THE EFFECT OF ECONOMIC FACTORS ON NON- PERFORMING LOANS: CASE OF COMMERCIAL BANKS IN KENYA

BY

NGANGA CHRISTINE WANJIRA

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DECLARATION

This Research Project is my original work and has not been submitted for examination in this university or any other university.

Signed   --- Date --

Name: Nganga ,Christine Wanjira

Reg No.: D63/77744/2015

This Research Project has been submitted for examination with our approval as the university supervisors, moderator and chairman department of finance and accounting.

Signed   --- Date ------------------------------------

Mr. Barasa, Joseph
Lecturer
School of Business
University of Nairobi

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DEDICATION

To my amazing husband Benson,

For your invaluable support from the very start.

LIST OF ABBREVIATIONS

ABS- Asset Backed Securities

BCBS- Basel Committee on Banking Supervision

CBK- Central Bank of Kenya

CDO- Collaterised Debt Obligation

CDS- Credit Default Swaps

ECB- European Central Bank

GDP- Gross Domestic Product

KCB- Kenya Commercial Bank

MBS- Mortgage Backed Securities

NBK- National Bank of Kenya

NPLs- Non-Performing Loans

BIS - Bank for International Settlements

Www- World Wide Web

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ABSTRACT

The nature of the business that banking institutions are involved in exposes them to a high level of risk. They include systematic risk, the risk of a change in value, the risk that a company may be unable to meet its short-term goals, risk of default and business risk. All of which are in one way or another affected by the prevailing status of the economy. Various macro and micro economic variables affect the manner in which loans are taken up and repaid. The purpose of this study is to establish various ways in which economic variable affect the levels of non-performing loans. In addition, the study attempts to establish the effect of economic variables on non-performing loans in banking institutions in Kenya. The econometric model used for the purpose of this study is a multiple regression model. The independent variables used are, unemployment, inflation rates and real GDP growth rates. The dependent variable is the ratio of gross non-performing loans to gross loans. Data used was from the year 2000 to 2015, and was obtained from secondary sources. The findings obtained that the proportion of gross non-performing loans to gross loans varies with any change in the independent variables. The trend of the proportion of gross non-performing loans to gross loans was also found to be decreasing in nature over the period of data collected with an increase towards the end of the study period. At the end of the study, recommendations and suggestions of policy adjustments are made. This is to aid in alleviation of the problem of high levels of non-performing loans. Banks and other financial institutions will find this study useful as a guide for effective credit risk management. It will also be useful to the Credit reference bureau as it will show what factors lead to default and how to manage them as effectively as possible to reduce the non-performing loan ratio.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

The core activity of banks is lending. This means that loans are the single most common cause of the probability of default. Other sources will exist through other activities of the bank. If loans are not well managed, they can easily cause bank failure. Banks are hence required to operate within well-defined credit granting criteria. The main reason that credit risk occurs in banks is because of Non-performing loans (NPLs). These are loans that are over 90 days old and have not been serviced. NPLs are very difficult to manage especially if the proper credit granting criteria were not adhered to. This simply means that if loans are granted to customers with disregard to the credit policy, then there would be high levels of NPLs. Implying banks will have difficult times recovering the loans. Most debts will be bad debts that will be written off leading to banks making huge losses. This would lead to a banking crisis according to Kroszner (2002)

Mizen (2008) puts forward that for banking institutions to protect themselves from such crises they put in place and implement sound credit management practices. Globally the banking industry has been going through tough economic times because it is recovering from the 2007-2008 credit crunch and the 2010 Greek debt crisis. The credit crunch was a period whereby many financial institutions were forced into bankruptcy while others shut down operations. This was primarily due banks giving loans recklessly with total disregard of proper credit granting criteria. This crisis originated in the USA financial sector whereby, subprime (risky) mortgage lending was done in high demand to companies and individuals based on the lending criteria that was given by the agencies concerned with rating. These credit ratings have not been as effective as

previously thought.This is particularly proved when the prices of those houses that were used as security fell, leading to those loans becoming NPLs.

The effect of a failing economic system has been felt throughout the financial industry. Increased non-performing loans exposes the bank to a higher level of credit risk as a result of bad debt. The management of non-performing loans is therefore identified as an essential skill if your organization is to succeed in the business world today. The International Journal of Business and Social Science (2012) has described credit risk management as, the deliberate enforcement of policies,procedures and practices in identifying and analyzing so as to treat credit risk exposure. Both banking and non-banking financial institutions are exposed to a myriad of risks in conducting their businesses. The level of complexity and nature of these has morphed quite fast recently. If we lack cognizance of the importance of proper management of these exposure of financial institutions to low profitability and an economic slowdown is inherent. Inadequate risk management in recognition of economic factors may result in circumstances so as to cause a collapse of the business in entirety.

1.1.1 Non-performing loans

According to the BIS (2016), a non-performing loan is defined as, a loan facility that has been left to fall past the due date and remains unpaid for 90 days or more. Overdrafts are considered part of the credit facilities offered. They are considered past due if the advice is given on the due date is breached. Hennie (2003) corroborates this argument by defining bad loans as loans that are no longer income generating.

As aforementioned the core business of a bank is issuing loan facilities. Research by Havrilesky and Boorman (1994), revealed that the interest charged on loans contributes to a large extent the

level of income attributed to interest of commercial banks. We may therefore state with confidence that income derived from issuance of loans represent a large part of bank's assets (Saunders and Cornett, 2005). Lending is risky for the banks because it exposes the institution to the possibility of default. This results in bad debt and hence non-performing loans. There are a number of macroeconomic factors that result in non- performing loans. These include, the change in real GDP, inflation, unemployment and level of real interest rate of the country. Bank specific factors include the bank lending rate and bank liquidity ratio. These affect the manner in which the bank is able to deal with defaulted loans i.e. its ability to meet all its obligations in the event that obligors are unable to repay their loans.

1.1.2 Economic factors

Banks do not operate in isolation. They are in fact part of an intricate system in which micro and macro-economic factors influence their every decision. Banks need to manage the intrinsic risk of default in their loan portfolio in addition to those present in individual credits or transactions. Banks must take into consideration the relationships between the effect of economic factors and the level of nonperforming loans that they are experiencing. Their effective management is an important aspect in mitigating risk. It is also an integral part of a banks success in the long run.

Numerous studies have demonstrated a link between the percentage of non-performing loans (NPLs), bank underperformance and overall poor financial viability in both developing as well as more advanced economies. There has emerged conclusive studies that demonstrate the financial/banking crises in majority of Asia and Africa were immediately preceded by high levels non-performing loans. This is evidenced by the recent bank closures in Kenya. The global financial crisis we experienced in the recent past, which was first experienced in the United

States, was also credited to the a sudden increase in default of loans. In addition to an economic crisis other economic sectors were affected. It was observed that due to the resulting financial crisis, unemployment rates increased. In view of these observations it is therefore crucial to extensively study and analyse the effect of nonperforming loans. This will give insight as to how exposed and vulnerable an economy and a financial institution is.

According to Salas and Saurina(2002)if a crisis was to occur not only will the financial institutions be affected but the effect will spread to other local and global financial and economic areas due to financial linkages. Indeed this was the case when credit crunch of 2007-2008 occurred. Financial markets were greatly affected as the stocks were losing value, various equity funds and hedge funds were forced to liquidate assets as they were losing lots of cash. Governments were facing budget deficits due to their rescuing activities of financial institutions that were going bankrupt, the job market suffered greatly as many banks were retrenching employees. Interest rates were drastically reduced by central banks and overall many countries GDP slumped greatly. The evaluation of the effect of economic factors on banking institutions is therefore an integral part of the economic wellbeing of a country.

1.1.3 Non performing loans and economic factors

In his study Kroszner (2002) attributed banking crisis to non-performing loans. As observed by the Basel Committee in their paper (2000), exposure to credit risk has proven to be a major cause of alarm in banks world-wide. Financial institutions should be prudent in drawing lessons and formulating policies from past experiences. This is in reference especially to the recent credit crunches experienced in the States and in Greece. Banks should now be vigilant in identifying, measuring, monitoring and controlling their levels of non-performing loans. They should

determine if they hold adequate capital against the risks that NPLs expose them to and that they are satisfactorily indemnified in reference to these losses. This will ensure continuity in their operations without adversely affecting the public.

Both of the above mentioned credit crises were due to improper loan management practices. Governments and regulators such as the central banks around the world have realized this and according to Mizen (2008) close attention is being paid to sensitive areas such as mortgage financing and production of structured financial products, off-balance sheet financing, rating agencies, stress testing and fair value accounting. This is because it is the lax practices in these areas that aggravated the crises that was experienced and cascaded all over the world.

1.1.4 Economic factors and non-performing loans in Kenya

In the Kenyan commercial bank industry the NPLs to Gross loans ratio is still very high. Ngugi(2001)observed that this is due to poor management of loan portfolios, ignorance in revaluation of collateral used as security in obtaining loans, lack of skilled employees in credit management area who easily know the changes they have to make in regards to lending when there are changes in the banks' financial ratios such as the liquidity ratio and the reserve ratio. These employees also lack the knowledge of how to undertake lending activities when there are changes in macroeconomic variables. These include inflation, interest rate, unemployment rate and the gross domestic product (GDP).

In the recent past state-owned banks had the highest levels of NPLs. This was attributed to high ranking officials in the government obtaining loans and later on default. The government realised this and it led to the privatisation of Kenya Commercial Bank (KCB) while state-owned National Bank of Kenya (NBK) is in the process of being privatised.

The high levels of NPLs in the Kenyan banks have led credit risk to be one of the greatest concern at 93% as indicated by the Central Bank Risk Management Survey Report (January 2011).

GDP growth and inflation are major economic factors on a macro level, while liquidity ratio and lending interest rates are generally regarded as micro-economic variables (Greenidge and Grosvenor, 2010). Interest rate is the fee a borrower pays for use of money that belongs to the lender. It can also be termed as the price tagged on a borrowed asset, Crowley (2007). Interest can be referred to as the "rent of money". Interest rate can be defined as a price of money. It can be used as an indication of market information concerning changes that are likely to occur in the time value of money or the levels of inflation in the future (Ngugi, 2001). This shows that if interest rates are too high, then the obligor may not effectively service their loans leading to bad loans. In their study Salas and Saurina (2002) observed a significant inverse relationship between the growth of GDP and overdue loans.

A growth in GDP indicates the ability for the population to better service their loans. This however is the opposite for inflation rate. An increase in inflation signals a deterioration in ability to repay. This results in an increase in nonperforming loans. Unemployment speaks to the level of income of the individual. It also affects the level of disposable income that the individual has access to. Should the individual be unemployed after taking on a loan, then he may default in making their repayments. This results in increased un-serviced and nonperforming loans.

Waweru (2009) undertook a study in the Kenyan context. From the study only Equity bank has been able to effectively maintain their NPLs to Gross loans ratio at low levels because of their location, lending and collection strategies. Equity bank is found in trading areas for both the high

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income earners and low income earners. If out of 44 banks in Kenya it is only one bank that has been able to manage their NPLs properly through the location advantage then what about the other 43 banks that do not have this advantage? Therefore the only way that these 43 banks can reduce their NPLs levels is through very strict lending practices and policies that they intend to implement. This is in light of the weakened shilling against the dollar, the ever increasing inflation rate and volatile economic status of the country.

1.2 Problem statement

Kenyan banks are in hot pursuit of higher returns to make high returns like Equity Bank. Therefore there is rapid increase in the number of loans being extended to customers on a daily basis. This has both positively and negatively impacted the banking sector. According to the Central Bank of Kenya (January 2011) the risk management survey report demonstrated that the positive impacts include ,the banking sector experiencing impressive growth in total assets, deposits, total loans and pre-tax profits. On the negative side these banks continue to be highly exposed to credit risk as the large proportion of banks' asset portfolio is made up of loans and advances to customers. This has in turn increased the risk that banks are exposed in to due to non-performing loans.

Even with these high levels of NPLs Kenya still has to achieve its Economic Vision in the country's Vision 2030 which is to maintain a sustained economic growth of 10% per annum over the next 25 years. This therefore means that for this vision to be effectively achieved the banks have a major role in lending citizens loans for making investments in order for the country's economic growth to reach the desired levels. For the banks to continually and comfortably provide these funds then the borrowers have a fundamental role of paying back the loans

advanced to them. This can only be achieved if the banks practice lending practices in order to reduce the levels of the NPLs that lead to banks incurring huge losses, Raghavan (2003).

An evaluation of the recent decades reveals that a majority of global economies have experienced financial distress of varying severity, while some have suffered repeated cycles of economic downturns (Hardy, 1998). Pazarbasioglu (1999) believes that the earliest warning signs of an impending poor financial period are proxies of for the vulnerability of the banking and corporate sector. He believed that banking crises, such as that experienced in the United States and Greece, can be linked to a large extent to external developments. He further observed that domestic variables are indicators of a looming banking crisis. The most evident being those relating to sound business practises. It is also indicative of the mode of policy implementation of the said sector. In the 1980's and early 1990's Kenya has experienced banking crisis. This resulted in bank failures (37 failed banks as at 1998) following the crises of; 1986 - 1989, 1993/1994 and 1998 (Kithinji and Waweru, 2007; Ngugi, 2001).This involved closure and merging of several institutions e.g. Jimba Group to form the present day Consolidated Bank. The most recent spurt of bank closures and receiverships has seen the likes of Imperial Bank, Dubai bank and the now recently re-opened, Chase bank affected. With Non-performing loans cited as a leading cause to the banks failures, a lot needs to be done to ensure past mistakes are not replicated.

It is widely accepted that the ratio of nonperforming loans to gross loans ratio is often associated with bank failures and financial crises in both developing and developed economies (Caprio and Klingebiel, 2002).Studies have demonstrated that high level of nonperforming loans preceded the financial/banking crises in Sub-Saharan African countries (Mugwe, 2013).The case needs to

be made for the management of bad debt in our banking institutions. This implies that banks that have high levels of NPLs need to implement better credit management mechanisms. They need to take into consideration the economic factors that lead to default in the first place. In this regard this study intends to answer the following question. What is the effect of economic factors on nonperforming loans in banking institutions in Kenya?

1.3 Objective of the Study

The objective of this study is to test the effect of economic factors on non- performing loans in Kenyan banks.

1.4 The significance of the study

This study will provide banks with information that will enable credit managers conduct credit risk assessment with prudence and cultivate the interest of researchers to study more in the area of credit risk assessment. The study will enhance the credit review and recommendations on credit management by the bank's supervisory department of the Central Bank of Kenya to commercial banks. Thus the central bank will be better placed to formulate policies that will favour the reduction of credit risk in banking institutions. It will act as an eye opener on whether the interest rates they charge influences the high level of loan defaults or not. The relevant bodies will thus make appropriate policies regarding their lending and borrowing interest rate that will balance the risk and revenue so as to enhance their performance during economic booms and recessions.

The study may encourage the government to fund research in this area that is a threat to the economic growth and development of the country. It will be of use to the management of

financial institutions, research institutions such as Kenya Institute of Policy Research and Analysis (KIPPRA) and relevant regulatory authorities.Results of this study will be used by banking institutions and regulators such as the Central Bank to know which economic factors areas increase the probability of default in banks and what action is to be taken on these areas.

The study will also prove useful to shareholders of banking institutions as they are able to predict the likelihood of a loan taken up to become non-performing. Nonperforming loans reduces its value and also leads to reputational damage. Performing loans imply increase in shareholders' value .This is in tandem with the shareholders goals- to maximize profits and value. NPLs reduce shareholders earnings through diminished financial performance of banks.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter discusses the theoretical literature, empirical literature and conceptual framework derived from numerous previous studies' literature, an examination of current literature and ultimately the chapter demonstrates the research gaps that it seeks to fill.

2.2 Theoretical Literature Review

This chapter focuses on literature from past studies on the relationship between non-performing loans and credit risk management practices. Section 2.2 of the chapter contains the theoretical literature which is a review of relevant theories that are applicable to the study; section 2.6 is an empirical review that contains findings from other relevant studies across the globe. It also contains a review of Kenyan studies that have been conducted on the correlation between non-performing loans and selected economic factors affecting them. Section 2.8 is a summary of the literature review and research gap.

2.2.1 Theory of Delegated Monitoring

Banking institutions play a very significant role in the financial sector. One of the important contributions is that of intermediaries Banks offer a form of linkage for funds from savers to borrowers. The financial institutions act as evaluators of credit risk for their customers. Banks function as evaluation points from which to interpret indicators in a financial environment with limited information. The outcome of information asymmetry is that individuals may find it

tasking to objectively examine other agents' level of credit risks. Banks bridge this gap my acting as intermediaries. They reduce the level of information skewness between the borrower and the lender of funds. Drzik (2005) broadly defines monitoring as information collection as the loan process is taking place. This includes keenly evaluating a client's loan application, examining their validity for the facility and ensuring that the borrower has kept to the terms of the contract. This is most pertinent concerning small and medium enterprises also known as SMEs and is associated to banks role in the disbursement of loans. This will go a long way in eliminating some of the risk involved in lending and hence credit risk exposure.

2.2.2 The Merton Model of Credit Measurement

Most lenders have in-house systems which they use to rank and determine eligibly of a customer. Bercoff, Giovanni, Grimard and Julian (2003) have shown that they collect data and grade in reference to levels of risk, and then apply the adequate measures. Products such as unsecured personal loans attract a higher price or fee as the level of risk is and vice versa. Other products such as credit cards and overdrafts, have control measures such as the instatement of credit limits. Some levels and types of credit require collateral, usually an asset which may be appreciating in nature. This is given in the stead of the loan to ensure the loan is paid.

In reference to credit scoring Lando (2004) indicated that scoring models are procedural in the issuance of loans or credit facilities to clients. For larger borrowers like corporates, these models incorporate both qualitative and quantitative divisions that outline different various facets of the risk being undertaken by the lender. These include but are not limited to, but not limited to, operation practises, styles of management expertise, the quality of assets, and financial ratios.

When these statistics are reviewed by credit officials, the lender gives the loan as prescribed by the terms within a contract.

The Merton model developed by Merton (1974) led to increased research into credit risk models. It uses a firm's asset value as a lognormal process and assumed that the firm would default once the asset value fell below a default boundary. They are also referred to as first generation models. They are not practical because they assume default occurs on maturity of the debt; for analysis of complex capital structure their seniority structures have to be specified i.e. they are arranged in order of seniority and paid off in this manner. This is often not the case and the rate of recovery is overstated in the instance that default should occur.

2.2.3 Second Generation Models

To address the problems of the earlier generations models i.e. the Merton model an alternative structure was developed. It assumes that instead of loan default occurring at maturity it can happen at any time during the issuance. Default occurs when firms' assets reach a lower threshold level. The second generation models include Hull and White (1995), K.M.V. model whose modifications address the inclination of the Merton models to overestimate and underestimate spreads for safer bonds.

The KMV model and Hull and White (1995) has the following advantages. Default occurs when the firm's value based on assets depreciates below the sum of the total amount of short term liabilities summed up to half the amount of long term liabilities. It is unconventional in that it treats the firm as a continuous entity that will always require credit facilities. It captures often ignored factors of the capital structure by rating different classes of liabilities. A second

generation model calculates the interim asset volatility by generating asset returns through de-levering of equity returns.

Its disadvantages are that it requires estimates for the firm's asset value which cannot be observed. They cannot react to credit rating changes that occur often i.e. the credit downgrade that occurs before the actual default. There is the incorrect assumption that the firm is continuous in term hence enabling the prediction of the time of default, Hull and White (1995).

2.2.4 Reduced Form Models

These were suggested by Litterman and Imen (1991), Duffie and Singleton (1999), Duffie (1998) among others. Their main advantage is that they are able to adjust to defaults that occur suddenly and treats them as random and unpredictable events. Predicting them cannot yet be ascertained. A model developed by Duffie and Singleton (1999) allowed for a closed form solution of term structure of credit spreads when market value at default is exogenously determined. It also allows a random market value at default and that depends on the pre-default value of a bond.

The reduced form approach to modelling risky loans has a few pros over the older Merton approach to the simulation of a credit risky loan portfolio. In the Merton approach, the probability of default is calculated using just one random variable: the asset quality of the firm. In the reduced form approach, analysts have two options. To either establish the probability of default from the realised values of securities traded or estimate them from a collection of data used as a baseline together with the relevant explanatory variables, Duffie and Singleton (1999).

2.2.5 Credit Value at Risk models

Frye (2000a and 2000b) described these are models as those that aim at measuring potential loss a credit facility will suffer within a financial period. A credit value at risk model yields the probability density function (PDF) of future losses on credit. From its analysis and evaluation a financial institution is able to determine expected and unanticipated loss on credit issued. Expected loss is the amount the financial institution expects to lose within a specified amount of time. Unanticipated loss also known as the unexpected loss represents a deviation from expected loss which is represented as actual loss in credit portfolios.

Recent advances by Frye (2000a and 2000b) have been made the basis his theoretical model on a premise. If a borrower fails to repay, a bank's recovery depends on any collateral used to secure a loan which is in turn affected by economic conditions. He established a negative relationship between levels of default and market values, Jarrow (2001) includes both debt and equity prices unlike Frye who uses empirical data to prove recovery rates.

Further supporting Frye, Altman, Brady, Resti and Sironi (2004) used a sample data set of defaulted bonds from 1982-2000 and came to the same conclusion as Frye: a negative relationship between default rates and market values though the performance of the economy is not as significant in predicting default as Frye indicated in his model. According to them the default rate and other variables that are used to estimate the size of the better performing bond securities are more significant. They conclude that a micro-economic model fashioned on demand and supply affects recovery rates.

2.3 Significance of Economic Factors in management of non-performing loans

The major problem reducing Kenyan banks profitability is the frequent occurrence of non-performing loans. Non-performing loans occur when borrowers do not pay their loans when they are required to. The ability for individuals and other institutions to meet their obligations is highly dependent on the economic factors prevailing at that time. Should inflation rate increase, more of an individual's incomes goes towards maintaining their standards of living by purchasing basic commodities. This means that less income is directed towards loan repayments leading to default. Kaume, (2012) showed that unemployment indicates lack of income with the same effect as that of inflation- default. An increase in GDP could indicate a better performing economy .This may lead to better repayment. Banks should therefore keep a keen eye on the economic factors that are indicative of a good or bad performance to establish the level of default they will be exposed to.

2.4 Factors affecting Levels of Nonperforming Loans

The banking sector is important in any economy. This is because a strong and stable banking system supports financial wellbeing and improves the economy's ability to withstand economic upheavals thereby ensuring a stable economy. It is imperative that we determine the factors that may affect this stability. Gerlach, Wensheng, Shu, (2005)

A factor that may affect a banks health is its ability to manage its credit facility. This is its ability to adequately monitor and collect payment for loans issued. If the bank has a large number of unpaid loans, it runs the risk of making huge losses. Unpaid loans are also termed as bad loans. A bad or non-performing loan is defined as a loan that has not earned any income. Complete settlement of outstanding payment of interest and income is no longer anticipated. Principle and

interest is 90 days or more in arrears or the maturity date has passed and full payment has not been done. (Yixin Hou) and Kassim (2002) suggested a few causes of non- performing loans. These include, but not limited to poor management, the absence of sound credit policy, scanty credit analysis, errors in documentation, unwarranted emphasis on the viability of the loan at the expense of loan quality and economic depression. All of these causes are to varying degrees.

Espinoza and Prasad (2010) have classified the determinants of NPL's into two categories. These are macroeconomic and bank factors. In a study conducted by Keeton and Morris (1987) macroeconomic factors were shown to have an effect on the amount of loan losses recorded by banks. These are the factors affected by local economic conditions which include default rates, interest rates and inflation rates. Bank specific factors include a bank's liquidity and reserve ratio which affects the bank's ability to service such loans and cover or reduce its losses. Others include asset growth, operating efficiency and exposure to local loans. Grimard *et al (2002)*.

Sinkey and Greenwalt (1991) have shown in their study that depressed economic conditions across the region also explain the amount of loss reported by commercial banks. The study uses a linear regression model with logs in place of the actual values for variables. The data obtained is from large commercial banks in the United States from the mid-eighties. Salas and Saurina (2002) demonstrate several economic factors explain the changes in NPLs. These are real growth in GDP, increased credit uptake, bank size and capital ratio. Furthermore, Jimenez and Saurina (2005) in their examination of the Spanish banking sector has shown that NPLs are determined by the growth in real GDP , increasing real interest rates and lax credit policies.

A study by Kaplin (1999) has cited Fridson, German and Wu, (1997) who made use of Moody's quarterly default rate on high yield bonds from 1971- 1995. They concluded a weak but positive

correlation with real interest's rates. Hence the conclusion was made that interest rates have a direct relationship to non-performing loans. The higher the interest rates the higher the default rate which leads to an increase in the amount of nonperforming loans for the bank. Siddiqui, Malik, Shah (2012). Many of the world's currencies are linked to the US dollar. This makes the local interest rate beyond the control of individual countries and their Central Banks. This means that it's not possible to adjust interest rates to suit the current state of the banking system.

According to Koopman and Lucas (2005), nonperforming loans are affected by two types of risk. The idiosyncratic risk factors are part of individual characteristics of clients, while the systematic credit risk factors are often times related to macroeconomic factors. The loan portfolios are usually exposed to a counterparty credit risk and asset value risk, which is conditional in the occurrence of credit default events. The probability of default and asset value risk are correlated to a high degree.

Locally interest rates are determined by the Central Bank of Kenya. From previous observations, it has been noted that lowering the central bank rate for example from 7.75% to 7% in Nov 2009 and from 6.75% to 6.0% in July 2010 created a stimulation of supply of credit hence a positive relationship between interest rates and credit supply (CBK Report 2010). Non- performing loans being the most common source of bank failure has brought about the need for sound credit risk management policies and practices. These should reflect the banks philosophies and the measure to be taken if the level of mom performing loans is to be controlled.

Rajan and Dhal (2003) using regression analysis of panel data in India, sought to demonstrate that favourable macroeconomic conditions and financial factors impact significantly on the

levels of NPLs ratio in commercial banks. Financial factors include maturity, size of the bank, and cost of credit, credit orientation and terms of the credit.

2.5 Determinants of financial performance

Heffernan & Fu (2010) found that some macroeconomic variables and financial ratios significantly influenced financial performance. The study also found that the type of bank was an influential determinant of bank financial performance. Clair (2004) found that the most important macroeconomic indicators were changes in interest rates, exchange rates, unemployment, and aggregate demand.

In a study on performance of Islamic and conventional banks in UAE, (Al-Tamini, 2010) found that the most influential determinants of most banks performance were liquidity and concentration while cost and number of branches were applied in reference to Islamic banks' performance.

According to Demirgüç-Kunt & Huizinga (1999), an increased bank asset to GDP ratio and a low market concentration contribute to lower margins and decreased profits. It was noted that compared to domestic banks, foreign banks have better margins and higher profits compared to less developed economies, while the opposite holds in developed countries.

In China, Wong, Fong, Wong, & Choi (2007) found that cost efficiency of banks was a major determinant of banks' profitability. No evidence was found for the effect of market structure (market concentration and market shares). Most of these banks were large and therefore efficient hence the conclusion that efficiency was indeed a major determinant of bank performance.

Aburime (2008) revealed that company level determinants of bank profitability in Nigeria were extent of ownership concentration, size of capital available and the level of credit portfolio they had at their disposal. These were deemed significant. Size of deposit liabilities was insignificant. This was coupled with level of IT development, labour, the difference between control and ownership and structural affiliation. The relationship between level of bank risk and profitability was not conclusive.

Elyor (2009) and Uzhegova (2010) have used CAMEL extensively to examine factors affecting bank profitability. The system was a proactive measure by the US Federal Deposit Insurance Corporation (FDIC) to enable them detect problems in the banking sector early (Uzhegova, 2010). Several bank evaluation models have been suggested the CAMEL framework is generally accepted as the standard model. It comes endorsed by Basel Committee on Bank Supervision and IMF (Baral, 2005)

2.6 Empirical review

Interest rates and loan amounts play an important role in determining a bank's level of credit risk. According to Soriano (2011), the 2007-2008 credit crunch experienced in the USA spread to Europe due to the fall in interest rates and the expansion of credit in Europe. Low interest rates and credit expansion result in high non- performing loans level and hence increased credit risk. The effect of high non-performing loans could be as bad as negative national output. In the 2007-2008 credit crunch, it was even worse because it had hit the whole world. The effect of this according to Soriano (2011) was the whole world experiencing negative output, with the exception of USA and EU27 which experienced large falls in their output.

According to Flamini, McDonald and Schumacher (2009), inflation is directly related to interest rates. This implies that a high inflation rate for instance, would cause the interest rates to rise too. Increased interest rates increase the probability of loan default and thus increased level of non-performing loans. Therefore, inflation rates can be said to be positively related to credit risk.

As put forward by the International Journal of Economics and Financial Issues (2013) the macroeconomic state has a bearing on the valuation of borrowers and their ability to obtain a credit facility. A growing economy indicates a reduction in financial distress hence an increase in revenues. Real GDP growth and employment are inversely proportional to NPL. Conversely, unemployment and the level of NPLs are positively related. Salas and Saurina (2002) have found an indirect association between NPL and real GDP growth. This shows that a higher positive level of real GDP growth more often indicates a higher level of income. This improves the capacity of the borrower to pay its debts hence to reducing bad debts. The converse is true of this relationship. In a study by Khemraj and Pasha (2013), have demonstrated this relationship.

In addition to the macroeconomic and bank specific factors that affect credit, we have to consider the customer specific factors. Kowalik Martinez-Miera (April 2010) observed that individuals in rural areas are less likely to obtain gainful employment unlike those living in urban areas, and earn lower incomes when they do get employed. Women face the biggest challenge in obtaining employment and earn lower wages than men. This results in Banks being reluctant in offering them credit given these conditions. Research however has proven that they are indeed credit worthy.

A survey that was jointly conducted by the World Bank and the Bangladesh Institute of Development Studies during 1998 and 1999 used the following variables to determine the credit

worthiness of an individual. The borrower's gender, average income and other moderating factors such as dowry payment. It revealed that despite women facing lower employment and lower wages, women repay their loans more often. This results in lower levels of non-performing loans among them. It also emerged that the average wage by gender is proportional to the probability of default at a significant level. Hence, the higher the wages, the higher the probability of default. This is consistent with their claim that gender is a proxy of the economic conditions. Fofack (2005) through a study determine that significant determinants of NPLs in Sub-Saharan Countries include real exchange rate, economic growth, the real interest rate, interbank loans and net interest margins. He attributes this positive correlation between the macroeconomic factors and non-performing loans to the undiversified nature of most of the African economies.

2.7 Conceptual Model

Figure 2.1 Conceptual Framework

Author (2016)

The ratio of NPLs to Totals Loans is affected by inflation rate, real interest rate, change in real GDP and unemployment which are the independent variables. Inflation rate and the ratio of NPLs to Gross loans have a positive relationship, such that when inflation rate is high so is this ratio and vice versa. This is the case because when the inflation rate is high life is expensive due to the increase in prices for goods and services thereby debtors default in paying loans because

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they cannot afford extra monies to service their loans. Thus the Ratio of NPLs to Gross loans goes up. When the inflation rate is low goods and services in a country are affordable to majority of its population, thereby debtors can easily afford to service their loans implying a reduction in the NPLs to Gross loans ratio.

Like the inflation rate, the real rate of interest has a positive relationship to the ratio of NPLs to Gross loans. Thus when there is increase in a bank's interest rate debtors default in paying their loans because they have to pay too much money compared to how much they borrowed thus an increase in this ratio. While when the interest rate goes down this ratio also declines because debtors can easily afford to service their loans.

A high unemployment ratio means that more people are more likely to default on their loan repayments. This is due to a reduced or complete lack of income. Any income accrued is more likely channelled towards more basic necessities like food and shelter. Other obligations will therefore come second to basic needs. If unemployment persists, individuals do not service loans leading to an increased ratio of NPLs. There is a positive relationship between these two ratios.

When there is a positive growth in a country's GDP it implies that the real income of the country's working population has increased, hence Ratio of NPLs to gross loans reduces as more debtors are able to pay their debts. On the other hand when the Real GDP of a country declines means that the working population's real income has also declined meaning there would be an increase in the NPLs to Gross loans ratio. Therefore there is a negative relationship between the ratio of NPLs to Gross loans and change in Real GDP. These variables were selected because

they have shown strong and immediate relationship with the ratio of NPLs to gross loans .The data on these variables were easily accessible. Other intervening and moderating factors have been put into consideration. This is in light of the role they play in affecting the relationship between non-performing loans and credit risk

2.8 Summary of Literature review

Most studies in credit risk management fail to realise that the main reason for clean default occurring in banks is because of not properly managing the loan portfolios thereby leading to high levels of non-performing loans. This is compounded by the lack of consideration for economic factors that directly affect the ability to repay the loans.

Studies on Non-Performing Loans (NPLs) have over the years focused on individual and bank-related factors. The effect of economic variables has however received little attention. There is increasing need to understand how economic factors influence the probability of a loan becoming non-performing. Regulatory guidelines for commercial banks differ from one country to another. Even with this difference in practice, what all countries have in common is the endeavor to have proper guidelines that will lower the risk factor of loans and improve on their performance.

The study is important because it intends to show that the main cause leading to loan default is the intervention of economic factors. It also seeks to establish that the credit management practises not only comprise credit assessment criteria and methodology but also other components such as adopting better methods for credit management when economic factors such as inflation rate and interest rate change. That is improving loan management methods with changes in macroeconomic variables and this study intends to fill this gap in knowledge.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter gives an outline of how the study was carried out. It identifies the research design, data collection procedures, data source, the Econometric model to be used and data analysis methods to be employed.

3.2 Research Design

The research design will involve comprehensive and systematic collection of information on credit risk management practices. Qualitative research design was employed to describe and analyse the theoretical perspective of the study. This will be an analysis of words and diagrams rather than numbers.

Quantitative method of analysis is used to analyse the numerical perspective of the study. When both qualitative and quantitative methods are used in data analysis it is called mixed methods research. This approach is advantageous because the conclusions drawn will be comprehensive, valid and reliable.

3.3 Data Collection Procedure

This study mainly utilises data from secondary sources as per the requirements of the research project. The specific secondary sources that were used include: The Annual Report for the

banking sector (Central Bank of Kenya) from the year 2000 to 2015 and the Risk Management Survey (Central Bank of Kenya) 2015 and the World Bank.

The data analysed is cross-sectional covering a period of 10 years this is because a trend for the ratio of NPLs to Gross loans will be generated and this Period covers financial period before, during and after the two financial crises that is the 2007-2008 Credit crunch and the 2010 Greek Debt Crisis. This study incorporated all licensed commercial banks in Kenya between the period of 2000 and 2015

3.4 Data Analysis

The econometric model used in this study is a six variable linear model as shown below that encompasses the relationship between the variables that affect non-performing loans and credit risk exposure in banking institutions. Cognisance is also taken of the intervening and moderating factors that may affect this relationship. The data obtained will be analysed using STATA to determine how various independent variables affect the dependent variables. The data will be subjected to various tests as elaborated.

The Student's t Distribution Test is the works of William Sealy Gosset who introduced it in 1908. It is a test that is used to test hypothesis for $n \leq 30$ where n is the population size at n-1 degrees of freedom at a given confidence level. In this case n is 10, the degrees of freedom is 9 while the confidence limit is 95% thus the t test is appropriate for testing this study's hypothesis.

These tests will be conducted in order to test for the statistical significance of the parameters of the regression model that is to test if β_0 , β_1 , β_2 , β_3 and β_4 are statistically significant. The Student's t Distribution Test has used to test the significance of each parameter.

The (R^2) commonly referred to as the Coefficient of Multiple Determination is defined as the proportion of the total variation in y_i explained by the multiple regression of y_i on x_{1i}, x_{2i}, x_{3i}, and x_{4i}. The R^2 that is computed in this case therefore finds out the proportion of the total variation that is explained by the multiple regression of the ratio on interest rate, inflation rate, liquidity ratio, reserves ratio and the rate of change of GDP. R^2 Usually ranges from 0 to 1 whereby 0 indicates no variation in y_i and 1 indicates all points in the model lie on the regression model.

This test is done using the F-ratio which is the ratio of the explained to the unexplained variance. When using the F-ratio the k-1 and n-k degrees of freedom have to be computed, where n is the number of observations and k is the number of parameters estimated. If the F-ratio computed is > F-ratio tabulated at 95% confidence levels, the hypothesis not rejected is that the regression parameters are not equal to 0 and that R^2 is significantly differs from 0.

This test measures the individual correlation between the dependent variable and one independent variable holding the other individual variables constant. In this case this test has been conducted in order to measure the correlation between each individual explanatory variable and the NPLs to Gross loans ratio, when the other explanatory variables influence is excluded.

Partial-correlation coefficients range in value from -1 to +1 and usually take the sign of the corresponding estimated parameter. This test is fundamental because it determines the relative importance of the different explanatory variables in the multiple regression. Problems that have also been looked at in this regression analysis include the following.

Multicollinearity refers to the case in which two or more explanatory variables are highly correlated, making it difficult to detect the individual effect for each of them on the dependent

variable. To minimise this partial correlation coefficients of the independent variables have been computed. Heteroscedasticity which occurs when there is failure to assume that the variance of error term is constant for all observations leading to unbiased but inefficient estimates of the coefficients. Therefore to minimise heteroscedasticity the standard error of white noise error term have been computed.

Autocorrelation is a problem that is faced when the error term in one time period is positively correlated with the error term in the previous time period leading to downward biased standard errors thus incorrect statistical tests and confidence intervals. In this study the Durbin-Watson statistic d has been utilized to detect the autocorrelation in the error terms of the regression model. According to Salvatore and Reagle (2001) the calculated values of d ranges between 0 and 4 with no autocorrelation when d is closer or in the vicinity of 2.

3.4. 1 Descriptive Study

The model is a multiple regression model because it is efficient in showing the relationship between the dependent and independent variables and because it is easily computable and interpretable. The x_is are the independent variables while y_i is the dependant variable implying that the ratio of NPLs to gross loans depends on real interest rate, inflation rate, unemployment rate, and the rate of change of GDP .

3.5 Empirical model

The empirical model is an evaluation using the linear regressions below.

The equation below demonstrates the relationship between credit risk and non-performing loans.

$$y_i = \beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \beta_3 x_{3i} + \beta_4 x_{4i} + \varepsilon_i$$

Where,

y_i = Ratio of Gross Non-Performing Loans (NPLs) to Gross Loans at period i

β_0 = A constant representing those factors in the banking industry that do not change

over time

x_{1i} = Real Interest rate percentage at period i

x_{2i} = Inflation rate percentage at period i

x_{3i} = Unemployment rate at period i

x_{4i} = Real GDP growth rate at period i

ε_i = Error term

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

The aim of this research project was to examine the relationship between economic factors and non-performing loans in Kenya. Non-performing loans is the independent variable. This was measured by the ratio of loans unpaid after 90 days. The data was collected between 2001 and 2015. Inflation, unemployment, Real Interest rate and GDP were the dependent variables. This was based on data collected from the World Bank and International Monetary fund between 2001 and 2015. The focus of the study was Kenya in the last 10 years. This is before, during and after the economic crisis experienced across the global economy. This chapter presents the data analysis. We shall have the sections 4.2 descriptive statistics, 4.3 correlation analysis, 4.4 relationship between economic factors and non-performing loans in Kenya.

4.2 Descriptive Statistics

The study has four independent variables. These are unemployment, inflation, GDP and Real interest rate recorded form 2001 to 2015. These ratios were then used and subjected to an analysis as shown in Table 4.1.It presents the descriptive statistics results for the study variables.

Table 4.1: Descriptive statistics

Variable	N	Min	Max	Mean	Std. Dev.
Nonperforming loans	15	4.429	34.9	13.29273	9.914771
Inflation	15	1.97	26.24	10.04933	6.132841
Gdp	15	0.23	8.4	4.718667	2.251456
Unemployment ratio	15	9.1	9.7	9.4	0.196396
Real interest rate	15	-8.01	17.81	7.145333	6.590476

Author 2016

The study established that the number of non- performing loans reported had a mean of 16.133%

with the minimum being 4.4 and the maximum being 37.9. This resulted in a standard deviation

of 12.9 in the reported period of 2001-2015.This is an indication that some years had a very large

ratio of non-performing loans at 37.9 while others had a very low ratio of 4.4. There is an

observable large deviation between the highest and lowest values.

The results on the economic factors showed that inflation had a minimum value of 1.97 with the

highest rate experienced being 26.24. The resulting mean is 10.04933 for the 15 years studied

.The deviation between the highest and lowest values for inflation is 6.133 which is less than that

exhibited by non-performing loans. The GDP ratio for the entire period had a maximum of 8.4

while the lowest was 0.23 and the standard deviation was shown to be 2.25.This means that some

years had very good economic performance while others had very poor performance. The lowest

value of 0.23 was observed at a time the country was in political strife.

The Real interest rate had a standard deviation similar to that of inflation at 6.59 with the

maximum and minimum values at 7.14 and -8.01 respectively. This shows that some years had

very high rates while others had very low rates. This is a very large deviation compared to that of

the other independent variable. The unemployment ratio experienced the least change with a

standard deviation of 0.19. We find that the highest value is 9.7 and the lowest is 9.1.This indicates stability in the ratio of unemployment with most years maintaining a stable rate.

4.3 Correlation analysis

The researcher set out to establish the relationship between the various variables of the study. These are non-performing loans, inflation, GDP, Real interest rate and Unemployment ratios for this to be correctly determined, a correlation analysis was conducted. Pearson's correlation coefficient was used to indicate the relationship between the variables. The significance of the relationship was measured at 0.005 level of significance with results presented in Table 4.2.

Table 4.2: Relationship between variables

		Non-performing loans	Inflation	GDP	Unemployment	Real Interest rate
Non-performing loans	Pearson Correlation	1				
	Sig. (1-tailed)					
	N	15				
Inflation	Pearson Correlation	-0.2286	1			
	Sig. (1-tailed)	0.4125				
	N	15	15			
GDP	Pearson Correlation	-0.4086	-0.2287	1		
	Sig. (1-tailed)	0.1305	0.4123			
	N	15	15	15		
Unemployment	Pearson Correlation	0.9381*	-0.0807	-0.4452	1	
	Sig. (1-tailed)	0	0.7751	0.0963		
	N	15	15	15	15	
Real Interest rate	Pearson Correlation	0.3587	-0.7161*	-0.1457	0.1855	1
	Sig. (1-tailed)	0.1892	0.0027	0.6043	0.508	
	N	15	15	15	15	15

Author 2016

The study established that there were statistically significant relationship that existed between the various variables. These are Non-performing loans and unemployment. These exhibited a very strong positive correlation of 0.9381. The other was between inflation and real interest rate. It

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showed a statistically significant negative correlation at -0.7161. From the Pearson's correlation coefficients exhibited by the various variables, we can see that all variables have an effect on non-performing loans .A coefficient of -0.2286 shows a small negative relationship to non-performing loans. A coefficient of -0.4086 reveals that GDP has a small and negative relationship to non-performing loans with a significance of 0.1305. Real interest rate has a moderate correlation to non-performing loans with a coefficient of 0.3587.

4.4 Relation between economic factors and non-performing loans

The aim of this study was to examine the relationship between economic factors and non-performing loans in banking institutions in Kenya. In order to achieve this, multivariate regression analysis was conducted using STATA -11. The nonperforming loans was the dependent variable. This is the ratio of loans that remained unpaid for longer than 90 days in relation to total amount of loans taken up that year. Inflation, GDP, unemployment and real interest rates are the independent variables. These were measured in terms of ratios over a period of 15 years, from 2001 to 2015.Inflation is based on the changes that occur in consumer prices over a period of time. GDP and unemployment were based on the number of productive people who are actively looking for jobs. The real interest rate is the lending interest rate adjusted for inflation as measured by the GDP deflator. The results are presented in Tables 4.3, 4.4 and 4.5 respectively.

Table 4.3: Model summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
				F Change	df1	df2	Sig. F Change	Durbin-Watson
0.7775	0.6045	0.4463	7.3779	3.82	4	10	3.82	1.090594

Author 2016

R Square is defined as the proportion of variability in response variable that is accounted for by regression model. From our model summary obtained from STATA-11 we observe the R square as 0.6045 with the adjusted R square as 0.4463.It is important that the R square is close to 1 hence 0< R Square<1. A good fit of model means R Square will be close to one, power fit model means computed R Square will be close to zero. Our computed R Square = 0.6045

Hence the regression model is a power fit model.

R-square shows the amount of variance of Y explained by X. In this case economic factors explain60.45% of the variance in non-performing loans. The adjusted R squared gives a more accurate measurement of the degree of this variance at 44.63%. The Durbin-Watson test statistic tests the null hypothesis that the residuals from an ordinary least-squares regression are not autocorrelated against the alternative that the residuals follow an AR1 process. The Durbin-Watson statistic ranges in value from 0 to 4. A value near 2 indicates non-autocorrelation; a value toward 0 indicates positive autocorrelation; a value toward 4 indicates negative autocorrelation.Our value is 1.09 indicating a relatively positive autocorrelation.

Table 4.4: Analysis of variance (ANOVA)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	831.900726	4	207.975181	3.2	0.0389
	Residual	544.336917	10	54.4336917		
	Total	1376.23764	14	98.3026888		

Author 2016

The model Sum of Squares (MSS) which is 831.9. The closer to the total sum of Squares (TSS) it is the better fit. Residual Sum of Squares (RSS) value is 544.34 while the Total Sum of Squares (TSS) is 1376.24. Average Model Sum of Squares is 207.98 and the Average Residual Sum of Squares54.43. The Average Total Sum of Squares is 98.302. The *F-statistic*, F (4, 10), tests whether *R squared* is different from zero. In this case the F value is 3.2.

Table 4.5: Regression coefficients

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	-389.6045	111.9327		-3.48	0.006
	Inflation Rate	.0179165	.5332878	0.0110824	0.03	0.974
	Real GDP Growth Rates	.673002	1.131923	0.152826	0.59	0. 565
	Unemployment	42.66265	11.47746	0.8450805	3.72	0.004
	Real Interest rate Rates	-.2081669	.4819876	-0.1383712	-0.43	0.675

Author 2016

We run the regression with non-performing loans as the dependent variable and the economic factors as the independent variable. . The results in Table 4.5 can therefore lead to the following regression model that can be used to explain the effect of economic factors on non-performing loans in banking institutions in Kenya.

Y= -389.6-0.208β_1+0.0179β_2+42.66β_3+0.673β_4+Ɛ

From the analysis in Table 4.3 we observe that R square has a value of 0.6045.This leads to the conclusion that economic factors explain 60.45 per cent of the variance on non-performing loans in banking institutions in Kenya. The relationship between economic factors and non-performing loans is found to be significant at 0.0389. This implies that we can state with a 99.97% certainty level that the economic factors have an effect on non-performing loans. 00.038 is well within the required 0.005 level of significance. The table of coefficients 4.5 reveals that the constant value was -389.6045 and the standard error was 111.9327. The inflation rate had a regression coefficient of .0179165 whereas the GDP growth rate had a positive coefficient of 0.673002.Unemployment had a coefficient of 4.66265 which is significantly higher than that of real interest rate which had -0.2082. Of the four variables, was found to be statistically significant at 0.004 significance.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

Nonperforming loans are loans in which the principal amount and interest are past due repayment date by 90 days (3 months) or as per the terms of the contract. Although the gross NPL to gross loans ratio has been reducing over the years, gross NPLs in Kenya are still high, which makes them a major area of focus for this project. The graph below indicates the trend over the past ten years.

Fig 5.1 <u>Ratio of Gross NPL's to Gross loans</u>
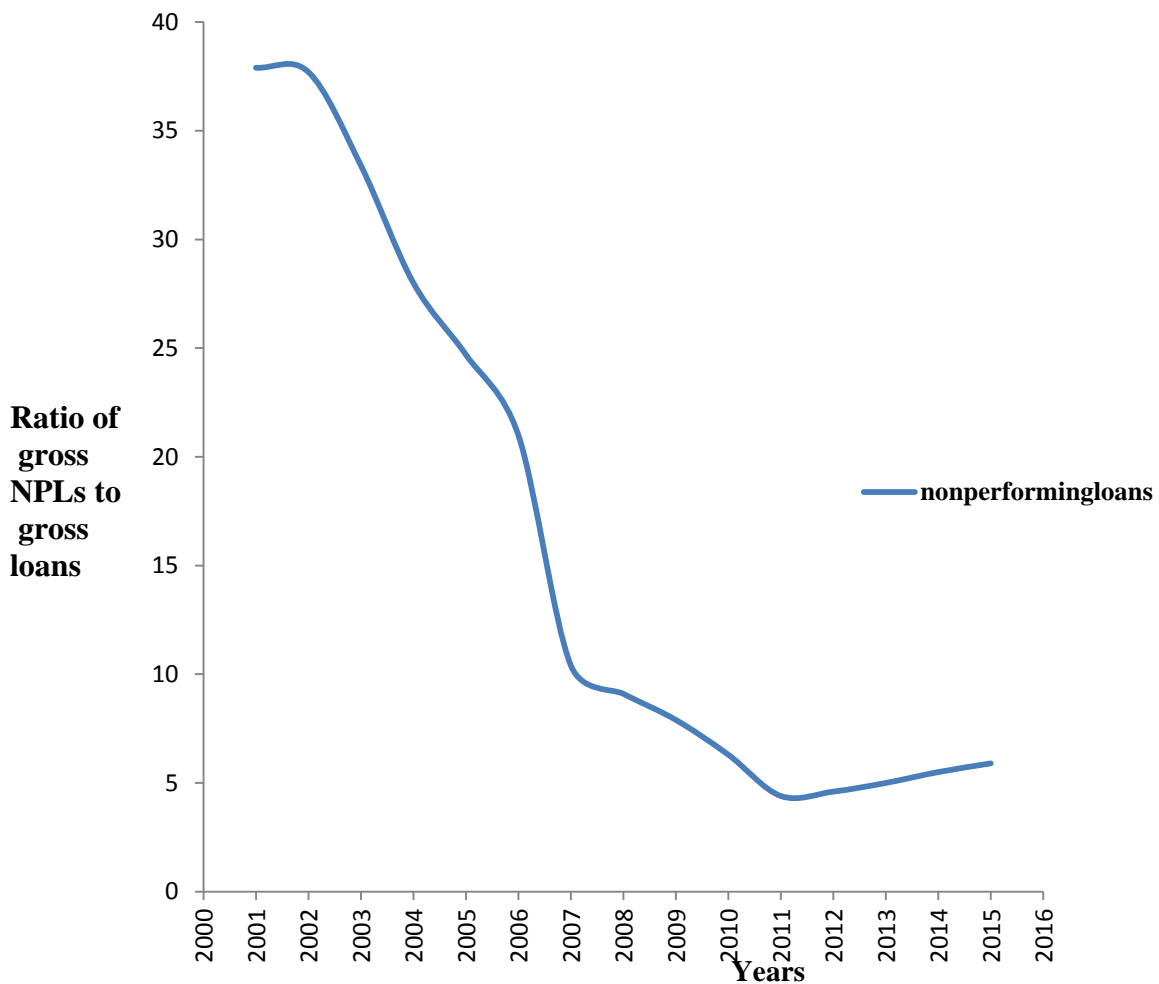
5.2 Summary of findings

According to R.S. Raghavan, the main aim of credit risk management is to identify, quantify and examine the credit activities of a bank. Banks that carry out effective credit risk management will be able to anticipate any problems and attempt to rectify tem. This will ensure that their credit position does not threaten the stability of the financial institution. Proper credit risk management practices will keep banks from suffering vast losses, which would lead to poor financial performance and bankruptcy. These losses could also cause a spillover effect to other financial institutions causing a bank crisis.

NPLs and the performance of the economy are correlated hence the relationship between the level of nonperforming loans and GDP. If the economy is not performing well, the number of NPLs will escalate. High levels of NPLs will impact negatively on the economy. A reduction in the number of NPLs will therefore lead to a reduction in the effects they have on the economy. A higher GDP indicates the ability of the population to meet its obligations. Repayment of loans ensures that there is enough money to circulate in the economy.

High levels of NPLs may cause failure of financial institutions, which in turn may cause bank crisis. In the recent past we have witnessed several banks being put under receivership and dissolved due to the mismanagement of the NPLs. Luckily this phenomenon was not systemic and was hence managed. Such a crisis could also lead to instability of financial markets, which will affect investor confidence. Policies should therefore be implemented by regulatory bodies to ensure streamlining of the industry.

5.3 Conclusions

According to the findings of the study, there is a positive relationship between inflation rates and the proportion of gross NPLs to gross loans. It was found that, for every one unit increase in the inflation rate, the proportion of gross NPLs to gross loans increases by 2.02 units. An increase in the inflation rate reduces their disposable income. This also affects their ability to finance their obligations. As the interest rates are driven up, even more loans fall into default and result in higher nonperforming loans. According to findings obtained in the study, there is a negative relationship between GDP and the proportion of gross NPLs to gross loans. For every one unit decrease in GDP, the proportion of gross NPLs to gross loans increases by 0.89 units. This is in order as, when the economy is doing better, we have lower NPLs.

The results of the investigation showed that there is a positive relationship between liquidity ratios and the proportion of gross NPLs to gross loans. For every unit increase in liquidity ratio, the proportion of NPLs to gross loans increase by 2.21 units .Liquidity ratios show the ability of the financial institution to meet its short term goals. Hence the amount of cash and cash equivalents readily available in the bank at a particular time. High liquidity ratio means that loans are being repaid at a high rate. This implies that the level of NPLs is low. However the data shows that when the liquidity ratio is high, the NPL ratio is high. This could be caused by the fact that the better performance of the economy enables more individual's access loans. Despite the high repayment rate, a larger volume of loans taken up increases the NPLs ratio.

The results of the investigation revealed that there is a positive relationship between lending interest rates and the proportion of gross NPLs to gross loans. For every unit increase in lending interest rates, the proportion of gross NPLs to gross loans increases by 0.026 units. An increase

in the interest rate means that interest allocated to a specific loan increase. This increases the amount owed to the bank. Thus there is a higher likelihood that there will be more loans outstanding due to obligor inability to repay. This is why the ratio of NPLs to gross loans increases.

5.4 Recommendations

This section gives possible solutions to the main problem which is the high ratios of Gross Non-Performing loans to Gross loans. There needs to be sensitization to bodies such as Kenya Credit Providers Association (KCPA) and intensive education among banks as to its importance. KCPA is a body that was established in July 2010 by the Central Bank of Kenya whose focus is to build an inclusive credit information market. It is a non -profit making organization that represents credit providers who voluntarily join the Association. Implementation of these recommendations which will lead to development and implementation of stronger credit policies in Kenya. This will lead to a reduction in gross NPLs to gross loans. (KCPA roadmap briefing note).

Exposure of credit defaulters and recommendation of those whose loans are in good standing is a measure that should be adopted by banks. This will encourage potential loan defaulters to repay their loans. It will encourage those who pay their loans on time to continue doing so. The recent formation of the Credit Reference Bureaus have ensured that individual who would otherwise be risky are identified. This type of information sharing will go hand in hand with tis research to ensure financial institution are able to control the level of NPLs. A centralized source of information will enable more thorough scrutiny of creditors before issuance of loans.

In addition to the Credit Reference Bureaus, employment of Information Systems through Adoption of Decision Support systems should be implemented. This would provide more information about clients and reduce the risk of banks' lending to bad debtors. (Kaume, Roselyne Nzambi). Corporate Debt Restructuring should be considered. This involves creditors taking measures such as reducing interest rates charged on loans lent to a company, increasing the period of repayment of a loan or even pardoning part of the debt in exchange for an equity position in the company. This reduces the chances of the company going bankrupt and increases chances of the loans being repaid. (Investopedia). This measure has been backed by the recent capping of interest rates by the Central Bank at 4% above the base rate. This will go a long way in easing the debt burden on debtors.

APPENDIX

A list of registered Kenyan banks

1	AFRICAN BANKING CORPORATION	23	GUARDIAN BANK LTD.
2	BANK OF AFRICA (K) LTD.	24	GUARANTY TRUST BANK (KENYA) LTD.
3	BANK OF BARODA (K) LTD.	25	GULF AFRICAN BANK
4	BANK OF INDIA	26	HABIB BANK A.G. ZURICH
5	BARCLAYS BANK OF (K) LTD.	27	HABIB BANK LTD.
6	CFCSTANBIC BANK KENYA LTD.	28	HOUSING FINANCE.
7	CHASE BANK LTD.	29	I&M BANK LTD.
8	CITIBANK	30	JAMII BORA BANK LTD.
9	COMMERCIAL BANK OF AFRICA LTD.	31	KENYA COMMERCIALIAL BANK LTD.
10	CONSOLIDATED BANK OF (K) LTD.	32	KENYA WOMEN MICROFINANCE BANK LTD.
11	CO-OP BANK OF (K) LTD.	33	K-REP BANK LTD.
12	CREDIT BANK LTD.	34	MIDDLE EAST BANK (K) LTD.
13	DEVELOPMENT BANK (K) LTD.	35	NATIONAL BANK
14	DIAMOND TRUST BANK LTD.	36	NIC BANK LTD.
15	ECOBANK LTD.	37	ORIENTAL COMMERCIAL BANK LTD.
16	EQUATORAL COMMERCIAL BANK LTD.	38	PARAMAOUNT UNIVERSAL BANK LTD.
17	EQUITY BANK LTD.	39	PRIME BANK LTD.
18	FAMILY BANK LTD.	40	POST BANK.
19	FAULU KENYA	41	STANDARD CHARTERED BANK (K) LTD.
20	FINA BANK LTD.	42	TRANS-NATIONAL BANK LTD.
21	FIRST COMMUNITY BANK LTD.	43	UBA BANK
22	GIRO COMMERCIAL BANK LTD.	44	VICTORIA COMMERCIAL BANK LTD.

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