Journal of Multidisciplinary Engineering Science and Technology (JMEST)
ISSN: 3159-0040
Vol. 1 Issue 4, November - 2014

Non-economic factors that affect credit risk, The case of Albania

MSc. GLEDIANA ZENELI (FOTO)
Lecturer at Faculty of Natural Science,
University of Tirana
Albania
gledianafoto@fshn.edu.al;

Prof.Asc VALENTINA SINAJ
Lecturer at Faculty of Natural Sciences
University of Tirana
Albania
sinajv@yahoo.com

MSc. ELVA URUÇI (ZENELI)
Lecturer at Faculty of Economy
University of Elbasan
Albania
elvazeneli@yahoo.com

Abstract- *Banks serve as an economy accelerant, by exchanging funds from the surplus resources towards those deficient, supporting investment and economic growth. The main purpose of this paper is to identify and analyze the importance of non-economic factors in the level of non-performing loans in the banking system in Albania. The methodology used in this paper includes qualitative and quantitative analysis of the main indicators of the banking sector. This is accompanied by a descriptive analysis of social factors in one of our nation's banks. At the end of the model we concluded that in Albania there is a positive correlation between the NPL (non-performing loans level) and XEFF - (indicator that measures the management efficiency), confirming the hypothesis "skimping". While strong negative relation that exists between the CAP (measures the banks capitalization) and LTA (indicates the risk that a bank undertakes) confirms the hypothesis "moral risk".*

Keywords: Risk, Granger casuality, NPL.

I. INTRODUCTION

Lending represents the main function of the banking industry. Loans are a dominant asset and represent 50-75% of the total amount in the largest banks generating the most of operating profits. Failure to manage loans, which constitute the bulk of bank assets, is likely to lead to the episode of the high level of non-performing loans.

This paper will focus on the identification and analyzing the noneconomic factors affecting the growth of non-performing loans. After the financial crisis, which began in America but took a worldwide expansion, the financial system of our country was affected as well. Therefor after 2008 the level of non-performing loans has increased significantly. Various scholars as Kalluci (2011), Shijaku and Ceca (2012) are focused on identifying and building models with regard to macroeconomic factors that affect credit performance. But the focus only on macroeconomic factors does not explain why different banks have different levels of nonperforming loans, or why individuals with the same economic conditions behave differently as borrowers. This area still has many unexplored opportunities in Albanian reality.

II. LITERATURE REVIEW

Researchers and academics have put into focus the level of non-performing loans as a direct indicator of credit risk. This approach has increased the number of studies on this field in order to understand the determinants of NPL.

Methods of risk management must evolve and sophisticated with the same steps with which the bank is involved in a new world and risking financial operations.

Berger and DeYoung (1997) in their paper, by the Granger test, test the hypotheses about cause-effect relationship between the loan's quality and the management efficiency. The results of the research show that between loan and efficiency problems are twofold for American banks during the period 1985-1994. In this study two main hypotheses are raised about the influence or the management and the role of "bad luck".

The hypothesis of "bad luck" emphasizes that an increase in non-performing loans caused by an unexpected exogenous event (qualifying as bad luck) such as the economic slowdown. Banks will consequently face higher costs to monitor these loans, causing decline efficiency.

Socio-economic variables are used to determine the identity of the borrower for the purpose of credit and legal aspects. These variables have

the highest importance and they study factors like: regional differences, age and other relevant differences. In general, the risk of default decreases with age. The owners of the house also represent a less risky category due to a home as collateral. Occupation indicator is used to determine the repayment period and also for the document purpose. Other financial indicators are used to determine the amount of the loan. Boyle and Thomas (1992) in their paper also support these conclusions. They point out that credit risk decreases with age. For this reason banks are hesitant to lend to individuals at a young age because they are classified as a risk.

In line with the findings to logic above is achieved and the work of Steenackers, and Goovaerts, (1989). They analyze the most important variables that affect the valuation of the bank lending model in Belgium. Tor and Kasper (2003) show that when the house is owned by the borrower, occupation, income, debt ratio, are significantly positively related to the credit risk of the borrower, while age, region or city of residence, and if other credits exist are significantly negatively related to the credit risk of the borrower.

In their study Rehan and Muhammad (2004) reflect the literature impact of some new factors. Such as the role of the residence. Some locations may attract wealthy residents, contributing to increases in house prices and properties. This affects the value of the collateral, and therefore the credit risk.

Attanasio and Kyriazidou (2008) have concluded that, with the exception of families with higher incomes, consumers are more responsive to maturity and less responsive to changes in interest rates. From a practical perspective, the case after interviewing employees of credit, amounted to income of borrowers are associated with the financial stability of the company where he works.

III. METHODOLOGY

The methodology used in this paper includes qualitative and quantitative analysis of the main indicators of the banking sector, focusing primarily on the credit quality indicators. Sources of data are used for some of the most important we can mention: Bank of Albania, World Bank, Instat, official websites of banks in Albania. The data mainly consider the period from 2005 to 2012.

The paper presents a thorough analysis of the banking sector, which is mainly used for vertical and horizontal analysis of indicators

Also in this paper is built a model that tries to prove which of the hypotheses set up to study the impact of management efficiency and the level of non-performing loans stands or proved in the Albanian reality. The model includes some variables or indicators of both economic and noneconomic , among which we can mention foreign or domestic ownership and the risk that the bank is disposed to take over.

Initially the efficiency level is valued for each banking sector by FF method (Flexible Fourier) and then using the method GMM on the panel data, the regression is estimated. Finally in order to better argue the results obtained from the model becomes and Granger causality test.

At this point it is worth to mention the limitations of this paper. Due to lack of access to information was impossible the built of a model in relation to social factors, which would create an added value to this paper. But unfortunately, the internal bank policies and requirements but does not allow the supervisory authority in accessing the internal information's about subjects or individuals who have problems in repaying the loan. Also published data dating back to 2012, leaving a gap of more than a year away from the focus of the study.

Data

The data was provided by the annual reports of the Bank of Albania, and the annual reports of each bank to take into consideration in the model. The study period is from 2005 to 2012 due to the fact that some of the banks surveyed had not yet published reports of the 2013. The data are annual frequency. From the model the Pro Credit and Credins Bank are excluded due to lack of reporting of them. The panel data are not balanced and the number of observations is 108.

IV. ANALYSIS, FINDINGS AND INTERPRETATIONS

IV.1 The Descriptive analysis of social factors

Below we will try to do a descriptive analysis about social factors that stand behind non-performing loans in a bank that will be named X Bank for confidentiality reasons. In all data tables will see an indication of uncertainty. In the largest case it has to do with the lack of data at the time of application. It shows a different problem regarding the banking sector, and for more about the behavior of credit agents and their responsibility. In some cases, they neglect the full completion of the form of fulfilling mainly about social information. This affects the part of the problem loans not to identify these factors, influencing and problems reaching generalizations. However it is not always the fault of the agents or the application documents, perhaps the reason must be sought and data processing.

1. *The age influence as a determining factor in not returning the loan.*

Below we provide a table showing the % that occupies every age group in failing to credit. Separation is done in five age groups and the results are given in Table 1 in the Annex.

As you can see the age group with the smallest proportion of non-performing loans of voice age 18-20 years old. The reason about this percentage should not be required to the fact that this age group is responsible or is able to afford the loan. This percentage is influenced by the fact that the proportion of this age group in the total sound of the loan is quite small, and because of low demand but also the reluctance of banks. This comes as a result of a low income or lack of assets to place as collateral.

2. *Study of the level of non-performing loans by gender*

From the information processing we get that 32.87% are female and 49.09% male. As you can see from the data, men occupy a greater percentage of the failing credit. According to World Bank indicators of European countries (in the absence of a study on Albania) but adjusted and adapted to our report between men and women in the total female population as 66% receive loans of total loans that men receive. If we weight the coefficient of the credit default for male's then if two sexes would occupancy the same total weight in the borrowing, men would not return to a level of 32.36% levels due to women. However, before drawing final conclusions about gender discriminations in credit failing we should stop and examine economic indicators between the two groups. The following graph shows the unemployment rate:

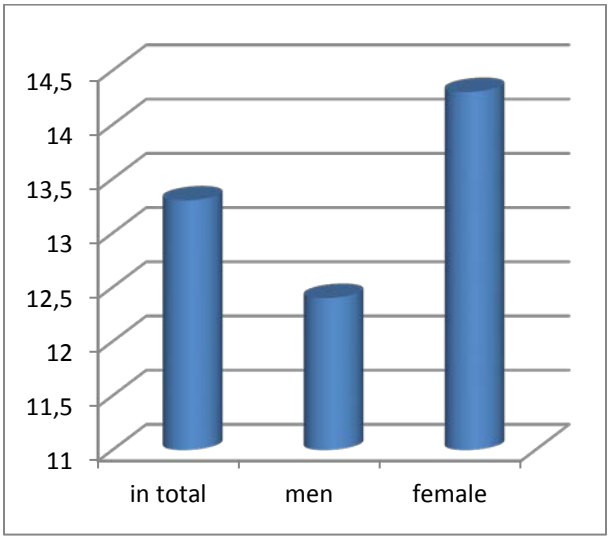

Figure 1: Unemployment rates by gender; Source: INSTAT (2011)

How you can see the unemployment rate for women is significantly higher than that of male's. This as a result of social factors, but mainly the level of discrimination that still exists in our society. Also working for the same positions, women in Albania are paid significantly less than men and although the largest case are more qualified. Since, then, based on economic variables to conclude that women have lower solvency than men, what affects the indicator to be about the same. According to Azam and Danish women by nature are more responsible about duties and tend to sacrifice more for their repayment.

3. *The impact of educational level on the failing credit*

In table 2 in the Annex we showed the weights at the level of non-performing loans that have individuals with different educational levels

With the data presented below, we can take a wrong picture cause they are unstructured . Looks like the group of individuals with Bachelor's degree have the highest percentage of non-performing loans and are the group that wants most attention. However, normal

individuals with bachelor's degree and gymnasium are groups to which banks need to focus and be careful, however, this level should be seen in the share of total credit. In the absence of published data regarding these levels, but based on the results gathered from a questionnaire, which after processing within the data, about 46% of the loans are people with bachelor level education and 40% people with Masters and PhD level. So the people with low and middle education, occupy only a small percentage. So based on the level and distribution of credit, educational level shows more lack of credit return is elementary and secondary education. This conclusion can be justified and based on certain financial ratios related to educational level. Below poverty will be presented by education.

Table 3: Poverty by education level

School score for persons 21 years and over	Measuring poverty				% population	Of part of poverty
	Tirana	other cities	village	the total		
without education	19	20.5	30.7	26.6	3.5	4.1
primary	26.7	26.1	30.8	29.3	61.6	79.4
Secondary education	10.5	14.3	19.5	15.6	15.8	9.7
2-year vocational education	14.2	14.4	17.1	15	1.8	0.8
4- year vocational education	10.9	8.2	16.5	12	10.7	5.2
university	2.9	2.6	3.8	2.9	6.9	0.7
the total	15.9	18.8	28.1	23.7	100	100

Source: INSTAT (2005)

Referring to the above data we see that the majority of poor households comprise individuals with lower education level than the secondary, which occupy a greater percentage than those individuals in the total population. In Table 4 in Annex we will introduce employment by education level appropriate.

We see that the employment rate is higher for those who have high educational level and lower in the case of lower educational level. But in the case when they are employed we see at the table below no significant difference between the level of payment. So based on financial data, we see that individuals with lower education ensure that high-income individuals lower on higher education, affecting their ability to repay loans but also in their ability to projected future inflows.

IV.2 The presentation of the model results

Results will be organized in two sections, based on logic and data processing and objectives we seek to achieve.

Hypotheses raised are:

1. The hypothesis of "bad management" which means that managers do not control properly and operating costs in the loan portfolio. The lower efficiency causes a growth in the non-performing loan.
2. Hypothesis "skimping" which means that the quality of the bank's loan portfolio is a result of costs associated with the monitoring activity loan.
3. The hypothesis of "bad luck" that means that unexpected factors and external problem affecting the growth of credit, which causes the efficiency to reduce cost. This is mainly because of monitoring costs increase with loan problems.
4. Hypothesis "moral risk" suggests that managers of banks with low capitalization, are less risk diverting. According to this theory, low capitalization banking could cause the indicator rising bad loans.

According to De Young, each of these four hypotheses outlined above, there is a need for different implementations of rules and legislation. The hypothesis of "bad luck" requires regulatory authorities to engage in efforts insulation from external shocks market and planned. While the hypothesis of "bad management" and "skimping" require regulators to focus on internal management control of credit risk. Finally hypothesis of "moral risk" requires a more careful full control of banks with low capitalization.

At this point of the study we will present the results of the test (whose methodology is explained and argued above), which verifies if the quality of assets, the level of capitalization, ownership affect the level of efficiency. To achieve this effect estimate we used

independent variables as the size of the bank, the level of concentration and foreign ownership. With this equation will appreciate and data regarding prior assumptions about behavior management, mainly focusing on the level of non-performing loans.

Results are shown below

Table 8: The results of the model

Variables	Dependent Variable Management Efficiency	
	Coefficient	Probability
C	-0.193	0.6282
CAP	0.466*	0.0003
LLP	0.3*	0.0829
LTA	0.49*	0.0000
PQ	0.63	0.2544
PR	0.1*	0.0446
PT	0.499	0.0097
R^2	0.145	
Bank Number	14	
Observation	93	

As we can see the model is 14% accessible. The model has a normal distribution, it can be easily understood by Jarque Bera statistic which has a value of 1.77 and values AEP is 0.41. The probability 0.41 means that the Ho is ok, thus the model has a normal distribution.

Initially we notice that all the indicators affect positively in the efficiency level. The level of capitalization, the index of bank risk and ownership are important variables that affect with a 95% certainty level. While the LLP is an important variable with 90% confidence level. At this point, based on the fact that the indicator of the quality of assets affects positively to managerial quality indicator, start up the basics about the confirmation of the hypothesis of "skimping behavior". Hypothesis "skimping" which means that the quality of the bank's loan portfolio is a result of costs associated with the monitoring activity loan (Young). Consequently it would bring a positive correlation between the LLP and XEFF. In order to study in more detail the assumptions raised above is helpful and the presentation and interpretation of the correlation between the variables presented in the model. Correlation but also represents the percentage value. Regardless if the share value is less than 0.05 , then we can say that the correlation between these two factors is strong.

The value of the coefficient of the LLP and XEFF correlation is 0.474980, which shows that they are positively correlated indicating that the "skimping" hypothesis stands for the banking system in Albania, where loan-level rise will cause increasing problems of management efficiency. This is because according to this theory the banks deliberately reduce costs associated with managing the short-term cost increases causing credit problems in the long run. This may stand for Albanian reality due to the young age of this sector.

What is the reasoning for the new age banking system?

In the analysis presented in the previous section to the general indicators of the banking sector, we found that 50% of individual loans occupied home loans. Given that mortgages generally have a time span 15-25 years, the age of the Albanian banking system and the fact that loans problems theoretically begin to show after the 1/3 of their life (A.Bozdo , 2012, p. 1), we are able to understand why is the number of problem loans raised at this moment. So now it's time when the received credits generally passed the 1./3 of their life.

High performance in cost management may simply be an indicator that will show an increase in the future and higher levels of non-performing loans. Given that the model is constructed with data up to 2012 and based on data not yet published in the official way, non-performing loans in the market continues to grow, without being accompanied by a decline in indicators of efficiency cost (or managerial efficiency based on the relationship that exists between this method of valuation and ROA and ROE ratio) then the validity of this hypothesis may be an explanation.

In the correlation table of the variables, see the CAP (capitalization rate) and LTA (bank risk indicator) are strongly correlated (probability) negatively with each other confirming the hypothesis of "moral risk" in the Banking Section

in Albania. This is because of a reduction in the level of capitalization associated with the increase in the level of risk that banks take.

Also worth noting the fact that XEFF is strongly positively correlated with PR (variable which shows the level of foreign ownership). This means that with the increase of foreign ownership in the banking sector in Albania the efficiency in cost management increases. At this point we remain in consistent with the conclusions arrived and presented in the literature review section.

IV.1. 2: Granger causality test.

In this section we present the results of Granger test to introduce the link that exists between the study variables above and a confirmation of the conclusions reached above. It is known that the conclusions of Granger causality test are very sensitive to specification of the lag. Conclusions are presented in the annexes of Granger causality test under 5 different lag set and for all variables in the model presented above. Below we present only the results relevant to your comment about hypotheses grounds raised in the beginning of this section.

Table 10: Results of causality test, Granger

Null Hypothesis:	Obs	F-Statistic
LLP does not Granger Cause XEFF	94	0.33815
XEFF LLP does not Granger Cause		3.72951
LTA does not Granger Cause CAP	97	2.45962
CAP does not Granger Cause LTA		2.26928
LLP does not Granger Cause CAP	93	12:07
CAP does not Granger Cause LLP		3.11152
LLP LTA does not Granger Cause	93	2.37198
LTA does not Granger Cause LLP		4.27164

We can see that the management efficiency in credit management causes the non-performing loan claiming the conclusions reached and presented in the literature section. Also the lag level of capitalization and the level of risk affect bank loans. So as you can see by GMM estimation and time series by Granger test we can create an overall picture to verify the conclusions we arrived at coherently. Causation theories claim the results presented in the literature review section, the hypothesis confirmed of the Albanian reality in the banking section is a novelty, as it proves the theoretical hypotheses, but not the more affirmed in other countries.

V. CONCLUSIONS AND RECOMMENDATIONS

As a summary of this paper we can conclude that:

- The banking system in recent years has experienced a continued deterioration in the credit quality indicators. This has come as a result of splicing but not only economic factors. The novelty of this paper lies in achieving the identification of uneconomical factors. From the literature we identified the role and importance of social factors such as age, gender; management efficiency; information sharing level.
- Women in Albania, despite lower revenue than providing men are more likely to be regular with respect to repayment of the loan. We can conclude that the younger ages loaners are more risky then elders. Borrowers with age greater than 50 years old were more regular for payments, while higher levels of default mark by age 20 to 30 years old. The owners of the house also represent a less risky category due to a home as collateral. Occupation indicator is used to determine the repayment period and for the document purpose.
- Also at the end of the build model we verify the hypothesis of "moral risk". According to this theory the banks with low capitalization are more likely to take risks. This is because it is what they

take risks in low proportion property owners. Most of these are from the third ages. If you win then their profits margins increases, otherwise what they lose is a small fraction of the total.

REFERENCES

1. Arora, Diksha, and Ravi Agarëal. “Banking Risk Management in India and RBI Supervision.” *Birla Institute of Management Technology*, August 2009.
2. Arunkumar, Rekha, and G Kotreshëar. “RISK MANAGEMENT IN COMMERCIAL BANKS.” *The Financial Express*, 2004.
3. Berger, A, and R DeYoung. “Problem Loans and Cost efficiency in Commercial Banks.” *Journal of Banking and Finance 21*, November 1997: 613-673.
4. Cosma, S. “Il ricorso al credito al consumo: caratteristiche socio-economiche e comportamentali delle famiglie italiane, in: Osservatorio sul credito al dettaglio.” *MUP Editore*, 2009.
5. Kamleitner, B, and E Kirchler. “Consumer credit use: a process model and literature.” *Revue Européenne de Psychologie Appliquée*, 2007: 57.
6. Louzis, D. “Macroeconomic and bank-specific determinants of non-performing loans.” *Journal of Banking & Finance,*, 2011.
7. Rossi, S. “How loan portfolio diversi¯ca-.” *Journal of Banking & Finance,*, 2009: 2218-2226.
8. Steenackers, A, and M Goovaerts. “A credit scoring model for personal loans. Insurance Mathematics Economics.” *Insurance Mathematics Economics*, 1989: 31-34.

ANNEX

Table 1: Group ages and loan problems

Group Ages	Percentage
18-20	0.69%
20-30	22.53%
30-40	19.92%
40-50	22.39%
>50	16.43%
#N/A	18.04%
Total	100.00%

Table 2: Educational level and NPL

Educational level	Percentage
Bachelor	40.83%
Primary	3.61%
Higher	36.29%
Postgraduate	1.24%
#N/A	18.04%
Total	100.00%

Table 5: Employment rate by education

	Gender		Educatio			
	Man	Woman	<middle	Middle	>middle	Total
Full time Employed	44.6	22.8	27.7	41.9		33.1
% of the employers	69.6	51.0	54.5	73.3	75.1	61.5
Part time Employed	19.5	22.0	23.1		17.5	20.8
% of the employers	30.4	49.0	45.5	26.7	24.9	38.5
Total Employed	64.1	44.8	50.9	57.1	70.1	53.9

Source: INSTAT (2005), author Processing

Table 6: Difference in wages by education level

Education	Wage Differences (%)
Lower than secondary	-0.33
Secondary	-0.39
Higher than secondary	-0.71
Total	-0.22

Source: World Bank (2005), the author's elaborations