IMPACT OF MACROECONOMIC AND BANK SPECIFIC FACTORS ON LOAN PERFORMANCE

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To all who made this possible,

Thank You.

ABSTRACT

This study examines the impact of macroeconomic and bank specific variables on NPL in the Lebanese Banks. Thus, the main aim of the study is to shed the light on the importance of macroeconomic and bank specific variables on the performance of the loans.

The survey research method was adopted for the study and the study relied much on secondary and archival data. Data was obtained from the Lebanese Banking Associations, and the regression test was used to test the relationship between the dependent and independent variables of the research.

For instant, there is a significant relationship between macroeconomic and bank specific variables and performance of the loans.

Keywords: Return on Assets, Return on Equity, Growth in Assets, Capital Adequacy, Liquidity

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CHAPTER ONE

INTRODUCTION

1.1 Introduction

Lending is considered one of the most important activities which are implemented in the bank in order to achieve a good share of profit throughout the means of interest. Such projects are prepared and financed carefully by the bank through the means of loan appraisals.

Thus, to meet the increasing demand of credit, and to keep the financial position of the bank in a healthy way, loans should be extended to various sectors of the economy, and must be fully recovered.

Recently, the performance of the loan repayment in the bank had declined due to many reasons including the behavior attitudes of the borrowers and the bank as well. This change in the behavior has a direct effect on the NPL in the bank the thing which affects the potential investors. Such factors should be managed effectively and efficiently to recover its existing loans and to get ideals for coming ones. Thus, recovering a loan is considered an important factor which has a direct effect on the profitability and the liquidity of the bank.

Banks normally operate through providing loans and keeping and safeguarding deposits, and that is differentiates them from other types of financial institutions. Therefore, they act as intermediaries between depositors and borrowers in the economy (Hefferman, 1996)

Modern financial systems contribute to economic development and the improvement in living standards through providing various services to the rest of the economy. That includes clearing and settlement systems to facilitate trade, channeling financial resources between savers and borrowers, and various products to deal with risk and uncertainty. (Bollard et al, 2011)

The traditional role of a bank is to make long term loans finance by short term deposits. Banks pay depositors less than they receive from borrowers, and that spread accounts for the bulk of banks' income. (Gobat, J. 2012)

Credit or loans represent the principal source of income for financial institutions. However, granting loans constitutes the riskiest activity and therefore the evaluation of its risks remains one of the major objectives of those institutions. As a result, decisions taken by banks involve the appreciation of risk in order to predict or anticipate its expected impact for each loan granted.

Non-performing loan is a loan on which the borrower is not making interest payments or repaying any principal. At what point the loan is classified as non-performing by the bank, and when it becomes bad debt, depends on local regulations. Banks normally set aside money to cover potential losses on loans (loan loss provisions) and write off bad debt in their profit and loss account. In some countries, banks that have accumulated too many NPLs are able to sell them on - at a discount - to specially established asset management companies (AMCs), which attempt to recover at least some of the money owed. The focus on non-performing loans (NPL) has increased after the global economy markets had been hit by the financial crises of 2007-2008, where there was a deterioration in loan performance. (Beck et al, 2013).

NPL faces valuable collateral and the unsolved debt makes it more difficult to obtain new funding and **make new investment.** At the same time, the bank needs to meet the costs of the NPL, including the wind-down costs. Until the NPL case is settled capital requirements limit the creation of new credit. High NPL ratios weigh on banks' balance sheets and are a drag on banks' profitability. They contract credit supply, distort allocation of credit; worsen market confidence, and slow economic growth. (Balgova et al, 2016).

1.2 Need of the Study

One of the most important tools which contribute to the success of the banks in Lebanon is the credit service. However, Lebanese Banks provide different types of loans in Lebanon which contributes toward economic development. Thus, to be able to maintain this objective, the bank needs to strengthen its liquidity by enhancing loan recovery.

Most of the problems which results in non-performance loans are the poor procedures which are implemented by the management of the bank. Because of these poor procedures, the lenders are obliged to provide various institutional methods which aim to minimize the risk of the loan.

Thus, in order to be able to narrow down the research gaps and solve the problem which is facing the banks in Lebanon, the following research questions should be answered throughout the research:

1. What are the major bank-specific factors affecting Non-performing loans in Lebanon?
2. What are the major borrower-specific factors that affect Non-performing loans in Lebanon?

1.3 Importance of the Study

The main aim of the research is to identify the major factors that affect non-performing loans which are financed by Lebanese Banks. Thus, the objectives that this research will address will be stated as follows:

- To identify bank-specific factors affecting NPL
- To study the macro economic factors and their effect on NPL

Thus, the following research will address the factors which affect the NPL in details taking into consideration all previous researches and studies done about the determinants of NPL as a secondary data, and taking the data from Lebanese Banks Associations as an archival data for hypothesis validation.

CHAPTER TWO

LITERATURE REVIEW

2.1 An increasing amount of NPL over the last twenty years

For 20 years, a significant growth in credit given by financial institutions was observed. (Cingolani, 2013) There are several reasons behind that increase such as:

- Financial market deregulation:

  To reduce the amount of regulation over a market or economy. It may include reduced or el-

  iminated requirementsfor reporting or filing statements with regulators. Deregulating m ay allow an organization to conduct more activities

  than it could before; for example, it may allow a bank to make more high risk investme nts.

- The development of information technology in the banking sector which means that the information technology and systems should be developed in the bank to be able to analyze the movement of the loans and to detect the non-performing loans.

- The increase in intermediary banking which can help in reducing the rate of non-performing loans

The growth in credit is accompanied by higher competition in the banking sector in terms of total assets. Intense competition has driven banks to take higher risks. In order to stay

competitive and maintain their market shares, banks **have** loosened conditions for potential lending.

As a result, the quality of their portfolios deteriorated with the largest part composed of risky loans taking the case which occurred in United States as a case study.

The financial crisis of 2007-2008 was the consequence of excessive lending and riskier loans, in particular lending to insolvent borrowers in the United States, the subprime. By using securitization mechanisms, which is used to turn bank debt to a tradable and liquid financial instrument those loans are mixed with others (personal loans, educational loans) and re-sold to non-transparent institutions which emit title counterparties to the purchasing native investors which are given a high credit rate ranking by rating agencies**.** (Nahapétian 2011)

Therefore, the securitization permitted to spread the risk from the American house mortgage market to the global financial system. Its first signs appeared during the second quarter of 2007 and the crisis started in August of the same year. That resulted in affecting the balance sheets of banks negatively, leading to massive depreciation in asset value (drop in prices of houses and in the stock market). The fall of Lehman Brothers in September 2008 triggered a panic which caused the financial banking system to a halt, which led banks to limit lending as they refused to take risks. (Nahapétian 2011)

The graph below illustrates the contraction in credit during the financial crisis.

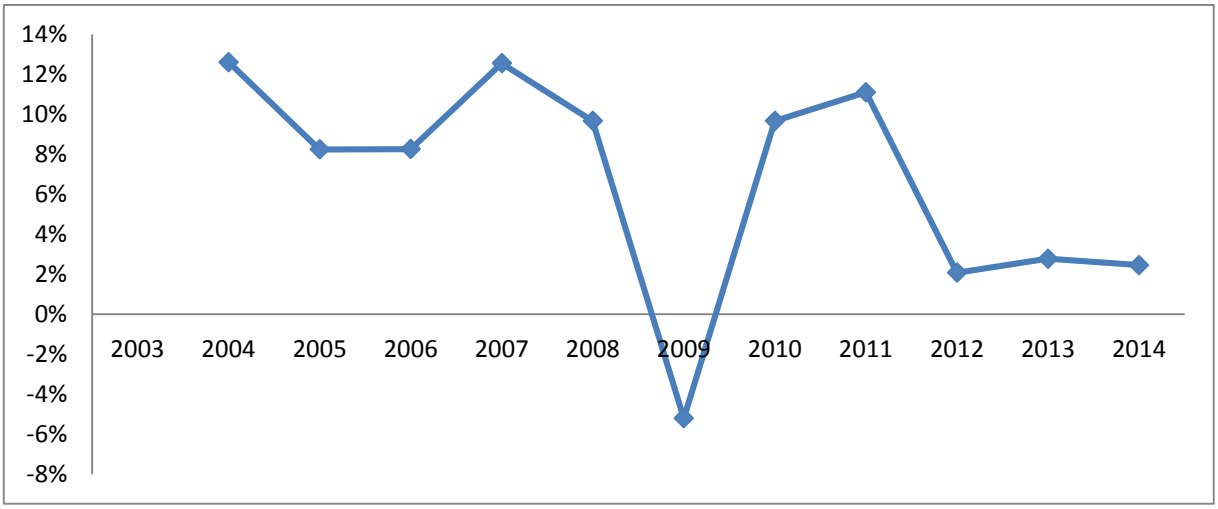

Figure 1 Credit extended from 2003 to 2014

Source: World Bank

Following the financial crisis, a large number of studies were carried out in order to better comprehend the problems caused by bad credit and default if the original borrower.

Those publications discuss the importance of the quality of assets and liabilities that have a significant effect on banks vulnerability.

Those studies tried to provide answers to the financial crisis that shook the world in 2008, which caused millions of people to lose their houses and their jobs.

For this reason, NPL can be considered as "financial pollution" they were also described as toxic loans affecting economic and social development (Gonzales-Hermosillo, 1999) (Barseghyan, 2010) (Zeng, 2011).

Moreover, it appears essential to understand the mechanisms that drive banks to take risks. An analysis of the factors influencing the increase in NPL allows banks to protect themselves against such risks.

2.2 Bank-Specific Explanatory Factors

The academic literature distinguished several variables related to the bank system and having an impact on the NPL rates such as:

- Bank size: (Hu et al, 2004) analyzed the relationship between the ownership structure and impaired loans in Taiwanese banks and found out that bank size affect negatively NPL, since large-sized banks have more resources to evaluate and process loans. This can improve the quality of loans and thus effectively reduce the rate of NPLs. A loan is recognized as impaired when it is probable that principal and/or interest are not collectible in accordance with the loan's contractual terms.
- Mismanagement and weak monitoring. Studies revealed that several banks were not doing proper control over their staff and the criteria to grant loans to customers. This fact is underlined by several cases of banks that decided to initiate suit former traders. Those banks claimed not knowing about the activities of their own staff that caused huge losses of money as in the Jerome Kerviel case with Société Générale. (Chavagneux, 2010)

- ROA: Many studies included ROA as a factor. One of them was (Godlewski, 2004) who through studying 129 banks in Spain between the periods of 1993 to 2000 found out that this variable which is a profitability indicator had a negative effect on NPL.

2.3 Macro-economic variables

(Nkusu, 2011) showed that weak economic performances resulting from macro-economic factors (slow or weak growth in GDP, unemployment, inflation) can lead to increase in NPL.

The authors singled out several strong variables:

- Real interest rate is the rate of interest an investor, saver or lender receives (or expects to receive) after allowing for inflation. It can be described more formally by the Fisher equation, which states that the real interest rate is approximately the nominal interest rate minus the inflation rate. According to (Bofondi and Ropele, 2010) an increase in interest rates causes increase in debt that might lead to higher NPL. Since favorable macro-economic conditions, such as low interest rates, tend to be associated with better loan quality and under such favorable economic circumstances, borrowers receive sufficient streams of income and would be able to easily meet their debt obligations.
- The annual GDP growth: (Khemraj and Pasha, 2008 demonstrated that growth in GDP causes NPL to decrease. Indeed, growth of GDP corresponds to increasing economic activity. In this context, individual and companies are doing well. They are earning more money and are able to pay back their loans. During the expansion of the economy, credit is extended to lower quality debtors and when a recession occurs, NPL increases. (Ruckes, 2004) (Geanakoplos, 2010).
- Inflation decreases the nominal value of loans making these loans less prone to default. Moreover you should make a difference between anticipated inflation and unanticipated inflation. It is unanticipated inflation that creates problems.

- Loans growth: when banks lend more, they are under the risk to incur more NPL. This is true because the percentage of NPL over loans is usually constant, thus if loans increase, the NPL will increase. As mentioned before, the increasing average of loans leads banks to increase the competition in terms of total assets. In order to keep and increases market share, they were taking more risks.
- The real exchange rate: (Khemraj and Pasha, 2009) found out that the real exchange rate has a positive effect on NPL, where a higher appreciation in the local currency causes NPL to rise because depreciation of the currency enhances exports.
- The unemployment rate: Probability of default depends on current income and unemployment rate that are linked to the uncertainty regarding future income and lending rates. (Rinaldi and Sanchis-Arellano, 2006). Here we can distinguish two cases. The first one is that people who had job before the crisis and then lost it. Therefore, they were not able any more to repay their loans. The other case would be when individuals borrow without being employed. As a result, the risk of not repaying their loans is high.
- Public debt has an effect. According to (Reinhart and Rogoff, 2008, the banking sector is affected in two ways by public debt. The first is that deteriorating public finances place a limit on the market evaluation to omit national banks' credibility and as a result banks become of a lower rating which leads banks to decrease lending. The other part is more associated with lower household aid as a result of lower governmental and public spending. That leads borrowers with no or less income to have a harder time re-paying their loans.
- **Low income of customers which are willing to take a loan:** The low income of the borrowers which took place in the world as the result of the crisis increased the risk of

repaying back the loan to the bank and by that increasing the NPL rate. (Lawrence, 1995)

2.4 Determinants of Nonperforming Loans

One of the main causes of financial fragility is the deterioration of loan quality in banks. Rapid build-up of bad loans plays a major role in banking crises (Gonzalez, 2003).

Recently, many countries faced recession and especially developed countries since significant losses in banks took place. Thus, default structure is not considered a new dimension in field of investments, it is considered as an established culture.

However, the following section of the research will address two big factors which have a direct effect on the loan performance in the bank and they are the macroeconomic factors and the bank specific factors.

2.5 Macroeconomic Determinants of Nonperforming loans

Researchers recently focused on the macroeconomic determinants which have a direct effect on the loans quality in the bank. Many researches focused on the economies which have macroeconomic conditions for credit risk. This literature had addressed the link between macroeconomic factors such as the inflation, GDP, loan performance and unemployment rate.

However, according to a research done by Okilo (2008), he stated that there is a direct relationship between macroeconomic stability and banking soundness. Both economic

theory and studies stated that there is instability in macroeconomic conditions the thing which will lead to unstable financial markets.

However, as the booming period continues, credit is extended to lower quality debtor and when the recession phase sets, the Non-Performing Loan increases. Studies made by Kent (2000) revealed that risks peaked at the top of the business cycle. Rajan and Dhal (2005) implemented a study on the Italian banking system by employing a reduced form value at risk to evaluate among other things the effects of business cycle condition on bank customers default rates over a specific period. This helped them to study the default rates using a cyclical pattern, falling during macroeconomic expansions and increasing during downturns.

Empirical studies tend to confirm that there is a direct relationship between the credit defaults and the phase of the cycle. Quagliarelo (2007) found that the NPL ratio is affected by the business cycle, and he stated that the NPL ratio is determined by the GDP growth, and high interest rates among others.

A study done by Salas (2002) stated that there is a negative relationship between GDP growth and the NPL ratio and stated that there a quick transmission of macroeconomic development to the ability of economic agents to service their loans.

The Argentinian banking system had been analyzed by Bercoff (2002) using an accelerated failure time model and stated that the money multiplier, reserve adequacy among others are factors which have a direct effect on the NPL ratio. However, macroeconomic instability is mostly affected by the high rate of inflation which makes the process of evaluating the loan very difficult to the bank, since most of the potential borrowers depend upon unpredictable

development in the overall rate of inflation, its individual components, exchange rates and interest rates.

Unexpected increase in inflation has a direct effect on the banks performance in term of loans, since most of the banks lend money for a long term at fixed rate than they borrow since the nominal interest rate will increase more than it is expected to be. High inflation increases the risk of business profits, since there is unpredictability the thing which will lead to high degree of variability in the rates of prices of goods and services

Studies done by Fuentes (2003) on Chilean banks stated that interest rates have a direct effect on the Non-Performing Loans in the bank than the business cycle does. Other macroeconomic variables and especially the exchange rate, unemployment, house pricing and assets are also important factors which have a high effect on the Non-Performing Loans ratio.

A study done by Bercoff (2002) about the Argentinean Banking system over the 1993-1996 period stated that there are many factors which have a direct effect on the NPL ratio and these factors include the macroeconomic factors and the specific factors.

His study also revealed that economic growth; real exchange, interest rate and interest margins have a direct effect on the determinants of Non-Performing loans in these countries.

Okilo (2008) found that there is a strong relationship between macroeconomic factors and non-performing loans in African economies. Macro and banking stability are closely linked, and by that they are affecting each other. Thus, his study stated that whether the banks are owned or heavily controlled, instability usually starts in the macro economy and then narrows down to the banking sector.

Thus, in order to face this instability in the banking system, a successful contra cyclical macro-economy policy is required to reduce the sensitivity of banking relative to the magnitude of macro shocks which might be expected to occur in a specific economy.

On the other hand, a major cause for the existence of non-performing loans is the instability in the macro-economy and in the banking sector. Since financial institutions deal in forward contracts in which its profit depends on the ability of predicting future prices, they do not do well in risky and volatile environments since there is high uncertainty and by that forecasting profit is difficult.

Thus, in order to reduce this risk the banks aim to collateralize their loans with the estimated future income of the borrowers, or the estimated future value of the borrowers' assets. Thus, if the realized income or asset prices fall sufficiently during a short period, the borrower might cause losses for the bank, thus banks should charge high interest rates for clients which have high risk.

Recent studies show a strong relationship between macroeconomic factors and NPL in the banks. Moreover, real GDP growth, inflation rate, and interest rate are considered macroeconomic factors which have a direct effect on the NPL in the banks.

As a conclusion, the recent literature review stated that macroeconomic conditions such as low unemployment, interest rates and sustained economic growth have a direct effect on the non-performing loans ratio in the banks,

2.5.1 High Interest Rate

The default rate or non-performing loans tends to be higher in banks which charge high interest rates on loans. A study conducted by Sinkey (2003) about commercial banks in US

stated that loan defaults in banks are associated with high interest rates charged by the banks.

His study revealed that interest rates are considered one of the internal factors which may lead to the existence of non-performing loans. Thus, the higher the interest rate is, the higher the non-performing loan will take place in the bank.

2.5.2 Real GDP growth:

There is a direct relationship between the Growth of GDP according to a report done by the commercial banks. Thus, there is a strong relationship between GDP Growth and the NPL in the banks in which the GDP Growth means that there is more income and liquidity in the bank, and that improves the ability of the bank to provide debt services. On the other hand, if there is a slowdown in the economy which means low growth in GDP this means that the economic activities will decrease and the cash volume which is held for businesses or households will decrease. Such situations will affect the borrowers' financial capacity and by that they will not be able to meet their financial obligations and the risk of non-performing loans will increase. Thus, the higher the growth in GDP, the lower the risk of non-performing loans will be in the banks.

2.5.3 Real Interest rate:

Credit rationing is the outcome of asymmetric information, and this will reduce the financial capacity of the borrowers to repay back the loans because of high interests. This takes place because when interest rates increase, borrowers are more likely to decide that it would be unwise to borrow, whereas borrowers with the riskiest investment projects are

often those who are willing to pay the high interest rates. Recent studies revealed that banks which impose high interest rates increases the risk of credit default or credit risk, since borrowers will not be able to repay the loan back to the bank because of high interests. Thus, the higher the interests are, the higher the risk of repaying the loan will be, and by that increasing the risk of non-performing loans.

2.5.4 Credit risk and Uncertainty

Credit risk is the risk in which the borrower fails to pay or meet his financial obligations. There are many factors in which default occurs such as missing payment for more than 90 days, filing for bankruptcy and breaking a covenant.

Credit risk has a direct effect on the NPL in the banks in which markets with more competition and harder economic conditions are more likely to result in credit defaulting. The higher the credit risk is, the higher the risk of non-performing loans will be in the bank. Credit risk can result from poor monitoring and follow up from the bank, absence of personal experience, economic conditions, poor loan assessment and many other factors.

Thus, credit risk and uncertainty has a direct effect on the rate of non-performing loans, the higher the credit risk and uncertainty is, the higher the rate of non-performing loans will be.

2.5.5 Poor Risk Assessment

The main concern for bank's management and its auditors is the risk and the ways in which it can be identified, quantified, and minimized since they consider it as a need to minimize bad and doubtful loans. Every loan is exposed to risk, even if it is well secured, and no matter who is the borrower has the potential to generate loss for the lender. It is the degree

of risk to which loan is exposed to and the probability of loss which might vary. Such issues should be reflected in the interest margin and other terms set at the inception of the loan.

The borrowers' quality including balance sheet, product, economic conditions and nature of business are taken into consideration by the lender in order to take a decision whether to lend money or not. Knowing the purpose of the loan is very important to the bank in order to assess its validity and to determine how much funds are required to repay back the interest and the repayment of the capital which will be regenerated.

The ability of the borrower to repay the loan back is of high importance for the bank, the loan will be self-financing in which it will be repaid back from the cash flow that the borrower will generate from employing the proceeds of the loan.

Security or mortgage will be requested from the bank as a guarantee for the loan in which case it will be concerned about the value and title of that security. The decision for lending a loan should be based on the analysis which is conducted on the borrower, in addition to the solvency and the way that the fund will be repaid back to the bank.

2.5.6 Competition:

Recent studies had been done about competition in terms of total assets and its impact on the NPL in the banks. The studies showed a direct relation between competition in terms of total assets and loans performance. The higher the competition is in the marketplace, the lower the performance of the loan will be. Since borrowers will choose the bank which offers the best loan package to them. For example, borrowers are likely to take loans from banks which offer low interest rates, or affordable repayment conditions.

2.5.7 Inflation

The Argentinian banking system had been analyzed by Bercoff (2002) using an accelerated failure time model and stated that the money multiplier, reserve adequacy among other are factors which have a direct effect on the NPL ratio. However, macroeconomic instability is mostly affected by the high rate of inflation which makes the process of evaluating the loan very difficult to the bank, since most of the potential borrowers depend upon unpredictable development in the overall rate of inflation, its individual components, exchange rates and interest rates.

Unexpected increase in inflation has a direct effect on the banks performance in term of loans, since most of the banks lend money for a long term at fixed rate than they borrow since the nominal interest rate will increase more than it is expected to be. Thus will increase the deposits costs which in turn are higher than the revenues of the loans, the thing which will incur additional costs on the bank and will reduce the cash flow. High inflation increases the risk of business profits, since there is unpredictability the thing which will lead to high degree of variability in the rates of prices of goods and services

2.6 Bank Specific Factors causing Nonperforming Loans

The macroeconomic factors had been viewed as highly effective forces which have a direct effect on the banking industry and on the NPL ratio. On the other hand, the typical nature of the banking sector accompanied with the specific policy choices of a particular bank with regard to its efforts to maximize efficiency and effectiveness and improve in its risk management is expected to have a vital evolution on the NPL ratio. Factors which characterize individual banks are known as bank specific variables, and they are affected by managerial decisions and usually associated with specific policy choices of a particular

bank taking into considerations its efforts to maximize efficiency and improve its risk management. Thus, the bank specific factors which have a direct effect on the NPL include loan growth, and financial performance including Return on Assets and Return on Equity.

The following section of the research will address the bank specific variables which have a direct effect on the performance of the loans.

2.6.1 Loan growth:

It is considered one of the variables which have a direct effect on the performance of the loans. It is usually accompanied with the volume of NPLs reported by commercial banks.

2.6.2 Financial Performance

The financial performance of the bank is measured by measuring the return on assets and return on equity with respect to the performance of the loan. Recent studies had been done in the field of Return on Assets and Return on Equity and their effect on the performance of the loans, and the studies showed the higher the return on assets is, the higher the liquidity will be in the banks, and by that the debit services will increase, thus reflecting a significant relation between return on assets and NPL in the banks.

Moreover, studies revealed that the higher the return on equity is, the higher the NPL will be, and the lower the risk of repaying the loan will be.

Thus, there is a significant relationship between return on equity and return on assets and NPL in the banks.

2.7 Relationship between Variables

2.7.1 Relationship between loan growth and non-performing loans

According to a research done by Ball and Brown (2005), he stated that NPL will be directly affected by the growth in loans and assets. Beaver, (2003) stated that growth in loans and capital is of high importance in order to reduce the risk of non-performing loans in the banks.

However, a research was done by Cheng and Schaeffer (2004) on the importance of loan and capital assets growth and its effect on the NPL in the banks. His study revealed that growth in assets and loans growth has a direct effect on the NPL in the bank, the higher the growth rate is, the higher the NPL will be.

Lipe (1990) conclude that absence of growth in assets and loans affects negatively the performance of the loans, and by that having a direct effect on the financial performance of the bank.

2.7.2 Relationship between Poor Risk Assessment and Non-Performing Loans

According to a study done by Okilo (2010), he revealed there is a direct correlation between poor risk assessment and the NPL in the banks. Thus higher the loan assessment is, the higher the performance of the loan will be, and the lower the rate of credit risk will be.

However, a recent study done by Abigail (2009) stated that that poor risk assessment has a negative effect on the NPL in the banks. He stated that the loan risk assessment was poor, this will affect the repayment rate of the loan resulting in a higher risk of non-repayment by the borrowers. Thus, there is a direct relationship between loan assessment and the

performance of the loans, the higher the assessment is, and the better the performance of the loan will be.

2.7.3 Relationship between GDP growth and Non-Performing Loans

However, a research was done by Abugail (2004) on the importance of GDP and its effect on the NPL in the banks. His study revealed that GDP growth has a direct effect on the NPL in the bank, which means the higher the GDP is, the higher the revenues will be in, and by that the higher the debit services provided by the bank will be. Thus, the higher the GDP is, the higher the NPL will be.

Polley (2005) concluded that low rate in GDP growth can have a negative effect on the performance of the loans, and will result in credit default or risk in the bank, since if the GDP rate is low, the revenues will be low and by that borrowers will not be able to return the loans to the banks. Thus, the GDP rate has a direct effect on the NPL in the banks.

2.7.4 Relationship between interest rates and Non-Performing Loans

However, a research was done by Polley (2004) on the impact of high interest rates and its effect on the NPL in the banks. His research focused that high interest rates have a negative effect on the NPL in the banks. Since, borrowers are not able to repay back the loans on high interest rates, the thing which results in credit default, and by that reducing the NPL in the banks.

According to a study done by Ball and Robin (2005), they stated that low interest rates have a direct effect on the performance of the loans. Borrowers are able to repay the loan back to the banks at low interest, thus the lower the interest rate is, and the higher the performance of the banks will be.

2.7.5 Relationship between credit risk and Non-Performing Loans

Ystrom, (2010) explored that credit risk and uncertainty has a direct effect on the NPL in the bank. The study was implemented in banks to study the importance of credit risk and its effect on the performance of the loans, in which the findings showed that the lower the credit risk is, the higher the NPLwill be in the banks.

Another study had been implemented in banks to study the impact of uncertainty on the performance of the banks. The findings showed that the lower the uncertainty level is, the higher the NPLwill be in the banks.

2.7.6 Other factors which affect Performing Loans in Banks

Abigail revealed that, net worth has a direct effect on the NPL in the bank. The study was implemented in African banks to study the relationship between net worth and its effect on the performance of the loans. The findings of his study revealed that net worth has direct effect on the NPL in the bank, the higher the net worth is, the better the NPL in the bank will be, since risk of repaying the loan will be diversified because of equity.

Poley, (2010) revealed that growth in GDP has a direct effect on the NPL in the bank. The study was implemented in European banks to study the correlation between growth in GDP and the performance of the loans, in which the findings showed that the higher the growth in GDP is, the higher the NPL will be since there is more revenues to provide debit services.

Habib, (2009) explored that money supply has a direct effect on the NPL provided in the bank. The study was implemented in American banks to study the importance of money supply and its effect on the performance of the loans, in which the findings showed that the higher the money supply is in the bank, the higher the NPL will be.

2.8 Study case of Lebanon

2.8.1 Data about Lebanon

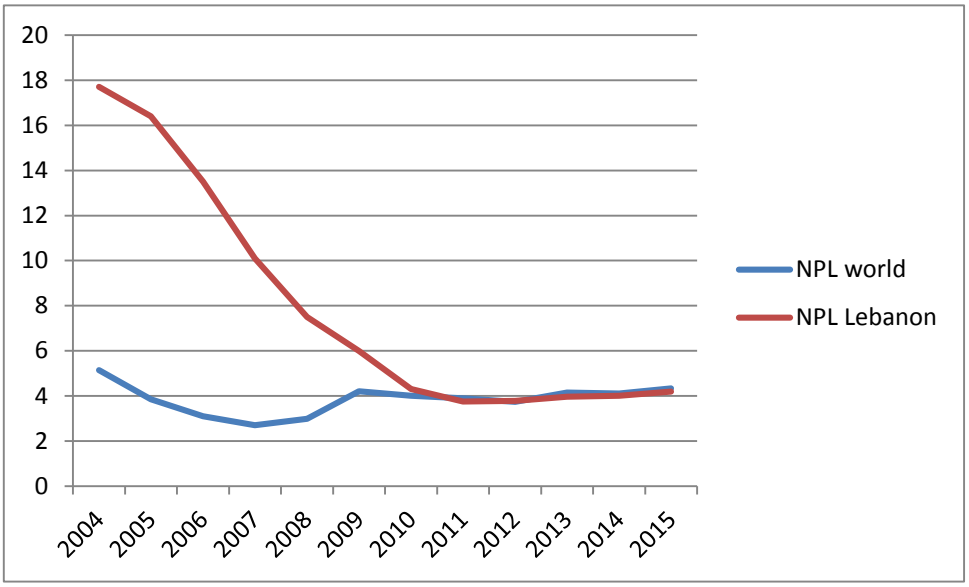

Figure 2 NPL of the World vs NPL of Lebanon

X axis: Number of Years from 2004 to 2015

Y axis: % of loans

Source: World Bank

This graph shows the trend in total NPL in Lebanon compared to the rest of the world. But even though the trend is the same for both Lebanon and the global average alike, it can be noticed that the total of NPL in Lebanon is higher. In 2004, Lebanese total NPL was three times the world average and it was not until 2010 that it was reduced to meet the world average.

The period between 2004 and 2006 witnessed a situation of high political and security instability. Therefore, it is possible to question the relevance of the variables studied traditionally to see if they are sufficient to explain the evolution of NPL in Lebanon.

The graphs below shows the trend of a number of variables listed in the literature review and which have on impact on NPL.

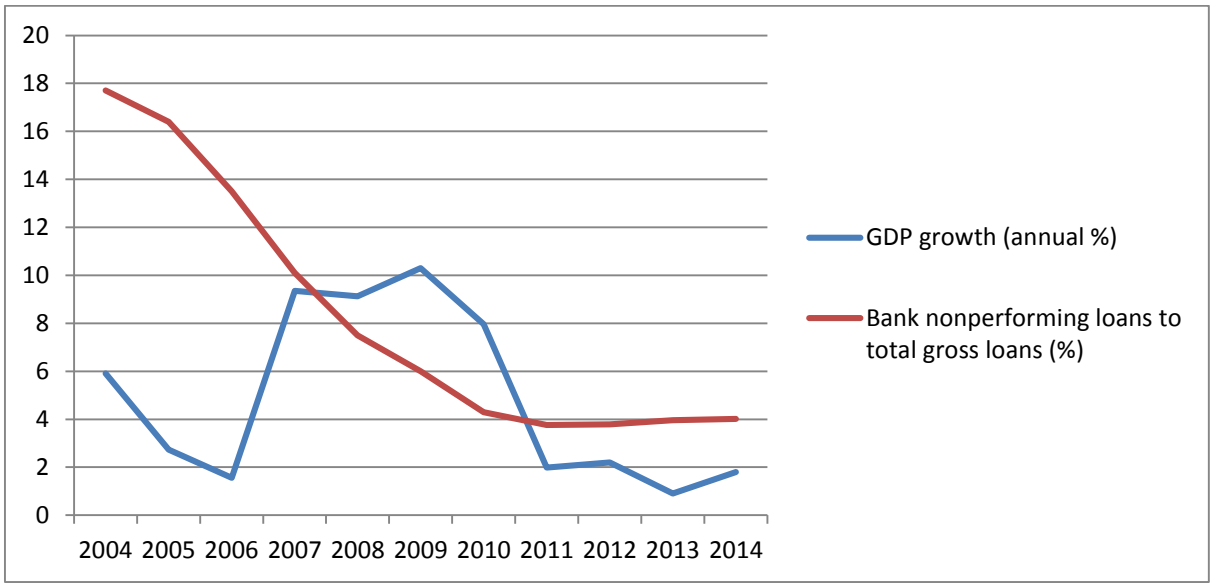

Figure 3 GDP vs Bank nonperforming loans

Source: World Bank from 2004 to 2014

On the x axis, the graphs cover the years, and on the y axis the bank cover the NPL ratio to loans in Lebanon.

While growth in GDP was characterized by fluctuations, NPL seemed not to have a relationship with GDP growth. NPL rate was constantly decreasing without being affected by the change in GDP growth, even though that the variable is supposed to have one of the most important impacts on NPL.

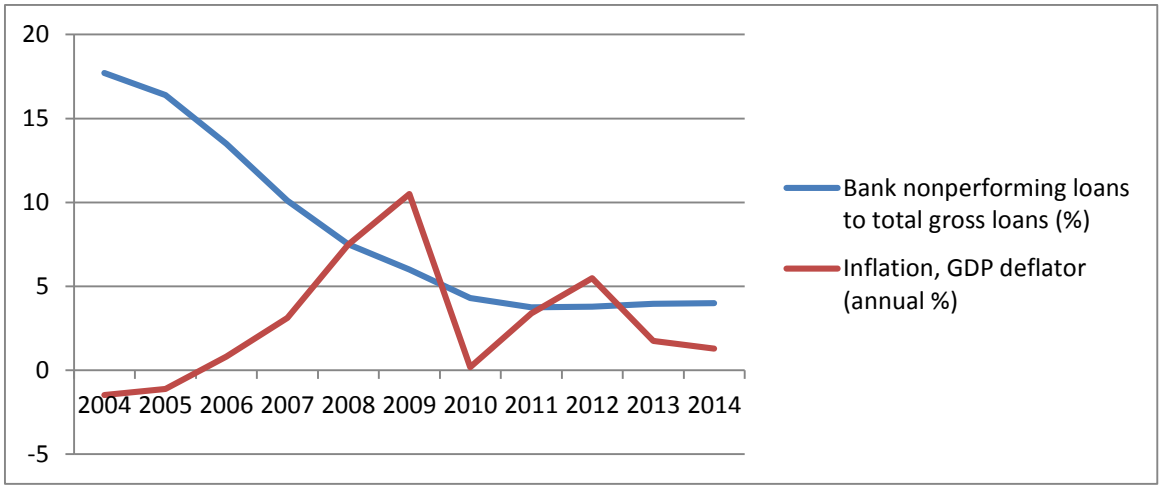

Figure 4 Bank Non-performing Loans vs Inflation

X axis: 2004 to 2014

Y axis: the rate of non-performing loans in %

Source: World Bank

This graph underlines the absence of a relationship between inflation and NPL in Lebanon. Even though that inflation has seen an increase during the period, NPL was decreasing. Also, we can consider that in the case of Lebanon, inflation was not a major variable to explain the evolution of NPL between 2004 and 2014 maybe because inflation was fully anticipated.

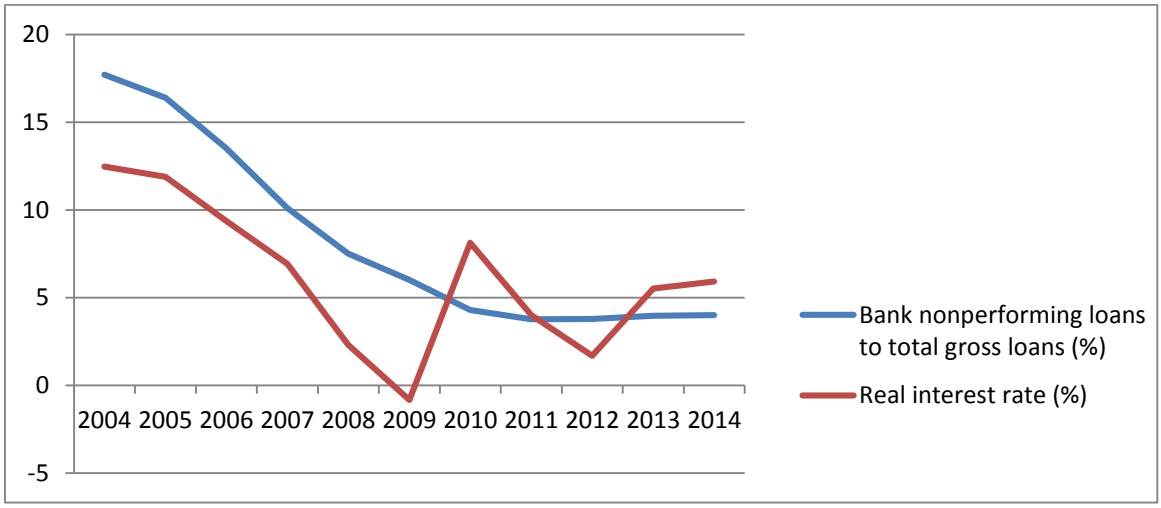

Figure 5 Bank non-performing loans vs Real interest rates

X axis: 2004 to 2014

Y axis: The rate of non-performing loans in percentage

Source: World Bank

Between 2004 and 2008, the trend in real interest rates seemed related to the change in NPL. Both variables witnessed the same change. But that change started to become different in 2009. While real interest rates went up in 2010, NPL rates continued to be lower and then stabilized. Here we can say, that between 2004 and 2009 the variable of real interest rates was a valuable variable to analyze the evolution of NPL. However, there was no such relationship between the two after 2009.

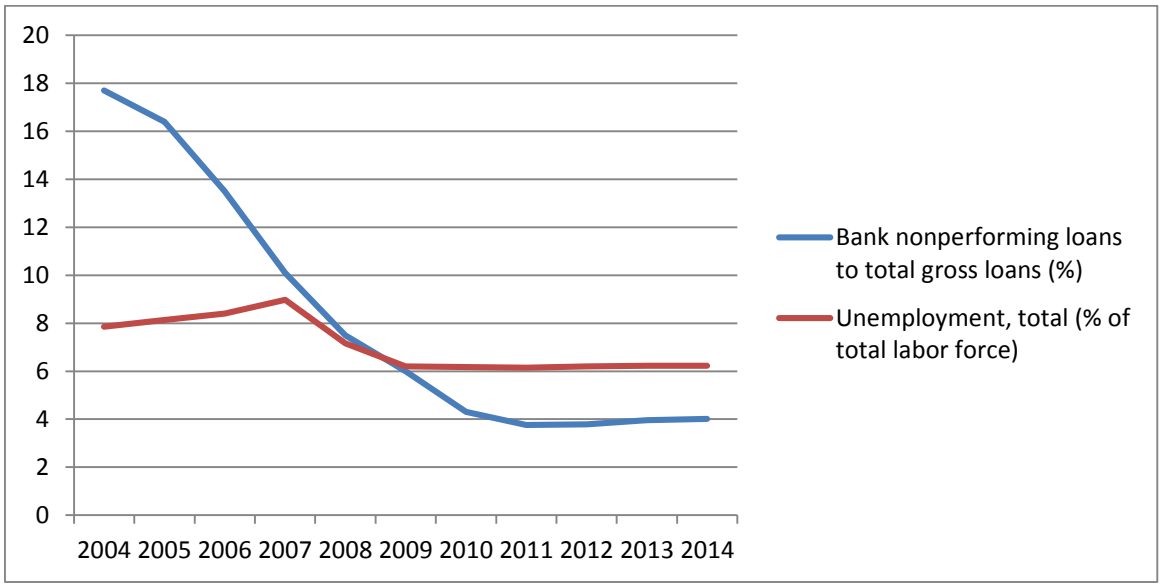

Figure 6 Bank non-performing loans vs Unemployment rate in Lebanon

X axis: Number of years

Y axis: Bank non-performing loans rate and unemployment rate in Lebanon

Source: World Bank

The literature review considered unemployment as a major variable impacting NPL. Indeed, the above graph demonstrates a similar trend between the NPL rate and the unemployment rate in Lebanon. This observation applies for the decrease between 2006

and 2009 as well as for the stabilization period (2009-2014). It seemed that unemployment rates had a strong effect on the NPL rate in Lebanon between 2006 and 2014.

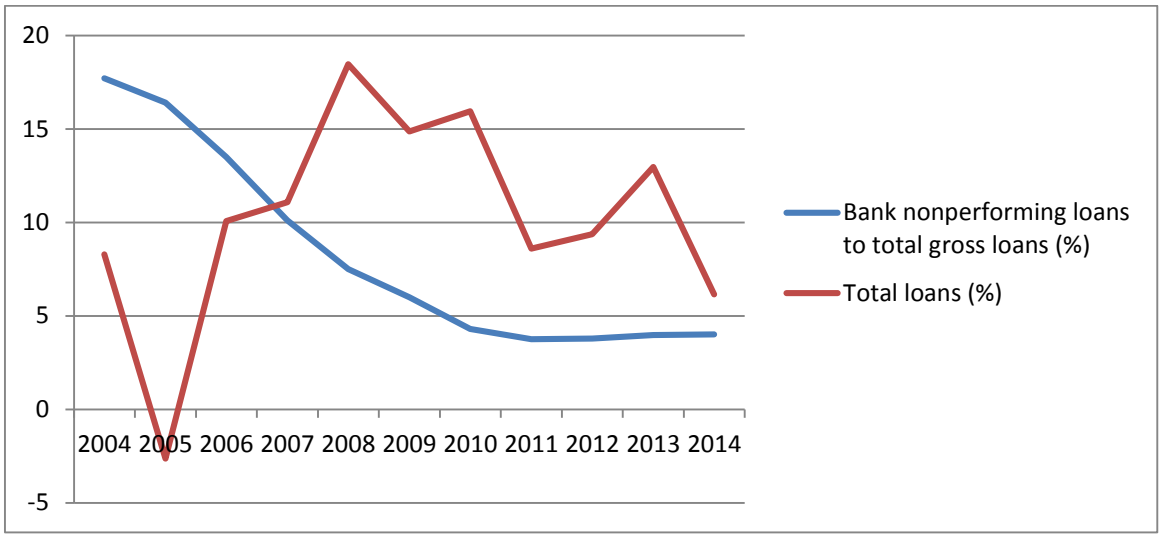

Figure 7 Bank nonperforming loans vs Total Loans

X axis: Number of Years

Y axis: Bank nonperforming loans and total loans

Source: World Bank

In the literature review, it was explained how several studies showed a relationship between total loans and NPL. In several studies, it appears relevant to analyze both together. Nevertheless, in the Lebanese case, it does not look like that tendency is true. In fact, while total loans increased sharply between 2004 and 2014, NPL went down without being affected by the evolution of the total loans.

By collecting data about Lebanon and comparing NPL to several variables identified by authors as having a significant impact on NPL, we are able to discuss to which extent those variables are relevant to explain the change in NPL in Lebanese banks for the period between 2004 and 2014.

2.8.2 Impact of other variables

Previously, we have stated the macro-economic variables, which have a major impact on NPL.

The analysis of the evolution of NPL on the national scale permits to shed a light over the role of other variables might have.

In that regard, a study conducted by (Espinoza and Prasad, 2010). The study is based on data from 80 banks between 1998 and 2008. The authors were interested in the situation of the countries of the Gulf Cooperation Council (Bahrin, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates). In order, to provide an accurate analysis, they took into consideration the specificities of those countries' economies. For that reason, they have added the following variables to their study:

- Non-oil real GDP growth
- Stock market returns
- Interest rates
- World trade growth

(Boudriga et al, 2009) used a similar approach. This study was based on a sample of 46 banks from 12 countries for the period from 2002 to 2006. Their research focused on the situation of MENA countries. This region is characterized by significant foreign investments in their economy. Therefore, the authors added variables such as foreign investment and participation of developed countries.

This research is actually based on the continuity of those works, through investigating and analyzing the factors that could have an impact on NPL in Lebanese banks.

2.8.3 Focus political and security aspect

The study examines closely the period from 2004 to 2013, due to the political and security events that occurred in Lebanon during that time.

The years, between 2011 and 2014, have seen a political and military havoc in Lebanon's surrounding countries. From the break of war in Syria in early 2011, to the first and second presidential outcasts in Egypt, and going through the persistent Israeli-Palestinian conflict, operating environment in Lebanon was getting tougher by the second.

Domestically, the country was deeply affected by the regional developments and witnessed atypical circumstances. The state attempted to control the sporadic security breaches but failed to avoid political deadlocks, first stalling the formation of a government and then leaving the presidency vacant. The assassinations that targeted former Prime Minister Mr. Hariri and other political and security figures commenced in 2005 and continued throughout several years after. The July War in 2006 against Israel, the 2007 war in Nahr Al Bared Camp and the clashes in 2008 that took place mainly in Beirut between two sides of the Lebanese political spectrum had been reasons behind the instability in the country.

Since 2011, the year when neighboring Syria caught the Arab Spring wave, economic growth has been slowly subsiding in Lebanon under the regional pressures and the resulting domestic stumbles. Spillovers from war-torn Syria suffocated tourism, a key driver for the Lebanese economy, and hindered exports. Large influx of Syrian refugees, nearing the half of Lebanon's population, necessitated higher public spending and larger imports. However, and amidst all the trouble, the Lebanese banking sector remained poised, posting impressive results given the situation.

(Boudrika et al, 2009) have underlined the legal and institutional factors over NPL. They have shown that “credit exposure” is reduced more in countries where the political and security situation is more stable.

CHAPTER THREE

PROCEDURES AND METHODOLOGY

3.1 Introduction

The main aim of the research is to identify the impact of the lending factors and behaviors on the performance of bank loans in Lebanon. However, the research questions should be answered to be able to reach suitable outcomes. The research should answer the following research questions:

1. What are the major bank-specific factors affecting Nonperforming loans in Lebanon?
2. What are the major borrower-specific factors that affect Non-performing loans in Lebanon?
3. What policy measures must be undertaken by the bank's management that would help improve the performance of non-performing loans to enhance the recovery rate?

However, in this chapter, the research will implement many tools to collect data from Lebanese Banks in order to meet the objectives of the research. Thus, collecting data to analyze the factors which have a direct effect on NPL in the Lebanese Banks is the main aim of the research.

In addition to that, both dependent and independent variables will be included in this chapter to study the relation between them and validate the hypothesis later on.

3.2 Selected Variables

3.2.1 Dependent variable

The dependent variable is: NPL is a loan in which the borrower is not making interest payments or repaying any principle.

3.2.2 Independent Variable

The independent variables can be defined as the following: capital adequacy rate, interest rate, return on assets, return on equity, liquidity, loan to deposit ratio, competition, growth in assets, uncertainty, growth in GDP, money supply and Inflation .

3.3 Testing the Hypothesis

The hypothesis that will be tested in this research will be listed as follows:

H0: There is insignificant relationship between return on assets and NPL in Lebanese Banks.

H0': There is significant relationship between return on assets and NPL in Lebanese Banks.

H1: There is insignificant relationship between return on equity and NPL in Lebanese Banks.

H1': There is significant relationship between return on equity and NPL in Lebanese Banks.

H2: There is insignificant relationship between growth in assets and NPL in Lebanese Banks.

H2': There is significant relationship between growth in assets and NPL in Lebanese Banks.

H3: There is insignificant relationship between capital adequacy rate and NPL in Lebanese Banks.

H3': There is significant relationship between capital adequacy rate and NPL in Lebanese Banks.

H4: There is insignificant relationship between liquidity and NPL Lebanese Banks.

H4': There is significant relationship between liquidity and NPL in Lebanese Banks.

H5: There is insignificant relationship between loan to deposit ratio and NPL in Lebanese Banks.

H5': There is significant relationship between loan to deposit and NPL in Lebanese Banks.

H6: There is insignificant relationship between interest rates and NPL in Lebanese Banks.

H6': There is significant relationship between interest rates and NPL in Lebanese Banks.

H7: There is insignificant relationship between interest rate uncertainty and NPL in Lebanese Banks.

H7': There is significant relationship between interest rate uncertainty and NPL Lebanese Banks.

H8: There is insignificant relationship between GDP growth and NPL in Lebanese Banks.

H8': There is significant relationship between GDP growth and NPL in Lebanese Banks.

H9: There is insignificant relationship between money supply and NPL in Lebanese Banks.

H9': There is significant relationship between money supply and NPL in Lebanese Banks.

H10: There is insignificant relationship between inflation and NPL in Lebanese Banks.

H10': There is significant relationship between inflation and NPL in Lebanese Banks.

| H11: There is insignificant relationship between growth in coincident indicator and NPL in Lebanese Banks.

H11': There is significant relationship between growth in the coincident indicator and NPL in Lebanese Banks.

H12: There is insignificant relationship between high competition and NPL in Lebanese Banks.

H12': There is significant relationship between high competition and NPL in Lebanese Banks.

3.4 Instrumentation

Data of the research was obtained from the Lebanese Banking Association, and a statistical analysis was done on them in order to validate the hypothesis of the research through the regression and chi-square correlation. The data constitutes thirty five banks over a period of ten years.

3.5 Definition of Key Terms:

Capital Adequacy Rate: The capital adequacy ratio (CAR) is a measure of a bank's capital. It is expressed as a percentage of a bank's risk weighted credit exposures. Also known as capital-to-risk weighted assets ratio (CRAR), it is used to protect depositors and promote the stability and efficiency of financial systems around the world.

Interest rate: the proportion of a loan that is charged as interest to the borrower, typically expressed as an annual percentage of the loan outstanding.

Return on assets: is a financial ratio that shows the percentage of profit a company earns in relation to its overall resources. It is commonly **defined** as net income divided by total

assets. Net income is derived from the income statement of the company and is the profit after taxes.

Return on equity: is a measure of profitability that calculates how many dollars of profit a company generates with each dollar of shareholders' equity. The formula for ROE is: ROE = Net Income/Shareholders' Equity. ROE is sometimes called "return on net worth."

Liquidity: *IT* describes the degree to which an asset or security can be quickly bought or sold in the market without affecting the asset's price. Market *LIQUIDITY* refers to the extent to which a market, such as a country's stock market or a city's real estate market, allows assets to be bought and sold at stable prices.

Loan to deposit ratio: also known as the LTD ratio or LDR, is a ratio between the banks total loans and total deposits. If the ratio is lower than one, the bank relied on its own deposits to make loans to its customers, without any outside borrowing. If on the other hand, the ratio is greater than one, the bank borrowed money which it re-loaned at higher rates, rather than relying entirely on its own deposits. Banks may not be earning an optimal return if the ratio is too low. If the ratio is too high, the banks might not have enough liquidity to cover any unforeseen funding requirements or economic crises. It is a commonly used for assessing a bank's liquidity.

Growth in assets: are designed to grow your investment. They include investments such as shares, alternative investments and property. They tend to carry higher levels of risk, yet have the potential to deliver higher returns over longer investment time frames.

Growth in GDP: Real Economic **Growth** Rate is the rate at which a nation's Gross Domestic product (**GDP**) changes/grows from one year to another. **GDP** is the market value of all the goods and services produced in a country in a particular time period

Money supply: is physical cash in circulation plus the money held in checking and savings accounts. It does not include other forms of wealth, such as investments, home equity, or assets. They must be sold to convert them to cash. It also does not include credit, such as loans, mortgages

Inflation: is the rate at which the general level of prices for goods and services is rising and, consequently, the purchasing power of currency is falling. Central banks attempt to limit inflation and avoid deflation, in order to keep the economy running smoothly.

3.6 Conclusion

In the following chapter of the research, the data collected will be analyzed throughout the E-Views statistical tool to get the required results and validate the hypothesis of the research in order to come up with a suitable solution to manage the NPL rate in Lebanese Banks.

CHAPTER FOUR
FINDINGS

4.1 Data Analysis

Data analysis can be defined as a tool used by the researcher to gather data and analyze them using a statistical tool to validate the hypothesis and answer the research questions. The findings of the research will be revealed in the following section of the research through implementing the regression and the chi-square correlations.

4.2 Regression

DEPENDENT VARIABLE: NPL					
METHOD: PANNEL LEAST SQUARES					
DATE: 11/29/17					
SAMPLE: 2004-2013					
CROSS SECTION INCLUDED: 35					
TOTAL PANNEL OBSERVATION: 337					
Variable		Coefficients	Std. Error	T-Static	Prob.
1	(Constant)	0.001445	0.017173	0.084157	0.9330
	ROA	-0.972372	0.12573	-7.733781	0.00000
	ROE	0.01849	0.003308	5.589866	0.00000
	GASSETS	-0.016032	0.00764	-2.098547	0.0367
	CARP	0.026083	0.012712	2.051761	0.0411
	LIQ	-0.032305	0.010968	-2.945313	0.0035
	LDRP	0.020215	0.006171	3.276047	0.0012
	IBR	0.001665	0.002707	0.614928	0.5391
	NPL-1	0.145044	0.046946	3.089604	0.0022
	UNCERTAINITY	-1.81E-0.6	1.14E-06	-1.582011	0.1147
	COMPETITION	5.47E-05	2.53E-06	2.159316	0.0317
	CPI	-0.00018	0.000371	-0.485048	0.628
	GINCI	0.482295	0.440019	1.096077	0.274
	GINGDP	0.029636	0.02949	1.00494	0.3158
	M3	1.32E-08	8.23E-08	0.16026	0.8728
	NW	5.73E-09	4.80E-09	1.192958	0.2339
EFFECTS SPECIALIZATION					
CROSS SECTION FIXED (DUMMY VARIABLES)					
R-SQUARED	0.595616	MEAN DEPENDENT VARIABLE	0.007717		
ADJUSTED R-SQUARE	0.526575	S.D DEPENDENT VARIABLE	0.022137		
S.E. OF REGRESSION	0.015232	AKAIKE INFO CRITERION	-5.394714		
SUM SQUARE RESID	0.066587	SCHWARZ CRITERION	-4.827936		
LOG LIKLIHOOD	959.0094	HANNAN QUIN CRITERION	-5.168805		
F-STATISTIC	8.626972	DURBIN WATSON STAT	2.017693		
PROB (F-STATISTIC)	0				

Referring to the above regression analysis, there is a significant correlation between the independent variables and the dependent variable, and insignificant relationship between indirect variables and NPL, the findings were as follows:

Measuring ROA and NPL

The above table reveals a P-Value of 0.000 which is less than 0.05 which means the null hypothesis which states that "There is an insignificant relationship between return on assets and NPL" is rejected, and the alternative hypothesis which states that "There is significant relationship between return on assets and NPL" is accepted. Thus, the findings reflect a significant relationship between return on assets and NPL.

Measuring Return on Equity and NPL

The above table reveals a P-Value of 0.00 which is less than 0.05 which means the null hypothesis which states that "There is an insignificant relationship between return on equity and NPL" is rejected, and the alternative hypothesis which states that "There is significant relationship between return on equity and NPL" is accepted.

Measuring Growth in Assets and NPL

The above table reveals a P-Value of 0.003 which is less than 0.05 which means the null hypothesis which states that "There is an insignificant relationship between growth in assets and NPL" is rejected, and the alternative hypothesis which states that "There is significant relationship between growth in assets and NPL" is accepted.

Measuring Capital Adequacy and NPL

The above table reveals a P-Value of 0.004 which is less than 0.05 which means the null hypothesis which states that “There is an insignificant relationship between capital rate and NPL” is rejected, and the alternative hypothesis which states that “There is significant relationship between capital rate and NPL” is accepted.

Measuring Liquidity and NPL

The above table reveals a P-Value of 0.003 which is less than 0.05 which means the null hypothesis which states that “There is an insignificant relationship between liquidity and NPL” is rejected, and the alternative hypothesis which states that “There is significant relationship between liquidity and NPL” is accepted.

Measuring Loan to Deposit Ratio and NPL

The above table reveals a P-Value of 0.01 which is less than 0.05 which means the null hypothesis which states that “There is an insignificant relationship between Loan to Deposit ratio and NPL” is rejected, and the alternative hypothesis which states that “There is significant relationship between Loan to Deposit and NPL” is accepted indicating a correlation of 0.01 which less than 0.05.

Measuring Uncertainty and NPL

The above table reveals a P-Value of 0.1147 which is greater than 0.05 which means the null hypothesis which states that “There is an insignificant relationship between uncertainty and NPL” is accepted, and the alternative hypothesis which states that “There is significant relationship between uncertainty and NPL” is rejected.

Measuring Competition and NPL

The above table reveals a P-Value of 0.0317 which is less than 0.05 which means the null hypothesis which states that “There is an insignificant relationship between competition in terms of total assets and NPL” is rejected, and the alternative hypothesis which states that “There is significant relationship between competition and NPL” is accepted.

Measuring CPI and NPL

The above table reveals a P-Value of 0.628 which is greater than 0.05 which means the null hypothesis which states that “There is an insignificant relationship between CPI and NPL” is accepted, and the alternative hypothesis which states that “There is significant relationship between CPI and NPL” is rejected.

Measuring GINCI and NPL

The above table reveals a P-Value of 0.274 which is greater than 0.05 which means the null hypothesis which states that “There is an insignificant relationship between GINCI and NPL” is accepted, and the alternative hypothesis which states that “There is significant relationship between GINCI and NPL” is rejected.

Measuring GINGDP and NPL

The above table reveals a P-Value of 0.3158 which is greater than 0.05 which means the null hypothesis which states that “There is an insignificant relationship between GINGDP and NPL” is accepted, and the alternative hypothesis which states that “There is significant relationship between GINGDP and NPL” is rejected.

Measuring Inflation and NPL

The above table reveals a P-Value of 0.8728 which is greater than 0.05 which means the null hypothesis which states that "There is an insignificant relationship between Inflation and NPL" is accepted, and the alternative hypothesis which states that "There is significant relationship between Inflation and NPL" is rejected.

Measuring NW and NPL

The above table reveals a P-Value of 0.2339 which is greater than 0.05 which means the null hypothesis which states that "There is an insignificant relationship between NW and NPL" is accepted, and the alternative hypothesis which states that "There is significant relationship between NW and NPL" is rejected.

As a summary, the regression test showed a significant relationship between the independent variables and the dependent variable showing a relation of 52.6% (Refer to the R-Square mentioned in the above table), the thing which shows a strong relationship between the dependent and the independent variables.

DEPENDENT VARIABLE: NPL
METHOD: PANNEL LEAST SQUARES
DATE: 11/29/17
SAMPLE: 2004-2013
CROSS SECTION INCLUDED: 35
TOTAL PANNEL OBSERVATION: 337

Variable		Coefficients	Std Error	T-Static	Prob
1	(Constant)	-0.003550	0.007415	-0.478794	0.6324
	ROA	-0.997866	0.124028	-8.045488	0.00000
	ROE	0.017716	0.003255	5.443414	0.00000
	GASSETS	-0.016706	0.007347	-2.273851	0.0237
	CARP	0.026224	0.011516	2.277232	0.0235
	LIQ	-0.032068	0.010550	-3.039604	0.0026
	LDRP	0.018202	0.005990	3.038759	0.0026
	IBR	0.003619	0.001403	2.580193	0.00104
	NPL-1	0.159754	0.044234	3.611582	0.0004
	COMPETITION	5.10E-05	2.45E-05	2.082010	0.0382

EFFECTS SPECIALIZATION			
CROSS SECTION FIXED (DUMMY VARIABLES)			
R-SQUARED	0.555074	MEAN DEPENDENT VARIABLE	0.007717
ADJUSTED R-SQUARE	0.527621	S.D DEPENDENT VARIABLE	0.0022137
S.E. OF REGRESSION	0.015215	AKAIKE INFO CRITERION	-5.411843
SUM SQUARE RESID	0.067829	SCHWARZ CRITERION	-4.913079
LOG LIKLIHOOD	955.8956	HANNAN QUIN CRITERION	-5.213043
F-STATISTIC	9.727734	DURBIN WATSON STAT	2.056499
PROB (F-STATISTIC)	0		

Referring to the above regression analysis, there is a significant correlation between the independent variables and the dependent variable, and the findings were as follows:

Measuring ROA and NPL

The above table reveals a P-Value of 0.000 which is less than 0.05 which means the null hypothesis which states that "There is an insignificant relationship between return on assets and NPL" is rejected, and the alternative hypothesis which states that "There is significant relationship between return on assets and NPL" is accepted. Thus, the findings reflect a significant relationship between return on assets and NPL. The lower the ROA in the bank, the higher NPL will be.

Measuring Return on Equity and NPL

The above table reveals a P-Value of 0.00 which is less than 0.05 which means the null hypothesis which states that "There is an insignificant relationship between return on equity and NPL" is rejected, and the alternative hypothesis which states that "There is significant relationship between return on equity and NPL" is accepted. The sign of correlation is 0.00 which is less than 0.05 thus return on equity affects directly the NPL rate in the Bank, the higher the equity is, the lower the NPL rate will be.

Measuring Growth in Assets and NPL

The above table reveals a P-Value of 0.02 which is less than 0.05 which means the null hypothesis which states that "There is an insignificant relationship between growth in assets and NPL" is rejected, and the alternative hypothesis which states that "There is significant relationship between growth in assets and NPL" is accepted. Thus, growth in

assets has a direct effect on NPL. Thus, the lower the growth in assets, the higher the risk of NPL will be in the bank.

Measuring Capital Adequacy and NPL

The above table reveals a P-Value of 0.02 which is less than 0.05 which means the null hypothesis which states that "There is an insignificant relationship between capital ratio and NPL" is rejected, and the alternative hypothesis which states that "There is significant relationship between capital ratio and NPL" is accepted. Thus, the findings reflect a significant relationship between the capital ratio and NPL. The lower the capital adequacy is, the higher the risk of NPL will be.

Measuring Liquidity and NPL

The above table reveals a P-Value of 0.002 which is less than 0.05 which means the null hypothesis which states that "There is an insignificant relationship between liquidity and non-performing loans" is rejected, and the alternative hypothesis which states that "There is significant relationship between liquidity and non-performing loans" is accepted. Thus, liquidity has a direct effect on NPL in the Lebanese Banks, the lower the liquidity is, and the higher the risk of NPL will be.

Measuring Loan to Deposit Ratio and NPL

The above table reveals a P-Value of 0.002 which is less than 0.05 which means the null hypothesis which states that "There is an insignificant relationship between Loan to Deposit ratio and non-performing loans" is rejected, and the alternative hypothesis which states that "There is significant relationship between loan to deposit ratio and non-

performing loans" is accepted. The correlation sign is 0.002 which is less than 0.05, thus there is significant relationship between LDR and NPL.

Measuring Interest and NPL

The above table reveals a P-Value of 0.001 which is less than 0.05 which means the null hypothesis which states that "There is an insignificant relationship between interest and NPL" is rejected, and the alternative hypothesis which states that "There is significant relationship between interest and NPL" is accepted.

Measuring Competition and NPL

The above table reveals a P-Value of 0.03 which is less than 0.05 which means the null hypothesis which states that "There is an insignificant relationship between competition and NPL" is rejected, and the alternative hypothesis which states that "There is significant relationship between competition and NPL" is accepted.

As a summary, the regression test showed a significant relationship between the independent variables and the dependent variable showing a relation of 52.7% (Refer to the R-Square mentioned in the above table), the thing which shows a strong relationship between the dependent and the independent variables.

WALD TEST			
EQUATION UNTITLED			
TEST STATISTIC	VALUE	DF	PROBABILITY
F-STATISTIC	0.892149	(6.287)	0.5010
CHI-SQUARE	5.352893	6	0.4994
NULL HYPOTHESIS C(11)=C(12)=C(13)=C(14)=C(15)=C(16)=0			
NULL HYPOTHESIS SUMMARY			
NORMALIZED RESTRICTION		VALUE	STD ERROR
C(11)		-1.81E-06	1.14E-06
C(12)		-0.000180	0.000371
C(13)		0.482295	0.440019
C(14)		0.029636	0.029490
C(15)		1.32E-08	8.23E-08
C(16)		5.73E-09	4.80E-09

The following test was done and showed an insignificant relationship between the dependent and independent variables of the research including M3, GDP, GINCI and uncertainty, inflation and Net worth.

Thus, the previous test will be taken into consideration for the relationship between variables.

CORRELATED RANDOM EFFECTS-HAUSMAN TEST

EQUATION: UNTITLED

TEST SUMMARY:	CHI SQUARE STATISTIC	CHI-SQUARE D.F	PROBABILITY:
CROSS SECTION RANDOM:	100.078674	9	0.0000

Variable		Fixed	Random	Var Diff	Prob
1	ROA	-0.997866	-0.702071	0.006145	0.00002
	ROE	0.017716	0.015805	0.000003	0.2473
	GASSETS	-0.016706	-0.024947	0.000012	0.0158
	CARP	0.026224	0.023370	0.000081	0.7510
	LIQ	-0.032068	0.021336	0.000050	0.0000
	LDRP	0.018202	0.007058	0.000031	0.0466
	IBR	0.003619	0.001936	0.000000	0.0017
	NPL-1	0.159754	0.295187	0.000414	0.0000
	COMPETITION	0.00000051	-0.000000	0.000000	0.0287

Variable		Coefficients	Std Error	T-Static	Prob
1	(Constant)	-0.003550	0.007415	-0.478794	0.6324
	ROA	-0.997866	0.124028	-8.045488	0.00000
	ROE	0.017716	0.003255	5.443414	0.00000
	GASSETS	-0.016706	0.007347	-2.273851	0.0237
	CARP	0.026224	0.011516	2.277232	0.0235
	LIQ	-0.032068	0.010550	-3.039604	0.0026
	LDRP	0.018202	0.005990	3.038759	0.0026
	IBR	0.003619	0.001403	2.580193	0.00104
	NPL-1	0.159754	0.044234	3.611582	0.0004
	COMPETITIION	5.10E-05	2.45E-05	2.082010	0.0382

EFFECTS SPECIALIZATION

CROSS SECTION FIXED (DUMMY VARIABLES)

R-SQUARED	0.588074	MEAN DEPENDENT VARIABLE	0.007717
ADJUSTED R-SQUARE	0.527621	S.D DEPENDENT VARIABLE	0.022137
S.E. OF REGRESSION	0.015215	AKAIKE INFO CRITERION	-5.411843
SUM SQUARE RESID	0.067829	SCHWARZ CRITERION	-4.913079
LOG LIKLIHOOD	955.8956	HANNAN QUIN CRITERIO N	-5.213043
F-STATISTIC	9.727734	DURBIN WATSON STAT	2.056499
PROB (F-STATISTIC)	0		

Referring to the above Hausman analysis which reflects a fixed effect formulation, the findings were as follows:

Measuring ROA and NPL

The above table reveals a P-Value of 0.00002 which is less than 0.05 which means the null hypothesis which states that "There is an insignificant relationship between return on assets and NPL" is rejected, and the alternative hypothesis which states that "There is significant relationship between return on assets and NPL" is accepted. Thus, the findings reflect a significant relationship between return on assets and NPL. The higher the ROA in the bank, the lower NPL will be.

Measuring Return on Equity and NPL

The above table reveals a P-Value of 0.247 which is greater than 0.05 which means the null hypothesis which states that "There is an insignificant relationship between return on equity and NPL" is accepted, and the alternative hypothesis which states that "There is significant relationship between return on equity and NPL" is rejected. The sign of correlation is 0.247 which is greater than 0.05 thus return on equity does not have a direct effect directly the NPL rate in the Bank.

Measuring Growth in Assets and NPL

The above table reveals a P-Value of 0.0158 which is less than 0.05 which means the null hypothesis which states that "There is an insignificant relationship between growth in assets and NPL" is rejected, and the alternative hypothesis which states that "There is significant relationship between growth in assets and NPL" is accepted. Thus, growth in

assets has a direct effect on NPL. Thus, the lower the growth in assets, the higher the risk of NPL will be in the bank.

Measuring Capital Ratio and NPL

The above table reveals a P-Value of 0.7510 which is greater than 0.05 which means the null hypothesis which states that "There is an insignificant relationship between capital ratio and NPL" is accepted, and the alternative hypothesis which states that "There is significant relationship between capital ratio and NPL" is rejected. Thus, the findings reflect an insignificant relationship between the capital ratio and NPL.

Measuring Liquidity and NPL

The above table reveals a P-Value of 0.002 which is less than 0.05 which means the null hypothesis which states that "There is an insignificant relationship between liquidity and non-performing loans" is rejected, and the alternative hypothesis which states that "There is significant relationship between liquidity and non-performing loans" is accepted. Thus, liquidity has a direct effect on NPL in the Lebanese Banks, the lower the liquidity is, and the higher the risk of NPL will be.

Measuring Loan to Deposit Ratio and NPL

The above table reveals a P-Value of 0.0466 which is less than 0.05 which means the null hypothesis which states that "There is an insignificant relationship between Loan to Deposit ratio and non-performing loans" is rejected, and the alternative hypothesis which states that "There is significant relationship between loan to deposit ratio and non-performing loans" is accepted. The correlation sign is 0.0466 which is less than 0.05, thus there is significant relationship between LDR and NPL.

Measuring Interest and NPL

The above table reveals a P-Value of 0.000 which is less than 0.05 which means the null hypothesis which states that “There is an insignificant relationship between interest and NPL” is rejected, and the alternative hypothesis which states that “There is significant relationship between interest and NPL” is accepted.

Measuring Competition and NPL

The above table reveals a P-Value of 0.0287 which is less than 0.05 which means the null hypothesis which states that “There is an insignificant relationship between competition and NPL” is rejected, and the alternative hypothesis which states that “There is significant relationship between competition and NPL” is accepted.

DEPENDENT VARIABLE: NPL					
METHOD: PANNEL EGLS					
DATE: 11/29/17					
SAMPLE: 2004-2013					
CROSS SECTION INCLUDED: 35					
TOTAL PANNEL OBSERVATION: 337					
Variable		Coefficients	Std Error	T-Static	Prob
1	(Constant)	-0.008451	0.005332	-1.585048	0.1139
	ROA	-0.702071	0.096114	-7.304533	0.0000
	ROE	0.015805	0.002804	5.636434	0.0000
	GASSETS	-0.024947	0.006506	-3.834431	0.0002
	CARP	0.023370	0.007195	3.248346	0.0013
	LIQ	0.021336	0.007809	2.732222	0.0066
	LDRP	0.007058	0.002125	3.320941	0.0010
	IBR	0.001936	0.001296	1.494172	0.1361
	NPL-1	0.295187	0.039280	7.514887	0.0000
	COMPETITION	-3.47E-07	7.01E-06	-0.049542	0.9605
EFFECTS SPECIALIZATION			S.D		RH0
CROSS SECTION RANDOM: 0.00000			0.00000		
IDIOSYNCRATIC RANDOM:			0.015215		1
WEIGHTED STATISTICS					
R-SQUARED	0.423510	MEAN DEPENDENT VARIABLE		0.007717	
ADJUSTED R-SQUARE	0.407643	S.D DEPENDENT VARIABLE		0.022137	
S.E. OF REGRESSION	0.017038	SUM SQUARED RESID		0.094927	
F-STATISTIC	26.69170	DURBIN WATSON STAT		1.855442	
PROB (F-STATISTIC)	0				
UNWEIGHTED STATISTICS					
R-SQUARED	0.423510	MEAN DEPENDENT VARIABLE		0.007717	
SUM R-SQUARE RESID	0.094927	S.D DEPENDENT VARIABLE		1.855442	

Referring to the above panel analysis, the findings were as follows:

Measuring ROA and NPL

The above table reveals a P-Value of 0.000 which is less than 0.05 which means the null hypothesis which states that "There is an insignificant relationship between return on assets and NPL" is rejected, and the alternative hypothesis which states that "There is significant relationship between return on assets and NPL" is accepted. Thus, the findings reflect a significant relationship between return on assets and NPL. The lower the ROA in the bank, the higher NPL will be.

Measuring Return on Equity and NPL

The above table reveals a P-Value of 0.000 which is less than 0.05 which means the null hypothesis which states that "There is an insignificant relationship between return on equity and NPL" is rejected, and the alternative hypothesis which states that "There is significant relationship between return on equity and NPL" is accepted. The sign of correlation is 0.00 which is less than 0.05 thus return on equity affects directly the NPL rate in the Bank, the higher the equity is, the lower the NPL rate will be.

Measuring Growth in Assets and NPL

The above table reveals a P-Value of 0.0002 which is less than 0.05 which means the null hypothesis which states that "There is an insignificant relationship between growth in assets and NPL" is rejected, and the alternative hypothesis which states that "There is significant relationship between growth in assets and NPL" is accepted. Thus, growth in

assets has a direct effect on NPL. Thus, the lower the growth in assets, the higher the risk of NPL will be in the bank.

Measuring Capital Adequacy and NPL

The above table reveals a P-Value of 0.0013 which is less than 0.05 which means the null hypothesis which states that "There is an insignificant relationship between capital ratio and NPL" is rejected, and the alternative hypothesis which states that "There is significant relationship between capital ratio and NPL" is accepted. Thus, the findings reflect a significant relationship between the capital ratio and NPL. The lower the capital adequacy is, the higher the risk of NPL will be.

Measuring Liquidity and NPL

The above table reveals a P-Value of 0.0066 which is less than 0.05 which means the null hypothesis which states that "There is an insignificant relationship between liquidity and non-performing loans" is rejected, and the alternative hypothesis which states that "There is significant relationship between liquidity and non-performing loans" is accepted. Thus, liquidity has a direct effect on NPL in the Lebanese Banks, the lower the liquidity is, and the higher the risk of NPL will be.

Measuring Loan to Deposit Ratio and NPL

The above table reveals a P-Value of 0.0010 which is less than 0.05 which means the null hypothesis which states that "There is an insignificant relationship between Loan to Deposit ratio and non-performing loans" is rejected, and the alternative hypothesis which states that "There is significant relationship between loan to deposit ratio and non-

performing loans" is accepted. The correlation sign is 0.0010 which is less than 0.05, thus there is significant relationship between LDR and NPL.

Measuring Interest and NPL

The above table reveals a P-Value of 0.1361 which is greater than 0.05 which means the null hypothesis which states that "There is an insignificant relationship between interest and NPL" is accepted, and the alternative hypothesis which states that "There is significant relationship between interest and NPL" is rejected.

Measuring Competition and NPL

The above table reveals a P-Value of 0.9605 which is greater than 0.05 which means the null hypothesis which states that "There is an insignificant relationship between competition and NPL" is accepted, and the alternative hypothesis which states that "There is significant relationship between competition and NPL" is rejected.

WALD TEST			
EQUATION UNTITLED			
TEST STATISTIC	VALUE	DF	PROBABILITY
T-STATISTIC	18.99555	2.93	0.0000
F-STATISTIC	360.8309	-1.293	0.0000
CHI-SQUARE	360.8309	1	0.0000
NULL HYPOTHESIS 1/(1-C(9))=0			
NULL HYPOTHESIS SUMMARY			
NORMALIZED RESTRICTION (=0)		VALUE	STD ERR
1/(1-C(9))		1.190128	0.062653
DELTA METHOD COMPUTED USING ANALYTIC DERIVATIVES			

Long Run Multiplier 1/1-(npl-1)

The long run multiplier is 1.190128 and this value will be multiplied by all short run coefficients.

The following test had been implemented to test the relationship between the dependent variables are NPL and the independent variables on the long run, and the results showed a significant relationship between the independent variables and dependent variable since the significance level is less than 0.05, thus all the independent variables have an effect on non-performing loans.

WALD TEST			
EQUATION UNTITLED			
TEST STATISTIC	VALUE	DF	PROBABILITY
T-STATISTIC	-7.887835	2.93	0.0000
F-STATISTIC	6.221794	(1.293)	0.0000
CHI-SQUARE	6.221794	1	0.0000
NULL HYPOTHESIS 1/(1-C(9))=0			
NULL HYPOTHESIS SUMMARY			
NORMALIZED RESTRICTION (=0)		VALUE	STD ERR
1/(1-C(9))		-1.187589	0.150560
DELTA METHOD COMPUTED USING ANALYTIC DERIVATIVES			

ROA on the Long Run

The following test had been done to study the effect of the ROA on NPL in the banks on the long run. The results showed that the significance rate is less than 0.05 reflecting a direct relationship between NPL and the return on assets, thus the higher the return on assets are the lower the NPL will be in the bank.

The long run coefficient ROA is -1.187589 which means that a 1% increase in ROA decreases NPL by -1.187%. This means that higher net income is associated with lower NPL. This is due to the fact that NPL are netted out from Net Income.

Thus, Return in Assets has a direct effect on the performance of the banks on the long run.

WALD TEST			
EQUATION UNTITLED			
TEST STATISTIC	VALUE	DF	PROBABILITY
T-STATISTIC	5.105924	2.93	0.0000
F-STATISTIC	26.07046	(1.293)	0.0000
CHI-SQUARE	26.07046	1	0.0000
NULL HYPOTHESIS 1/(1-C(9))=0			
NULL HYPOTHESIS SUMMARY			
NORMALIZED RESTRICTION (=0)		VALUE	STD ERR
1/(1-C(9))		0.021085	0.004129
DELTA METHOD COMPUTED USING ANALYTIC DERIVATIVES			

Return on Equity on the Long Run

The following test had been done to study the effect of the ROE on the NPL in the banks on the long run. The results showed that the significance rate is less than 0.05 reflecting a direct relationship between the NPL and the return on equity, thus the higher the return on equity are the lower the NPL rate will be.

The long run coefficient ROE is 0.021085 which means that a 1% increase in ROE increases NPL by 0.021085%. This means that higher ROE is associated with lower NPL.

Thus, Return on Equity has a direct effect on NPL on the long run.

WALD TEST			
EQUATION UNTITLED			
TEST STATISTIC	VALUE	DF	PROBABILITY
T-STATISTIC	-2.231499	2.93	0.0264
F-STATISTIC	4.979588	(1.293)	0.0264
CHI-SQUARE	4.979588	1	0.0256
NULL HYPOTHESIS 1/(1-C(9))=0			
NULL HYPOTHESIS SUMMARY			
NORMALIZED RESTRICTION (=0)		VALUE	STD ERR
1/(1-C(9))		-0.019882	0.008910
DELTA METHOD COMPUTED USING ANALYTIC DERIVATIVES			

Growth in Assets

The following test had been done to study the effect of the Growth in Assets on the NPL in the banks on the long run. The results showed that the significance rate is 0.02 which is less than 0.05 reflecting a direct relationship between the NPL and the growth in assets, thus the higher the growth in assets are the lower the NPL will be.

The long run coefficient “Growth in Assets” is -0.019882 which means that a 1% increase in “Growth in Assets” decreases NPL by -0.019882%. This means that higher growth in assets is associated with lower NPL.

Thus, Growth in Assets has a direct effect on NPL on the long run.

WALD TEST			
EQUATION UNTITLED			
TEST STATISTIC	VALUE	DF	PROBABILITY
T-STATISTIC	2.285058	2.93	0.0230
F-STATISTIC	5.221490	(1.293)	0.0230
CHI-SQUARE	5.221490	1	0.0223
NULL HYPOTHESIS 1/(1-C(9))=0			
NULL HYPOTHESIS SUMMARY			
NORMALIZED RESTRICTION (=0)		VALUE	STD ERR
1/(1-C(9))		0.031209	0.013658
DELTA METHOD COMPUTED USING ANALYTIC DERIVATIVES			

Capital Adequacy on the long run

The following test had been done to study the effect of the Capital Adequacy on the NPL in the banks on the long run. The results showed that the significance rate of 0.02 which is less than 0.05 reflecting a direct relationship between the NPL and capital adequacy, thus the higher the capital adequacy the lower the NPL rate will be.

The long run coefficient Capital Adequacy is 0.031209 which means that a 1% increase in "Capital Adequacy" decreases NPL by 0.031209%. This means that higher capital adequacy is associated with lower NPL. This is due to the fact that NPL are netted out from Net Income.

Thus, capital adequacy has a direct effect on NPL rate on the long run.

WALD TEST			
EQUATION UNTITLED			
TEST STATISTIC	VALUE	DF	PROBABILITY
T-STATISTIC	-2.982486	2.93	0.0031
F-STATISTIC	8.895225	(1.293)	0.0031
CHI-SQUARE	8.895225	1	0.0029
NULL HYPOTHESIS 1/(1-C(9))=0			
NULL HYPOTHESIS SUMMARY			
NORMALIZED RESTRICTION (=0)		VALUE	STD ERR
1/(1-C(9))		-0.038164	0.012796
DELTA METHOD COMPUTED USING ANALYTIC DERIVATIVES			

Liquidity on the Long Run

The following test had been done to study the effect of liquidity on the NPL in the banks on the long run. The results showed that the significance rate of 0.003 which is less than 0.05 reflecting a direct relationship between NPL and liquidity, thus the higher the liquidity is the lower the NPL will be in the bank.

The long run coefficient Liquidity is -0.038164 which means that a 1% increase in Liquidity decreases NPL by -0.038164%. This means that higher liquidity is associated with lower NPL.

Thus, liquidity has a direct effect on NPL in Lebanese Banks on the long run.

WALD TEST			
EQUATION UNTITLED			
TEST STATISTIC	VALUE	DF	PROBABILITY
T-STATISTIC	3.035450	2.93	0.0026
F-STATISTIC	9.213954	(1.293)	0.0026
CHI-SQUARE	9.213594	1	0.0024
NULL HYPOTHESIS 1/(1-C(9))=0			
NULL HYPOTHESIS SUMMARY			
NORMALIZED RESTRICTION (=0)		VALUE	STD ERR
1/(1-C(9))		0.021663	0.007137
DELTA METHOD COMPUTED USING ANALYTIC DERIVATIVES			

LDR on the Long Run

The following test had been done to study the effect of LDR on the NPL in the banks on the long run. The results showed that the significance rate of 0.002 which is less than 0.05 reflecting a direct relationship between NPL and LDR, thus the higher the loan to deposit ratio is the lower NPL will be in the bank.

The long run coefficient LDR is 0.021663 which means that a 1% increase in LDR decreases NPL by 0.021663%.

Thus, loan to deposit ratio has a direct effect on NPL on the long run.

WALD TEST			
EQUATION UNTITLED			
TEST STATISTIC	VALUE	DF	PROBABILITY
T-STATISTIC	2.617954	2.93	0.0005
F-STATISTIC	8.85679	(1.293)	0.0005
CHI-SQUARE	8.85679	1	0.0006
NULL HYPOTHESIS 1/(1-C(9))=0			
NULL HYPOTHESIS SUMMARY			
NORMALIZED RESTRICTION (=0)		VALUE	STD ERR
1/(1-C(9))		0.0004	0.0654
DELTA METHOD COMPUTED USING ANALYTIC DERIVATIVES			

Interest Rates on the Long Run

The following test had been done to study the effect of interest rates on the NPL in the banks on the long run. The results showed that the significance rate of 0.0005 which is less than 0.05 reflecting a direct relationship between the NPL and interest rates, thus the higher the interest rate is the lower the NPL will be.

The long run coefficient “Interest Rates” is 0.0004 which means that a 1% increase in “Interest Rates” decreases NPL by 0.0004%.

Thus, interest rates have a direct effect on the performance of the banks on the long run.

WALD TEST			
EQUATION UNTITLED			
TEST STATISTIC	VALUE	DF	PROBABILITY
T-STATISTIC	2.085566	2.93	0.0379
F-STATISTIC	4.349587	(1.293)	0.0379
CHI-SQUARE	4.349587	1	0.0370
NULL HYPOTHESIS 1/(1-C(9))=0			
NULL HYPOTHESIS SUMMARY			
NORMALIZED RESTRICTION (=0)		VALUE	STD ERR
1/(1-C(9))		6.07E-05	2.91E-05
DELTA METHOD COMPUTED USING ANALYTIC DERIVATIVES			

Competition on the Long Run

The following test had been done to study the effect of competition on NPL in the banks on the long run. The results showed that the significance rate of 0.003 which is less than 0.05 reflecting a direct relationship between NPL and competition, thus the higher the competition is the lower the NPL will be in the bank.

The long run coefficient “Competition” is 6.07 which mean that a 1% increase in competition decreases NPL by 6.07%. This means that higher competition is associated with lower NPL. This is due to the fact that NPL are netted out from Net Income.

Thus, competition has a direct effect on NPL on the long run.

4.3 Testing Hypothesis

After obtaining the data from the Lebanese Banking Associations, and after analyzing the findings of the research, the tested hypotheses are as follows:

The hypothesis which states that "There is insignificant relationship between return on assets and NPL in Lebanese Banks" is rejected.

The hypothesis which states that "There is significant relationship between return on assets and NPL in Lebanese Banks" is accepted.

The hypothesis which states that "There is insignificant relationship between return on equity and NPL in Lebanese Banks." is rejected.

The hypothesis which states that "There is significant relationship between return on equity and NPL in Lebanese Banks." is accepted.

The hypothesis which states that "There is insignificant relationship between growth in assets and NPL in Lebanese Banks" is rejected.

The hypothesis which states that "There is significant relationship between growth in assets and NPL in Lebanese Banks" is accepted.

The hypothesis which states that "There is insignificant relationship between capital adequacy rate and NPL in Lebanese Banks." is rejected.

The hypothesis which states that "There is significant relationship between capital adequacy rate and NPL in Lebanese Banks." is accepted.

The hypothesis which states that "There is insignificant relationship between liquidity and NPL in Lebanese Banks." is rejected.

The hypothesis which states that "There is significant relationship between liquidity and NPL in Lebanese Banks." is accepted.

The hypothesis which states that "There is insignificant relationship between loan to deposit ratio and NPL in Lebanese Banks" is rejected.

The hypothesis which states that "There is significant relationship between loan to deposit ratio and NPL in Lebanese Banks" is accepted.

The hypothesis which states that "There is insignificant relationship between interest rates and NPL in Lebanese Banks." is rejected.

The hypothesis which states that "There is significant relationship between interest rates and NPL in Lebanese Banks." is accepted.

The hypothesis which states that "There is insignificant relationship between uncertainty and NPL in Lebanese Banks." fails to be rejected

The hypothesis which states that "There is significant relationship between uncertainty and NPL in Lebanese Banks." is rejected.

The hypothesis which states that "There is insignificant relationship between GDP growth and NPL in Lebanese Banks." fails to be rejected.

The hypothesis which states that "There is significant relationship between GDP growth and NPL in Lebanese Banks." is rejected.

The hypothesis which states that "There is insignificant relationship between money supply and NPL in Lebanese Banks." failed to be rejected

The hypothesis which states that “There is significant relationship between money supply and NPL in Lebanese Banks.” is rejected

The hypothesis which states that “There is insignificant relationship between inflation and NPL in Lebanese Banks.” fails to be rejected

The hypothesis which states that “There is significant relationship between inflation and NPL in Lebanese Banks.” is rejected

4.4 Conclusion

The findings of the study were addressed in this chapter of the research throughout analyzing data using E-Views statistical tool. However, the next section of the research will address the limitations and suggested recommendations to enhance the level of the research in further studies.

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The regression test was implemented using E-Views statistical tool to analyze the data obtained from the Lebanese Bank Association and to be able to draw out a relationship between the NPL and the related variables. However, this research will address the main findings of the research, the limitations and recommendations that will be suggested to enhance the research later on.

5.2 Main Findings and the Analysis of the Results

Referring to the literature review, the variables which have a direct effect on the NPL had been addressed briefly. Both primary and secondary data were used to study the impact of macroeconomic factors and bank specific factors on NPL.

Archival data was gathered through the obtaining data from Lebanese Bankers Associations, and the secondary data had been gathered through the means of previous studies and researches mentioned in the literature review.

The findings of the study showed a significant relationship between liquidity, growth in assets, return on assets, return on equity, interest rates, capital adequacy and loan to deposit ratio and the NPL.

The findings showed that the higher the liquidity is in the bank, the lower the NPL will be, thus ensuring high liquidity is of high importance to ensure low NPL and low risk of credit

default. Moreover, the findings showed a significant relationship between return on assets and return on equity.

On the other hand, the findings showed a significant positive relationship between interest rates and the NPL in which the lower the interest rate is, the lower the NPL will be and by that reducing the risk of having non-performance loans in the bank. Furthermore, the findings showed a significant relationship between capital adequacy and NPL.

At last, the findings showed a significant relationship between NPL and loan to deposit ratio.

Referring to the above regression analysis, there is a significant correlation between the independent variables and the dependent variable, and the findings were as follows:

There is an insignificant relationship between return on assets and NPL is rejected, and the alternative hypothesis which states that "There is significant relationship between return on assets and NPL" is accepted. Thus, the findings reflect a significant relationship between return on assets and NPL in which it reflects a negative relationship between ROA and NPL.

"There is an insignificant relationship between return on equity and NPL" is rejected, and the alternative hypothesis which states that "There is significant relationship between return on equity and NPL" is accepted. The sign of correlation is 0.00 which is less than 0.05 thus return on equity affects directly the NPL rate in the Bank, in which it reflects a positive relationship between ROE and NPL.

"There is an insignificant relationship between growth in assets and NPL" is rejected, and the alternative hypothesis which states that "There is significant relationship between

growth in assets and NPL" is accepted. Thus, growth in assets has a direct effect on NPL in which it reflects a negative relationship between Growth in Assets and NPL.

"There is an insignificant relationship between capital ratio and NPL" is rejected, and the alternative hypothesis which states that "There is significant relationship between capital ratio and NPL" is accepted. Thus, the findings reflect a significant relationship between the capital ratio and NPL in which it reflects a positive relationship between CARP and NPL.

"There is an insignificant relationship between liquidity and non-performing loans" is rejected, and the alternative hypothesis which states that "There is significant relationship between liquidity and non-performing loans" is accepted. Thus, liquidity has a direct effect on NPL in the Lebanese Banks, in which it reflects a negative relationship between liquidity and NPL.

"There is an insignificant relationship between Loan to Deposit ratio and non-performing loans" is rejected, and the alternative hypothesis which states that "There is significant relationship between loan to deposit ratio and non-performing loans" is accepted. The correlation sign is 0.002 which is less than 0.05, thus there is significant relationship between LDR and NPL in which it reflects a positive relationship between liquidity and NPL.

There is an insignificant relationship between interest and NPL is rejected, and the alternative hypothesis which states that "There is significant relationship between interest and NPL" is accepted. It reflects a positive relationship between interest and NPL.

"There is an insignificant relationship between competition and NPL" is rejected, and the alternative hypothesis which states that "There is significant relationship between

competition and NPL" is accepted in which it reflects a positive relationship between competition and NPL.

The findings also showed a negative relationship between NPL and ROA, suggesting that banks with lower profitability are less enticed to generate income. Hence, they are less constrained to engage in risky activities of granting risky loans, and by that the NPL rate will increase.

The results show a positive relationship between ROE and NPL. The higher the ROE in the bank is, which means there is high ability to provide debit and loan services, and by that there is risk for the NPL to increase.

The results showed that there is a negative relationship between growth in assets and NPL. The lower the growth in assets is, the lower the value of the bank will be and by that the bank will not be able to engage in loan activities, and as a result the NPL rate will decrease. In addition to that economies of scale should be taken into consideration while measuring this variable.

Banks are more likely to profit-maximize (charge higher interest rates) in order meet the guideline on capital adequacy ratio and by that increasing the NPL rate.

The findings showed that there is a negative relationship between liquidity and NPL, since the study revealed that the higher the liquidity takes place in the bank, the higher the bank is able to reduce the credit risk.

The findings showed that there is a positive relationship between debt ratio and NPL in which the higher the debt ratio is, the higher the risk of repaying back the loan will be.

The findings showed a positive relationship between competition and NPL, an increase in competition may raise the credit risk of the loan portfolio and by that increasing the rate of NPL in Lebanese Banks.

In addition to that, if the capital adequacy ratio is high, then the banks will use deposits on retained earnings to give loans.

5.3 Limitations

The research faced many limitations and especially in obtaining data about the variables of the research, since there are not enough studies about the NPL in the banks before.

In addition to that, competition was only measured in terms of total assets, which is considered a major limitation in the research.

One last limitation is that the research addressed Lebanese Banks in general the thing which is considered very wide. Thus, in the future, a specific bank should be taken into consideration in order to maintain accurate results.

5.4 Recommendations

It is recommended for Lebanese banks to monitor ROA and ROE. Surprisingly both ROA and ROE have opposite coefficient effects. Growth in assets puts a limit on the NPL liability. Hence a bank is advised to stress on the growth in its own assets and achieve expansion of clientele services. There seems to be economies of scale in the banking industry.

Banks should not use additional capital to extend more loans because a high capital base incites a bank to take more risks. A bank should keep a high liquidity ratio in order to avert any default repercussions. More loans relative to deposits encourage a bank to lend out of its own funds, instead of using only deposits.

This enhances risk-taking and NPL. This is similar to the strategy of a firm to sell more knowing that part of the credit will be uncollectible. The benefit of more loans in terms of profitability seems to be greater than the adverse effect of having uncollectible credit.

Monetary policy has also an effect. Higher interest rates produce a higher NPL. When interest rates are high debtors find difficulty in repaying the loan. Hence a policy of low interest rates is warranted, although lower interest rates may reduce profitability. But if the margin between loan rate and deposit rate stays the same, then the reduction of credit risk produces less NPL. Therefore it is recommended for banks to work on providing affordable interest rates to the borrowers to be able to repay back their loan on time and minimize the default risk of repaying the loan.

It is recommended to implement a case study on a Lebanese Bank to study the effect of macroeconomic and bank specific factors on NPL. Choose specific variables to be able to get accurate results. It is recommended also to study the impact of each variable whether it affects positively or negatively NPL for each individual Lebanese Bank in comparison with the overall banking system.

REFERENCES

Abera, A2012, „Factors Affecting Profitability: An Empirical Study on Ethiopian Banking Industry", MSC thesis, Addis Ababa University

Achou, FT & Tenguh, CN 2008, „Bank performance and credit risk management", MA Degree Project in Finance, Skovode Univercity

Adebola, S, Yusoff, S & Dahalan, D2011, „Determinants of nonperforming loans in Islamic Banking system in Malaysia", Arabian Journal of Business and Management Review, Vol. 1, No.2, PP.20-30

Ahmad, HN & Ariff , M 2007, „Multi-country study of bank credit risk determinants", International Journal of Banking and Finance, Vol. 5, No.1, PP.135-152

Ahmed, SZ 2006, „An investigation of the relationship between Non-performing Loans, Macroeconomic Factors, and Financial Factors in context of Private Commercial Banks in Bangladesh", Independent University, Bangladesh

Akerlof, G1971, Theory of asymmetric information, 1st edn, Oxford Universities press Arestis, P & Sawyer, MC2006, „A Handbook of Alternative Monetary Economics", Cheltenham, Edward Elgar Publishing Ltd

Ayalew, T2009, „Legal Problems in Realizing Non-Performing Loans of Banks in Ethiopia", MA thesis, Addis Ababa University

Azeem, M, Kouser, R& Saba, I2012, „Determinants of Non Performing Loans: Case of US Banking Sector", Romanian Economic Journal, Vol. XV, No.44, PP.125-136

Basu, S2003, „Why do Banks Fail?", International Review of Applied Economics, Vol. 17, pp. 231-248 103

Bebczuk, RN2003, „Asymmetric Information in Financial Markets: Introduction and Applications", Cambridge University Press, New York Berger, NA and DeYoung, R1997, „Problem Loans and Cost Efficiency in Commercial Banks", Journal of Banking and Finance, Vol. XV, No.21, pp.849-870

Berger, NA, & Udell, D2004, „The Institutional Memory hypothesis and the procyclicality of bank lending behaviour", Journal of Financial Intermediation, Vol.13, No.4, PP. 458-495

Bercoff, J, Julian, G & Franque, G2002, „Argentinean Banks, Credit Growth and the Tequila Crisis: A Duration Analysis" (Unpublished).

Bloem, AM & Freeman, R2005, „The Treatment of Nonperforming Loans in Macroeconomic Statistics", IMF Working Paper WP/01/209, International Monetary Fund.

Boudriga, A, Neila, B & Jellouli, S2009, „Does bank supervision impact nonperforming loans: Cross-country determinants using aggregate data", Munich Personal RePEc Archive (MPRA), No. 18068, PP.1-28.

Brooks, C 2008, Introductory Econometrics for Finance, 2nd edn, Cambridge University Press, New York Breuer, JB2006, „Problem bank loans, conflicts of interest and institutions", Journal of Financial Stability, Vol.2, No.3, pp. 226–285.

Caprio, G & Kilngebiel, D2002, „Episodes of Systemic and Borderline Financial Crisis", World Bank (Unpublished) Castro, V 2012, „Macroeconomic determinants of the credit risk in the banking system: The case of the GIPSI", University of Coimbra and NIPE, Portugal.

Casu, B, Girardone, C & olyneux, P2006, „Introduction to Banking", Harlow Financial Times

Creswell, JW 2003, Research design: qualitative, quantitative and mixed methods approaches, 2nd edn, Sage Publications, California.

Creswell, JW 2009, Research design: quantitative, qualitative and mixed methods approaches, 3rd edn, Sage Publications, California.

Coen, B2010, „the Basel Committee on Banking Supervision: Its Global Role and Current Initiatives", United Nations General Assembly Working Group on the World Financial and Economic Crisis and its Impact on Development, New York

Cortawarria, L, Dziobek, CH, Kanya, A & Song, I2000, „ Loan Review, Provisioning, and Macroeconomic Linkages", IMF Working Paper, Washington Dc.

De Bock, R & Demyanets, A2012, „Bank Asset Quality in Emerging Markets: Determinants and Spillovers", IMF Working Paper WP/12/71, International Monetary Fund

Espiloza, R, & PRASAD, A 2010, „Nonperforming Loans in the GCC Banking System and their Macroeconomic Effects", IMF Working Paper WP/10/224, International Monetary Fund.

Fofack, H2005, „Nonperforming loans in Sub-Saharan Africa: Causal Analysis and Macroeconomic implication" World Bank Policy Research Working Paper 3769, //econ.worldbank.org.

Fowler, FJ 1986, Survey research methods, 3rd edn, Sage Publications, USA

Garcia, T and Robles, MD2007, „Risk-taking behavior and ownership in the banking industry: The Spanish evidence", Journal of Economics and Business, Vol. 60, No. 4, PP. 332-354.

Geda, A 2006, „Structure and performance of Ethiopia"s financial sector in the pre & post reform period: with special focus on banking", Research paper no. 2006/112, Addis Ababa University. 105

Gujarati, DN 2004, Basic Econometrics, 4th edn, McGraw Hill, Boston Fernandez, S, Martinez, J and Jesus, S2000, „Credit Growth, Problem Loans and Credit Risk Provisioning in Spain", Working Paper No. 0018.

Fisher, I1933, „The Debt Deflation Theory of Great Depressions", Econometrical, Vol.1, PP. 337

Fuentes, R & Carlos, M2003, Institutional arrangements, credit market development and loan repayment in Chile, School of Business and Economics, University of Chile

Hartelius, D2010, „Analyzing nonperforming loans in Central and Eastern Europe based on historical experience in emerging market", Global Financial Stability Report, Washington

Hair JF, Black, WC, Babin, BJ, Anderson, RE & Tatham, RL 2006, Multivariate data analysis, 6th edn, Pearson Education, New Jersey.

Hafer, RW2005, „The Federal Reserve System", Greenwood Publishing Group.

Hermes, N and Lensik, R1996, „Financial Development and Economic Growth: Theory and Experiences from Developing Countries", Routledge press, London Hefferan, SA2005, „Modern Banking", Chichester, Wiley.

Hou, Y2006, „the non-performing loan problem: some bank level evidence", University of Birmingham Edgbaston, Birmingham

Sinkey, JF and Greenawlat, MB1991, „Loan-Loss Experience and Risk-taking Behaviour at Large Commercial Banks", Journal of Financial Services Research, Vol.5, No 1, PP. 43- 59

Socuvkova, A 2012, „Nonperforming Loans in China: Do We (Still) Need to Worry?" MA thesis, Charles University, Prague

Stiroh, KJ2002, „Diversification in banking: Is noninterest income the answer?" Federal Reserve Bank of New York, PP. 1-26.

Stiroh, KJ2006, „A portfolio view of banking with interest and noninterest activities" Journal of Money, Credit and Banking, Vol. 38, No.5, PP.1351-1361.

Stiroh, KJ & Rumble, A2006, „the dark side of diversification: The case of US financial holding companies" Journal of Banking and Finance, Vol.30, PP. 2131-2161.

Strauss, AL & Corbin, JM1998, Basic of Qualitative Research, 2nd edn, Thousand Oaks, Sage Publications

Swamy, V 2012, „Impact of macroeconomic and endogenous factors on non performing bank assets", The International Journal of Banking and Finance, Vol.9, No.1, PP.27-47

Templeton, WK, & Severiens, J1992, „The effect of nonbank diversification on bank holding companies", Quarterly Journal of Business and Economics, Vol.31, No.4, PP. 3-16.

Tefera, T 2011, „Credit risk management and profitability of commercial banks in Ethiopia „, MSc thesis, Addis Ababa University

Tilahun, D 2010, „privately owned commercial banks in Ethiopia: issues of nonperforming loans", MSc thesis, Addis Ababa University

Vogiazas, D & Nikolaidou, E 2011, „Credit risk determinants in the Bulgarian",

VogiazasNikolaidou, PP. 177-189 Wheelock, D &Wilson, W1994, „Explaining Bank Failures: Deposit Insurance, Regulation, and Efficiency", Review of Economics and Statistics, Vol.77, PP. 689-700. World bank 2012, Bank nonperforming loans to total gross loans (%)

Wydick, B2008, „Games in Economic Development", Cambridge University Press, New York Winton, A1999, „Don't Put All Your Eggs in One Basket: Diversification and Specialization in Lending", University of Minnesota.

Yesegat, AW 2009, „Value added tax in Ethiopia: a study of operating costs & compliance", PhD thesis, University of New South Wales