Research Journal of Finance and Accounting
ISSN 2222-1697 (Paper) ISSN 2222-2847 (Online)
Vol.4, No.7, 2013


# The Impact of Bank Specific Variables on the Non Performing Loans Ratio in the Albanian Banking System

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**Abstract**
The aim of this paper is to analyze the relationship between the non performing loans ratio and several bank specific variables in order to understand at what extent the banking variables will be able to explain the non performing loan ratio. The paper is based on the hypothesis that the NPLs ratio is influenced from the bank variables. It is to mention that actually the Albanian banking system is suffering from an ongoing growth of NPLs ratio and this very concerning taking into account that NPLs ratio is about 24% of the total loans. The relation between the NPLs ratio and the dependent variables will be tested by a simple regression model like OLS estimation. The independent variable will be the NPLs ratio while as independent variables are used: loans level, net interest margin, loan to asset ratio, capital adequacy ratio and return on equity. In the regression model are used panel data for a period from Q1 2002 – Q4 2012.
**Keywords:** non performing loans, banking system, net interest margin, return on equity

## 1. Introduction

The Albanian banking system, despite the Central Bank statements of not being fully affected from the global financial crises, actually is suffering from a relatively high level of nonperforming loans. According to the data published from AAB[1] the NPLs ratio in March 2013 is 23.7% and this level is very concerning taking into account that the major part of NPLs belongs to the corporate loans. This means that the corporate sector is facing serious problems related to the debts repayment while the retail loans seem to be less concerning about it. In fact it is to stress that the actual high level of NPLs was not an unpredictable event taking into account that from 2008 until now the growth rate of NPLs has been always increasing progressively. Despite the high level of NPLs the Albanian banking system has maintained e positive credit growth rate and also a positive performance in terms of ROE. In the same time the capital adequacy ratio of the Albanian banking system is 16.8% significantly higher than the minimum capital requirement of 12%. The problems of NPLs in Albania can be classified in two categories: macroeconomic factors and bank specific factors. The global financial crises of 2008 in one way or another affected even the Albanian financial system especially in terms of: reduction of GDP growth, reduction of remittances, reduction of exports, reduction of sales, reduction of internal consume and lower credit levels. Except for the economic factors another important element is the influence of the rampant lending activity of several banks in stable economic periods in previous years which by not managing carefully the credit risk lead to higher level of NPLs ratio.

## 2. Literature review

In the last years the growing level of the NPLs in major banking system all over the world, especially in the Balkans countries, has encouraged different researchers to analyse the factors that influence in the NPLs ratio. It is to mention that the high level of NPLs is translated into higher levels of credit risk and in some cases has lead to bankruptcies of the whole banking system or even the collapse of the financial system like: Asian crises of 1997 and Sub – Sahara African countries in the 1990'. In fact there in not a single definition of the non performing loans but generally there is a convergence in their specification defining NPL like loans which for a relatively long period of time do not generate incomes; that is the principal and/or interest on these loans has been left unpaid for at least 90 days.

It to mention that the high level of NPLs is one the most important factors of the economic stagnation. Different authors relate the NPL to macroeconomic and bank specific variables while *Keeton (1987)* confirms that banks can have high losses because of pure chance, weak process of credit management, specialization and economic conditions. *Robert T. Clair (1991)* analyzes the relation between credit growth and loan quality. To measure the loan quality the author uses two standards: the credit loss to total loans ratio and the NPL to total loans ratio. The empirical results show that a rapid credit growth leads to a deterioration of credit quality with one year lag and conclude that lower credit portfolios quality can cause the bankruptcy of the banks. A high level of capitalization, a prudential provisional policy, the banking concentration and the foreign capital presence are the main factors that help to reduce the NPLs ratio *(Boudriga, Taktak and Defi 1997).* The rapid credit growth leads to higher

[1] Albanian Association of Banks

losses of the loans and this is related to supply shifts that is an increasing desire of the banks to grant loans. Banks in this way have to reduce the interest rates for the new loans and lower the minimal standards for the new loans like: reduce collateral level and accept borrowers having weak credit histories *(Keeton, 1999). Fernández de Lis, Martínez Pagés and Saurina (2000)* analyze the credit losses and provisions confirming their cyclicality with economic conditions in the Spanish banking system. The authors conclude that the economic cycles, credit expansion and principal – agent problems are some important elements in the determination of the NPLs ratio. The portfolio composition, inefficient banks and the competitive environment are all related to the NPLs ratio in the Spanish banking system. *Khemraj and Pasha (2005)* study the relationship between the NPLs ratio and two categories of elements: macroeconomic and bank specific variables. The results show a positive relationship between the loans to asset ratio with the NPLs, a positive relationship between real interest rate and NPLs ratio while the credit growth is negatively related to NPLs ratio and is highly significant. The relation between GDP and NPLs ratio is negative while there is an ambiguous relation between the inflation rate and NPLs ratio because the coefficients are negative is time t while positive in time t-1. *Fofack (2005)* demonstrates that a significant increase of the NPLs ratio will lead to uncontrolled growth of credit risk. The real effective exchange rate, the real interest rate and GDP growth per capita are variables that explain the NPLs ratio and are statistically significant. The credit risk tends to be specifically higher during sustainable economic downturns and the inflation rate is not an important variable in explaining the NPLs ratio. *Kalluci and Kodra (2010)* analyze the NPLs ratio in the Albanian banking system separated in two sub – categories: business loans and retail loans. The results show that NPLs ratio of the businesses are influenced from the Treasury Bills interest rate, real effective exchange rate, monetary aggregate M3, exports growth rate and GDP growth. The NPLs ratio of the retail loans are influenced from Treasury Bills interest rate, exchange rate Euro/ALL[1] and rent and price house indexes. *Espinoza and Prasad (2010)* analyze the macroeconomic and bank variables that determine the non performing loans. The authors find a strong negative relationship between the real GDP (except oil sector) and the NPLs ratio. The conditions of the global financial markets have also effects on the NPLs ratio. A positive relationship is evidenced between the efficiency of the banks and NPLs ratio but with one year lag. There is a negative relationship between the level of capitalization and the NPLs ratio demonstrating that an increase of capital will be translated into lower NPLs ratio.

**3. Analysis of the nonperforming loans in the Albanian banking system**

The Albanian banking system continues to face serious difficulties in loans repayment. In fact it is to evidence that the major part of problematic loans belongs to the corporate sector showing the real difficulties of the Albanian businesses in loans repayment. According to the national authorities the loans are classified in five categories in the Albanian banking system as shown below:

1. *Standard loans*, regular loans that do not present any difficulty in maturity and outstanding capital;
2. *Follow up loans*, these loans present the first signs of delays in repayment and are under supervision from banks but still are not classified as problematic loans;
3. *Substandard loans*, are not classified as standard loans because of delays in repayment and are classified as problematic loans;
4. *Doubtful loans* are loans presenting significant delays in repayment but the bank still hopes to collect them and are classified as problematic loans;
5. *Lost loans* are loans which cannot be collected from the banks and are classified as problematic loans.

The global financial crises of 2008 which was originated first in the USA influenced even the Albanian banking system in different ways. In the beginning it seemed that Albania won't be affected by the financial crises due to the general lower credit exposure compared to other countries of the region. In fact happened what was expected and the financial crises hit even Albanian economy.

The GDP growth from 2008 has seen only contractions periods arriving at 1.7% levels in 2012. This data in fact is quite positive if we compare it to the region where most of the countries have negative growth of the GDP. The NPLs ratio in Albania has gone through a rapid growth pace if we compare that in the fourth quarter of 2008 it was only 3.92% while in the fourth quarter of 2012 is was 23.86% of the total loans. In fact these high levels of NPL are strictly monitored by the supervisory authorities and actually the Bank of Albania has proposed an anti crises package which is believed to solve some important problems of the commercial banks and businesses in general. This anti crises package will consist in the pillars which should give a positive impetus to the development and recovery of the credit process in the economy of Albania. The package will be concentrated in three pillars:

1. Legal pillar, related mainly to the acceleration of the collateral execution procedures;
2. Political monetary pillar, related mainly with the reduction of the base interest rate and ensuring

[1] Albanian Lek

 

compliance to the inflation objective for a medium term period;

3. Prudential pillar, related to the measures expected to release financial resources to the banks and will encourage them to channel these resources to lending activity form the banks.

To analyze the performance of the NPLs ratio we compare the fourth quarter of 2008 and the fourth quarter of 2012. Table 1 show that the standard loans are reduced by 22% in a period of 4 years demonstrating a negative situation of the total loans portfolios of the whole Albanian banking system. The second category of classified loans (*follow up loans*) has increased by 60% evidencing that the loans presenting the first problems are increasing. The third category (*sub standard loans*) has increased by 150% evidencing that the problematic loans now are at a concerning level of 10% of the total loans. The fourth category (*doubtful loans*) has increased by 400% showing that now 5% of the total loans present significant delays in repayment independently the bank still hopes to collect them. The last category (*lost loans*) is the worst signal of the classified loans in the Albanian banking system demonstrating an increase by 700% in only five years. The high growth of lost loans is translated into higher provisions[1] of the banks influencing negatively to their performance. In fact if we compare the return on equity (ROE) of the banking system in the fourth quarter of 2008 it is equal to 19% while the ROE of the fourth quarter of 2012 is only 3%.

*3.1 The non performing loans, the balance sheet write – offs and their consequences in the banking system*

The commercial banks in Albania are universal and are not legally limited in the products they offer to their clients. The modest stage of the Albanian financial system and the lack of investment activity in complex and highly risky products have played the role of a protective shield toward the financial crises. The high level of the NPLs ratio has obliged the banks to face several problems. In fact NPL implies that the planned debt installment in the debt repayment plan is not paid in time (above 90 days) or not paid at all. As a result this can influence in different ways to the banks like:

1. Unpaid installments in the right time deteriorates the banks liquidity;
2. The bank does not realize the forecasted profits reducing its profitability;
3. The NPL growth increases the provision fund in the banks' balance sheet increasing in the same time the provision expenses in the income statement further aggravating the performance;

Another problem that associated the financial crises was the lack of liquidity and the banks find it very difficult to ensure additional capital from the parent bank. In the bank practices the most widespread solutions are listed below as:

1. Creation of the loans collecting department that follows in tactical way the performance of NPL in order to precede possible deteriorations;
2. Loans restructuring in order to adapt the maturity and size of the installments with the actual changed possibilities of the borrower;
3. The write – off from the balance sheet that is a more bureaucratic process and requires the fulfillment of some conditions to like: a) loan classification as lost loan and b) legal process of collateral execution.

The write – off from the balance sheet can result in three different scenarios.

*The first scenario* consists when the bank decides to write – off the lost loan from its balance sheet before the execution of the collateral. In fact the loans' write – off wouldn't have any positive effect in the banking indicators. The loan and the provision fund is written off from the balance sheet without changing the assets value because the lost loans according to the rules of the Bank of Albania is provisioned at 100%.

*The second scenario* is when the bank is able to execute the collateral related to the loan and now will consider it as an asset of the bank. In this case the execution of the collateral and its passage as a bank asset influences in two ways:

1. The assets of the bank will be increased by the amount of the executed collateral;
2. The financial result will be increased by the amount of the executed collateral which will be registered in the income statement as a profit;

*The third scenario,* that is the most favorite but at the same time the most difficult to realize, is when the bank executes and realizes the monetary value of the collateral related with the loan. This scenario, despite that is the best one, encounters practical difficulties from the lack of liquidity faced by the economy limiting the real estate transactions.

As a conclusion it is to mention that despite the difficulties that the Albanian economy is facing, especially the banking system, solutions can be found even through the write – off process of the lost loans that somehow can improve the current situation.

**4. Econometric model and estimation procedure**

Based on the review of the literature is noticed that there is enough international evidence which

[1] Lost Loans are provisioned at 100%

suggests that NPLs may be explained by both macroeconomic and bank specific factors. We use panel data for the estimation procedure from first quarter of 2002 until fourth quarter of 2012.
In this paper we take into account only some bank specific factors which have to explain the dependent variable of NPLs ratio. We use the Ordinary Least Squares estimation to test the hypothesis and to realize the relations between the dependent variable and independent variables.
The following hypothesis will be tested:
**H1**. The capital adequacy ratio (CAR) has a negative relationship with NPLs ratio;
**H2**. The loan to asset ratio has positive relationship with NPLs ratio;
**H3**. The loans' level has a positive relationship with NPLs ratio;
**H4**. The net interest margin has a positive relationship with NPLs ratio;
**H5.** The return on equity (ROE) has a negative relationship with NPLs ratio.
The dependent variable will be the NPLs ratio while as independent variables will be loans level, net interest margin, loan to asset ratio, capital adequacy ratio and the return on equity. The general regression equation will be:

$$LN\_NPLt = ß0 + ß1CARt + ß2L\_At + ß3LN\_Loanst + ß4LN\_NIMt + ß5ROEt$$

**LN_NPLt** the natural logarithm of the ratio between non performing loans to total loans in time t;
**CARt** capital adequacy ratio in time t;
**L_At** loan to asset ratio in time t;
**LN_Loanst** natural logarithm of the total loans in time t;
**ß4LN_NIMt** the natural logarithm of net interest margin in time t;
**ROEt** return on equity in time t;

## 5. Data analysis and interpretation

The regression analysis confirms that the coefficient of determination R-squared is equal to 82.91% and shows that the independent variables explain 82.91% of the variation of the NPLs in the Albanian banking system. The DW – statistic is equal to 1.8111 indicating that the residuals are not correlated.
*The hypothesis number 1* is not confirmed showing a negative relationship between the CAR and the NPLs ratio. According the regression results beta is -0.21891 and is not significant (0.638) at 95% percent. In fact the sign of the coefficient is the same as in the international evidence showing that an increase of the CAR will cause a reduction of the NPLs ratio.
*The hypothesis number 2* is not confirmed demonstrating a negative relationship between loan to asset ratio and NPLs ratio. The beta coefficient is -8.6181and is highly significant (0.007) at 95% level. This is in fact contrary to international evidence (Khemraj and Pasha) which find a positive relation between the loan to asset ratio and NPLs ratio.
*The hypothesis number 3* is confirmed showing a positive relationship between the total loans and NPLs ratio in time t. The beta coefficient is 0.94877 and is significant (0.031) at 95% level. This result confirms the international evidence (Khemraj and Pasha, Robert T. Clair, Fernández de Lis, Martínez Pagés and Saurina). The positive relationship of the coefficient demonstrates that the growth loans' level will determine an increase NPLs ratio even in the Albanian banking system.
*The hypothesis number 4* is confirmed showing a positive relationship between net interest margin and the NPLs ratio. The results of the regression show a beta of 0.18314 and are significant (0.043) at 95% level. This result is very interesting demonstrating that higher level of net interest margins will determine higher NPLs ratio.
*The hypothesis number 5* is confirmed showing a negative relationship between return on equity and the NPLs ratio. The result of the regression shows a beta of -11.2650 and is highly significant (0.000) at 95% level. This finding is very interesting showing that an increase of ROE will determine a reduction of NPLs ratio and vice versa. This finding confirms international evidence (Louzis, T. Vouldis and Metaxas) showing that higher NLPs ratios will deteriorate the performance of the banks.

## 6. Conclusion

This study analyzes the relationship between the NPLs ratio and several bank specific factors in the Albanian banking system. Using panel data form Q1 2002 until Q4 2012 and the Ordinary Least Squares estimation is found out that capital adequacy ratio (CAR) is negatively related to NPLs ratio but is not statistically significant. In fact the CAR in the Albanian banking system in the last years has shown to be very stable despite the progressive growth of NPLs ratio. The loan to asset ratio is negatively related to the NPLs ratio showing that an increase of loans to asset ratio will determine a reduction of the NPLs ratio. While the loans' level and the NPLs ratio demonstrate a positive relationship showing that higher levels of loans will cause higher NPLs ratio. The net interest margin (NIM) shows a positive relationship with NPLs ratio evidencing that when banks tend to have higher net interest margins this will cause a deterioration of the assets' quality. The results also show that there is

a negative relationship between return on equity (ROE) and the NPLs ratio showing that higher NLPs ratios will deteriorate the performance of the banks. In the same time another important issue of the NPLs ratio in the Albanian banking system is the *write – off of lost loans* that actually can be implemented in three ways: 1. Write – off the lost loans before the execution of the collateral, 2. Execution of the collateral related to the loan and considering it as an asset of the bank, 3. The bank executes and realizes the monetary value of the collateral.
As a conclusion it is to mention that despite the difficulties that the Albanian economy is facing solutions can be found even through the *write – off process* of the loans that somehow can improve the current situation.

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Table 1. Comparison of Loan Classification in Albania[1]

| **Period** | **Q IV 2008** | **Q IV 2012** | **Change %** |
|---|---|---|---|
| **Classified Loans (%)** | **100** | **100** | - |
| 1-Standard Loans | 88 | 69 | -22% |
| 2-Follow up Loans | 5 | 8 | +60% |
| 3-Sub standard Loans | 4 | 10 | +150% |
| 4-Doubtful Loans | 1 | 5 | +400% |
| 5-Lost Loans | 1 | 8 | +700% |

Table 2. Regression results

Dependent variable is LN_NPL

44 observations used for estimation from 2002Q1 to 2012Q4

| **Regressor** | **Coefficient** | **Standard Error** | **T-Ratio** | **Probability** |
|---|---|---|---|---|
| **CONSTANT** | -11.4761 | 3.9982 | -2.8703 | 0.007 |
| **CAR** | -0.21891 | 0.46193 | -0.47390 | 0.638 |
| **L_A** | -8.6181 | 3.0100 | -2.8632 | 0.007 |
| **LN_LOANS** | 0.94877 | 0.42313 | -2.2423 | 0.031 |
| **LN_NIM** | 0.18314 | 0.08537 | 2.1452 | 0.043 |
| **ROE** | -11.2650 | 1.2028 | -9.3659 | 0.000 |

[1] Bank of Albania