of NPLs is the work of Keeton and Morris (1987), who investigated the underlying managers of loan losses for a sample of nearly 2,500 U.S. commercial banks for the period 1979-1985. Using simple linear regressions, they found that local economic conditions along with the poor performance of certain sectors explain the changes in credit losses recorded by banks. The study also reported that commercial banks with the highest risk appetite tend to record higher losses.

Several studies that followed the publication of Keeton and Morris (1987) have proposed the same and other explanations for non-performing loans in the US. For example, Sinkey and Greenwalt (1991) investigated the credit loss experience of large US commercial banks from 1984 to 1987 using a simple logarithm regression model. They found that internal and external factors explain the degree of credit loss of American banks. These authors found a significant positive relationship between the credit loss rate and internal factors, such as high interest rates, excessive lending, and volatile funds. In addition, they reported that depressed regional economic conditions also explain the loss rate of commercial banks. In addition, Keeton (1999) analyzed the impact of credit growth and loan delinquency on US banks from 1982 to 1996 using a regressive auto-vector model. The result has shown that there is a strong correlation between credit growth and impaired assets. Specifically, rapid credit growth was accompanied by lower credit standards and contributed to higher credit losses at US banks.

## **2.2. Non-performing loans**

A simple definition of default is a loan that is not earning the full principal payment and interest is no longer foreseen or a loan that is not earning income and principal or interest is 90 days or more overdue or a loan that is not income income and the maturity date has passed and the payment in full has not been made. There is no global standard to define non-performing loans on a practical level. Variations exist in terms of classification system, scope and content. This problem potentially adds to the confusion and uncertainty in NPL matters. For example, as described by Se-Hark Park (2003), during the 1990s, there were three different methods for determining non-performing loans in Japan: the 1993 method based on banking laws; "Bank Self-Assessment" in March 1996; and "Debt Revaluation Based on Financial Recovery Laws" in 1999. These measurements have gradually expanded the scope and scales of the risk management method. Similar to the trend in Japan, more countries, regulators and banks are moving towards adopting and adapting best practices and more consensus. For example, in the US, federally regulated banks are required to use the BIS five-tier non-performing loan rating system: Pass, Special Mention, Substandard, Doubtful and Hoss. Currently, the five-tier system is the most popular method of risk classification, or, in some cases, a dual reporting system according to their internal policy guidelines, as well as the five-tier system.

The term "bad credit" as described by Basu (2003) is used interchangeably with bad credit and bad credit as identified in Fofack (2005). Berger and De Young (1997) also consider these types of loans as "non-performing loans." Thus these descriptions are used interchangeably throughout the study.

Theoretically, there are no global standards to define NPLs that can be applied to all economies of the world (Hou 2006 and Bloem and Gorter 2002). Variations exist in terms of classification system, scope and content. This problem potentially adds to the confusion and uncertainty in NPL issues (Hou 2006). Thus, the definition of NPL varies from one banking system to another according to banking laws and regulations (Issa 2009). In practical terms, quantitative and qualitative criteria are used individually or collectively by credit institutions to identify credit status. A quantitative criterion uses the numbers of days or months to determine the weakness of borrowers to repay their debt, while a qualitative criterion uses all information about the future of loans and borrowers (Bloem and Gorter 2002).



Referring to the NPL period, Rose (2002 p.118) defined NPLs as "a loan placed in the NPLs category when any borrowed repayment is past more than 90 days". In addition, Bloem and Freeman (2005 p.8) define NPLs as "a loan is NPL when interest and / or principal payments are past 90 days or more, or interest payments equal to 90 days or more are capitalized, refinanced or delayed by agreement ". Others view NPLs as a borrower who stops paying installments over a period of more than six months. For example, Cho (2002 p.10) defined NPLs as "a loan considered NPLs only when six months or more had elapsed while provisioning requirements".

In light of the above discussion, a study for the International Monetary Fund (IMF), Cortawarria et al. (2000) define NPLs according to the region where they originate. For example, in countries like France, Spain, Portugal, Switzerland and Norway, loans became NPLs when principal and interest were accrued for more than 90 days. Other countries like Greece and Italy used it for more than 90 days. In countries like the UK and Germany there are no explicit criteria to be used in determining loans as good or bad.

According to the NNP (2012 p.3), NPLs are defined as "loans or advances whose credit quality has deteriorated in such a way that the full accumulation of principal and / or interest in accordance with the terms of the contractual repayment of the loan or advances in question ". It further provides that:

"Short-term loans are NPLs when the principal and / or interest is mandatory and uncollected for 90 (ninety) consecutive days or more beyond the due date of payment or maturity. Medium-term and long-term loans are NPLs when the principal and / or interest is an obligation and uncollected for 12 (twelve) months in a row or more beyond the specified day of payment or maturity ". The Ethiopian Commercial Bank is required to classify their loans as transfers, special mention, sub-standard, doubt and loss in accordance with the Bank for International Settlements (BIS) standards as set out below:

Pass: loans in this category are fully protected by the borrower's current payment and repayment capacity and are not subject to any criticism.

Special mention: Short-term loans past 30 days or more but less than 90 days and medium and long-term loans past 6 months or more but less than 12 months. Substandard: Short-term loan past 90 days or more but less than 280 days and medium-term and long-term loans past 12 months

or more but less than 18 months Doubt: Short-term loan past 280 days or more , but less than 360 days and medium- and long-term loans past 18 months or more but less than 3 years.Loss: Short-term loans past 360 days or more, and Medium-term and long-term loans past 3 years or more.

### 3. Data analysis

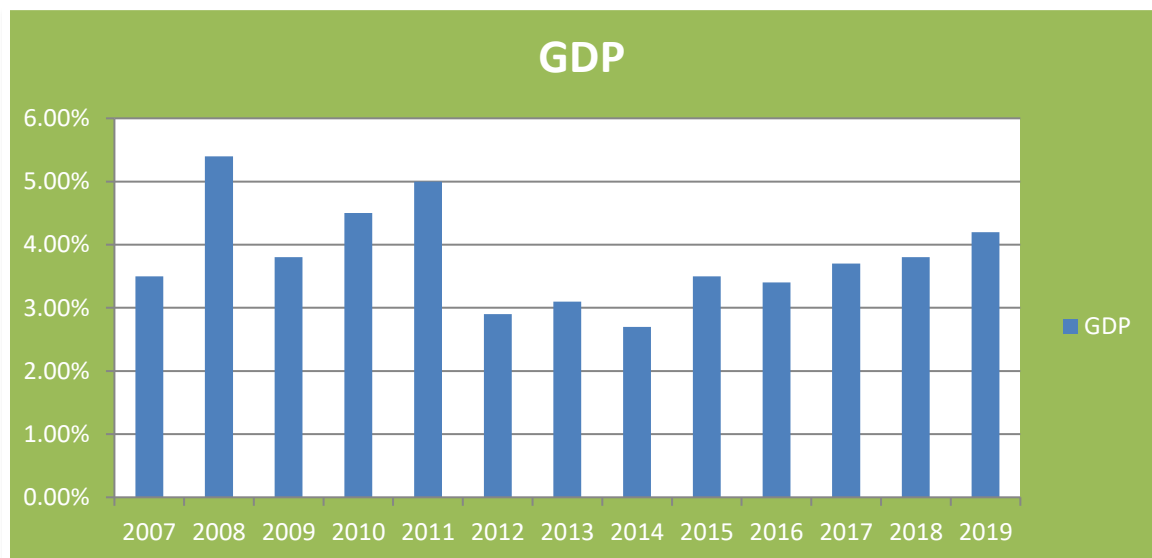
#### 3.1. Data analysis

Within this chapter will be discussed the analysis of secondary data placed in the econometric model. The data analysis chapter will include the following statistical analyzes: descriptive analysis, correlation analysis, exclusion of extreme variables from the regression model, and regression analysis.

#### 3.2. Descriptive analysis of variables

In the framework of the descriptive analysis, all the variables placed in the econometric model will be treated.

**Table 2. Kosovo GDP 2007-2019**



Source: Central Bank of Kosovo and World Bank

GDP in Kosovo has changed over the years, the study has addressed the period 2007-2019, which is categorized by many changes due to changes that have occurred in the economy of Kosovo and the world. GDP values show that in Kosovo economic growth after the financial crisis of 2008 has had a decline and a fluctuating increase, while in recent years this growth has had a good trend compared to other countries in the region.

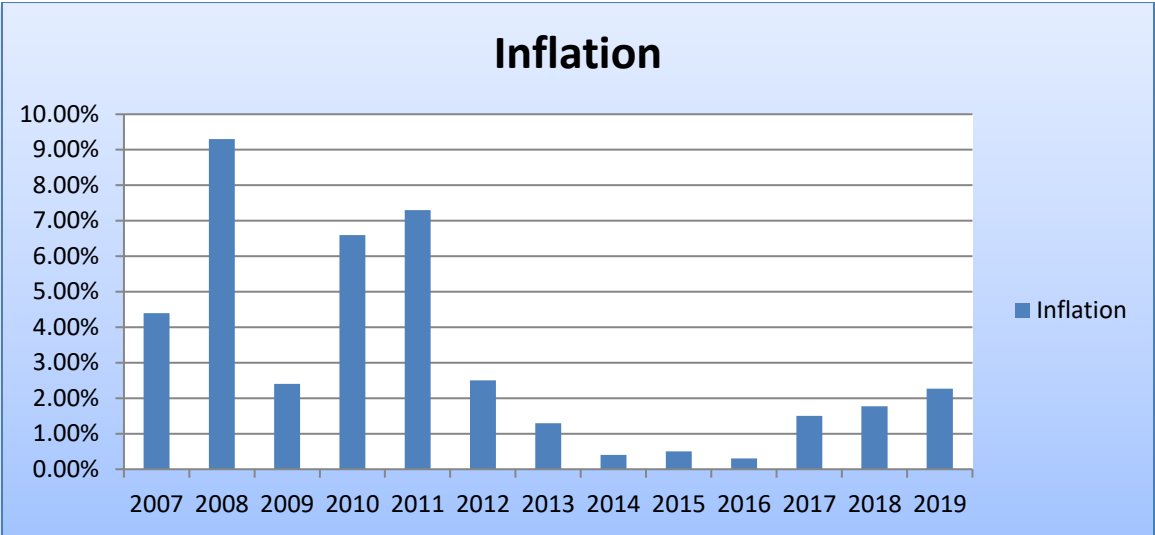
**Table 3. Descriptive analysis of GDP**

<b>Statistics</b>		
MNE		
N	Valid	13
	Missing	0
Mean		3.8077%
media		3.7000%
Mode		3.50% <sup>a</sup>
Std. Deviation		0.79106%
Variance		.626
Skewness		.703
Std. Error of Skewness		.616
Kurtosis		.011
Std. Error of Kurtosis		1,191
Minimum		2.70%
Maximum		5.40%
Sum		49.50%
a. Multiple modes exist. The smallest value is shown		

Source: Calculation in SPSS

The values of the descriptive analysis for the GDP variable show that the average GDP for the test period 2007-2019 is 3.80%, with a normal standard deviation of 0.79% and a change in the variance of the variable of 0.626. The minimum values of GDP during the period 2007-2019 was 2.70% and the maximum value 5.40%.

**Table 4. Inflation in Kosovo 2007-2019**



Source: Central Bank of Kosovo

Inflation in Kosovo during the period 2007-2019 has undergone major changes, where in some periods of time it has reached deflation. The years that have had high inflation values is 2008 with a value of over 9% of inflation, which has started to be minimized after this period, then from 2012 inflation has a downward trend, which has changed with a trend of easy growth in 2017.

**Table 5. Descriptive Analysis of Inflation**

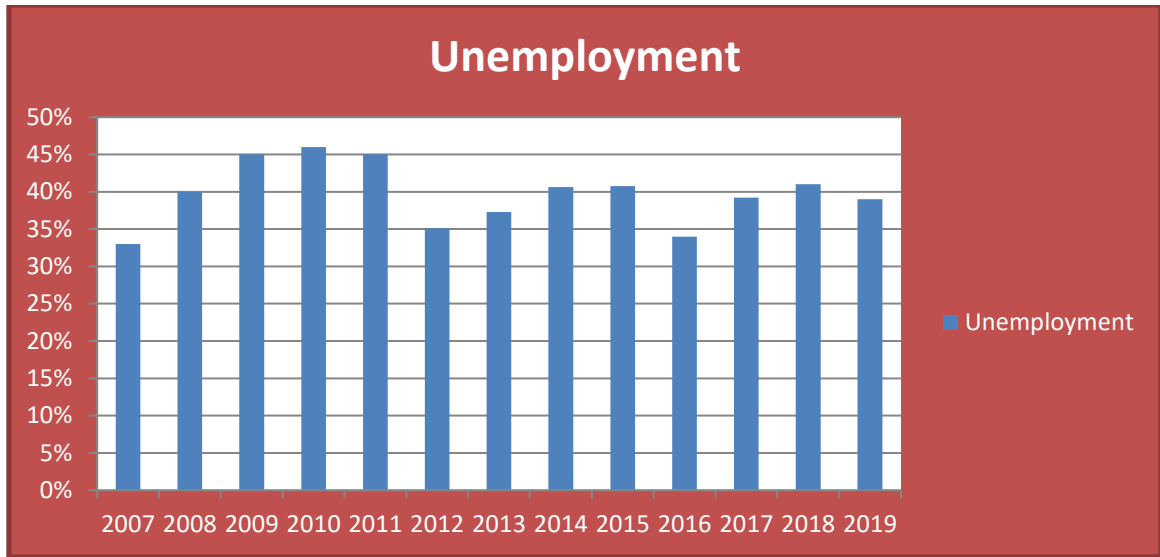
<b>Statistics</b>
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inflation		
N	Valid	13
	Missing	0
Mean		3.1179%
media		2.2667%
Mode		0.30% <sup>a</sup>
Std. Deviation		2.90155%
Variance		8,419
Skewness		1.126
Std. Error of Skewness	of	.616
Kurtosis		.163
Std. Error of Kurtosis		1,191
Minimum		0.30%
Maximum		9.30%
Sum		40.53%
a. Multiple modes exist. The smallest value is shown		

Source: Calculation in SPSS

The values of the descriptive analysis for the Inflation variable show that the average inflation for the test period 2007-2019 is 3.11%, with a normal standard deviation of 2.90% and a change in the variance of the variable of 8.419. The minimum values of Inflation during the period 2007-2019 was 0.30% and the maximum value was 9.30%.

**Table 6. Unemployment in Kosovo 2007-2019**



Source: Kosovo Agency of Statistics

Unemployment in Kosovo is a major problem for the country's macroeconomic policies, which show a high unemployment rate, the first in Europe in terms of the unemployment rate.

**Table 7. Descriptive Analysis of Unemployment**

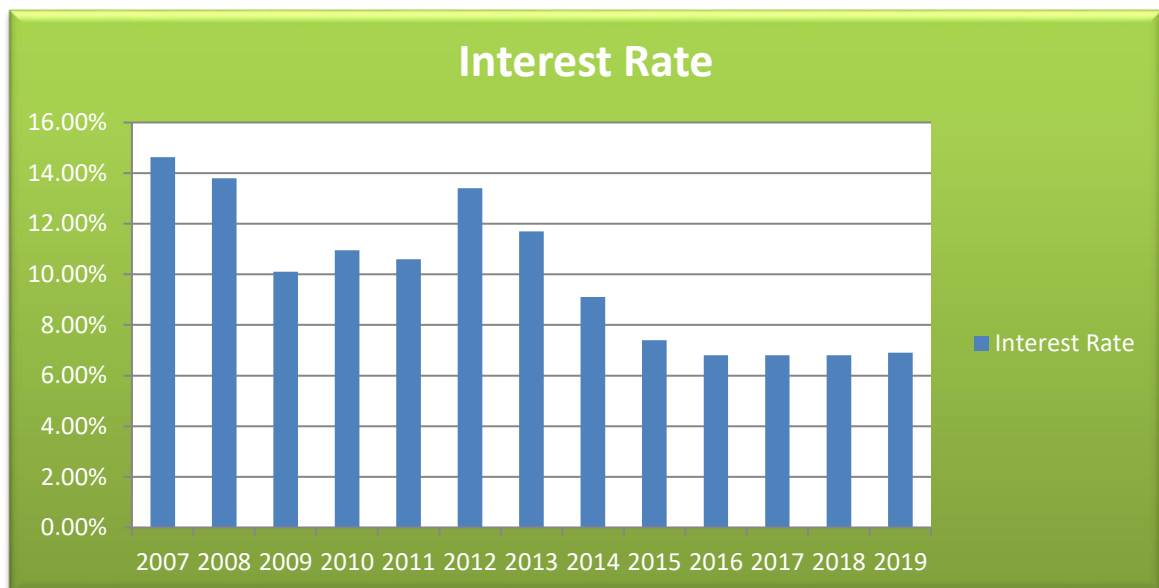
Statistics		
unemployment		
N	Valid	13
	Missing	0
Mean		39.6920%
media		40.0000%
Mode		45.00%
Std. Deviation		4.13005%
Variance		17.057
Skewness		-.057
Std. Error	of	.616
Skewness		
Kurtosis		-.748
Std. Error of Kurtosis		1,191

Minimum	33.00%
Maximum	46.00%
Sum	516.00%

Source: Calculation in SPSS

The values of the descriptive analysis for the variable Unemployment show that the average unemployment for the test period 2007-2019 is 39.69%, with a normal standard deviation of 4.13% and a change in the variance of the variable of 17,057. The minimum values of unemployment during the period 2007-2019 were 33% and the maximum values 46%.

**Table 8. Interest rate in Kosovo 2007-2019**



Source: Central Bank of Kosovo

Interest rates on household loans in Kosovo at the beginning of the banking sector have been quite high, but over the years its interest rate has dropped from 15% to 7%, which is a great help to households in Kosovo.

**Table 9. Descriptive Interest Rate Analysis**

Statistics		
Interest rate		
N	Valid	13
	Missing	0
Mean		9.9208%
media		10.1000%
Mode		6.80%
Std. Deviation		2.87724%
Variance		8,278
Skewness		.315
Std. Error of Skewness		.616
Kurtosis		-1.347
Std. Error of Kurtosis		1,191
Minimum		6.80%
Maximum		14.63%
Sum		128.97%

Source: Calculation in SPSS

Descriptive analysis values for the Interest Rate variable show that the average interest rate for the 2007-2019 test period is 10.10%, with a normal standard deviation of 2.87% and a variance variance of 8,278. The minimum values of the interest rate during the period 2007-2019 were 6.8% and the maximum value was 14.63%.

## Conclusions



In the last decade, non-performing loans have received a great deal of attention almost all over the world, as their large and uncontrolled growth would lead to the possible bankruptcy of the banking system as a whole. We should also mention the fact that according to many researchers it is proven that the cause of bank bankruptcy is the quality of assets, which is an important predictor of insolvency of banks and financial institutions, banks that are on the verge of bankruptcy have very high levels of non-performing loans just before the declaration of bankruptcy. According to studies conducted on non-performing loans, various analysts have tried to link the level of non-performing loans directly to two categories of factors: (1) macroeconomic factors and (2) factors of banking nature or specific banking. There is much debate as to whether non-performing loans are one of the main causes of economic stagnation problems and that any non-performing loans are seen as a mirrored image of failed venture. Another explanation for the high credit losses is the occurrence of banks in areas with poor economic conditions. But even specialization in a certain category of lending can increase the probability of losing a loan. Thus for example, intra-category loans may have a higher average probability of default than loans in other categories or by investing heavily in one category the bank reduces the degree of portfolio diversification as a whole. The large variation in the level of credit losses between different markets suggests that banks would be less vulnerable to the fate of individual areas or industries if they were to lend over a wide geographical area. The results of this study suggest policy makers to promote greater diversification to curb excessive risk taking.

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Kosovo compared to other countries in the region has lower interest rates on non-performing loans, including Albania, Macedonia, Montenegro, Serbia, etc. According to the World Bank, at the end of 2015, Kosovo registered a percentage of non-performing loans of 7.1% in relation to the total loans that the banking industry has issued to its customers. This lower level

compared to all other countries presented for comparison, indicates the high quality of the loan portfolio that the banking industry in Kosovo has to their customers.

The results of the econometric model are treated on the basis of highly variable regression, which contains two elements of the theme, macroeconomic factors and banking factors. Testing of this model meets the parameters and conditions provided for testing econometric models.

The overall conclusion of the research is that within the macroeconomic and banking factors, which affect non-performing loans are the inflation rate and the interest rate on household loans.

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