

**THE EFFECT OF CREDIT REFERENCE BUREAUS ON THE
LEVEL OF NON- PERFORMING LOANS IN THE
COMMERCIAL BANKS IN KENYA**

BY

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DECLARATION

This research project is my original work and has not been submitted for any award in any other university.

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DEDICATION

I dedicate this project to my Dad Mr. Patrick Gitahi, Mom Rev Anne Gitahi and siblings

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ABSTRACT

Lending is the main activity of commercial banks in Kenya. However, Non-Performing loans have caused significant losses to the banks. As a result of the banking failures experienced in Kenya and to find a way forward to prevent further failures, the Credit Information Sharing mechanism was launched in Kenya and banks were required to share their defaulters' data to the bureau. This study was guided by objective that sought to find out the effect of credit reference bureaus on the level of nonperforming loans in commercial banks in Kenya.

Secondary data was collected from published financial statements of commercial banks in Kenya between years 2007 to 2012. The researcher adopted an event study design and regression analysis method and the study was carried out on the 42 operational commercial banks. The researcher used t-test to analyse the data and the null hypothesis was: there is no positive significant effect of credit reference bureaus on the level of non-performing loans in commercial banks in Kenya

The study found that CRBs had an effect on NPLs; there was an average reduction of 4% on the level of NPLs in the years after the introduction of CRBs i.e. 2010-2012 and the null hypothesis was rejected; there was positive significant effect of CRBs on the level of NPLs. The study also concluded that there is an inverse relationship between the number of credit checks done by the CRBs and the level of NPLs. Therefore, the use of credit reference bureaus by commercial banks in Kenya was found to be value additive and did indeed reduce the level of NPLs in commercial banks in Kenya.

TABLE OF CONTENTS

DECLARATION	II
ACKNOWLEDGEMENTS.....	III
DEDICATION	IV
ABSTRACT	V
TABLE OF CONTENTS	VI
ABBREVIATIONS.....	IX
LIST OF TABLES.....	X
LIST OF FIGURES.....	XI
CHAPTER ONE: INTRODUCTION	1
1.1 BACKGROUND OF THE STUDY	1
1.1.1 Credit Referencing.....	2
1.1.2 Non Performing Loans.....	4
1.1.3 The Effect of CRBs on the Level of NPLs	6
1.2 PROBLEM STATEMENT.....	7
1.3 RESEARCH OBJECTIVE.....	8
1.4 VALUE OF THE STUDY	9
CHAPTER TWO: LITERATURE REVIEW	10
2.1 INTRODUCTION.....	10

2.2 THEORETICAL LITERATURE	10
2.2.1 Adverse Selection Theory	10
2.2.2 Moral Hazard Theory.....	12
2.2.3 Interest Rates	13
2.3 EMPIRICAL STUDIES	14
2.4 SUMMARY OF THE LITERATURE REVIEW	18
CHAPTER THREE: RESEARCH METHODOLOGY	19
3.1 INTRODUCTION.....	19
3.2 RESEARCH DESIGN	19
3.3 POPULATION AND SAMPLE	19
3.4 DATA COLLECTION	20
3.5 DATA ANALYSIS	20
3.5.1 Test of Significance.....	23
CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION.....	24
4.1 INTRODUCTION.....	24
4.2 DATA PRESENTATION.....	24
4.3 MEAN-ADJUSTED RETURN MODEL	24
4.4 T-TEST ANALYSIS ON THE EFFECT OF CRBS ON THE LEVEL OF NPLS.....	26
4.5 LEVEL OF NPLS AND NUMBER OF CREDIT CHECKS/REPORTS AT CRB	27
4.6 REGRESSION ANALYSIS	29
4.6.1 Testing the Significance of the Regression Model.....	30
4.7 SUMMARY OF FINDINGS AND DISCUSSIONS	33

4.7.1 Effect of CRBs on the NPLs on Commercial Banks in Kenya	33
CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATION.....	35
5.1 INTRODUCTION.....	35
5.2 SUMMARY OF THE RESEARCH FINDINGS.....	35
5.3 CONCLUSION.....	36
5.4 LIMITATIONS OF THE STUDY	37
5.5 RECOMMENDATIONS OF THE STUDY.....	38
5.5.1 Policy Recommendation	38
5.5.2 Suggestions for Further Research.....	39
REFERENCES	41
APPENDICES	XII
APPENDIX I-LIST OF COMMERCIAL BANKS IN KENYA	XII
APPENDIX II- T TEST 2010	XIII
APPENDIX III- T TEST 2011	XIII
APPENDIX IV-T TEST 2012	XIV

ABBREVIATIONS

The abbreviations in this study are listed below:

CIS- Credit Information Sharing

CRB- Credit Reference Bureau

CBK- Central Bank of Kenya

FI- Financial Institutions

HELB- Higher Education Loans Board

NPL- Non Performing Loans

LIST OF TABLES

The tables in this study are listed below.

Table 3.1: Target Population

Table 4.1: Regression Analysis

Table 4.2: ANOVAs Table

Table 4.3: Coefficient Table

LIST OF FIGURES

The figures in this study are listed below.

Figure 4.1: Average ratio of NPLs 2007-2012

Figure 4.2: Level of Gross Loans and Advances 2007-2012

Figure 4.3: Checks per annum 2010

Figure 4.4: Checks per annum 2011

Figure 4.5: Checks per annum 2012

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Kenya has experienced banking problems since 1986 culminating in major bank failures (37 failed banks as at 1998) following the crises of; 1986 - 1989, 1993/1994 and 1998, the crises were mainly attributed to NPLs (Kalani and Waweru, 2009). Lending is an important element of financial intermediation, which is itself at the heart of an economy's financial architecture. It therefore needs policy makers to continually review the credit market to minimize inefficiencies that hinder faster economic growth.

According to bank supervision report CBK (2001), comparing the ratio of non-performing loans in Kenya of 33% to similar African economies as at the end of 2000, the ratio is much lower in these countries. For example in Zimbabwe it was (24%), Nigeria it was (11%) and South Africa it was (3%) which was the lowest among these African economies. According to Mullei (2003), banks were placed under statutory management for failing to meet the minimum core capitalization threshold as well as poor management of loan portfolios.

As a result of the banking failures in Kenya and to find a way forward to prevent further failures, the Credit Information Sharing mechanism was launched in Kenya following the legislation and gazette of the Credit Bureau Regulations on 11th July 2007. The Credit Bureau Regulations were issued following the amendment to the Banking Act passed in 2006 that made it mandatory for the Deposit Protection Fund and institutions licensed under the Banking Act to share information on nonperforming loans through credit reference bureaus licensed by the Central Bank of Kenya. This was the result of many years of negotiations and agreement between Kenya Bankers Association, Central Bank of Kenya, the Ministry of

Finance and the office of the Attorney General aimed at finding way forward to the challenges facing the lending environment in Kenya and especially the banking sector. (Bank supervision annual report CBK, 2007).

Schreiner (2001) indicates that financial institutions are facing an enormous risk of non-performing loans (NPLs) noting that larger loans have greater risk exposure, so the variable costs per-dollar is higher. If lenders don't take extra care, there could be more loan defaults. To overcome the challenge of NPLs, an institution is required to monitor the behavior of borrowers. Thus, the idea of establishing Credit Reference Bureau (CRB) was conceived in order to enable banks to determine credit worthiness of their borrowers, individuals, groups and enterprises; and therefore reduce the loan default risk. In this respect CRB assists in first, sharing information on default among banks; secondly, eliminating corrupt borrowers – those with the aim of borrowing from different financial institutions with the aim of defaulting; thirdly, to provide commercial professional credit reference to say prospective foreign investors; and also to identify honest/credible borrowers based on known history and character.

1.1.1 Credit Referencing

Credit Referencing is a typical response to information asymmetry problems between lenders and borrowers (Olegario 2003). A credit reference bureau is either a publically or privately owned entity that consolidates information on borrowers from lenders. Many studies have illustrated how comprehensive information helps lenders better predict borrower default. Kallberg and Udell (2003) found that historical information collected by a credit bureau had powerful default predictive power. A study by Barron and Staten (2003) showed that lenders could significantly reduce their default rate by including more

comprehensive borrower information in their default prediction models. An analogous study specific to Brazil and Argentina found similar default rate decreases when more information was available on borrowers (Powell, et al. 2004)

Credit Reference Bureaus complement the central role played by banks and other financial institutions in extending financial services within an economy. CRBs help lenders make faster and more accurate credit decisions. They collect, manage and disseminate customer information to lenders within a provided regulatory framework – in Kenya, the Banking (Credit Reference Bureau) Regulations, 2008 which was operationalised effective 2nd February 2009.

Credit histories not only provide necessary input for credit underwriting, but also allow borrowers to take their credit history from one financial institution to another, thereby making lending markets more competitive and, in the end more affordable. Credit bureaus assist in making credit accessible to more people, and enabling lenders and businesses reduce risk and fraud. Sharing of information between financial institutions in respect of customer credit behavior, therefore, has a positive economic impact. Credit Reference Bureaus (CRBs) assist in making credit accessible to more people, and enabling lenders and businesses reduce risk and fraud. Sharing of information between financial institutions in respect of customer credit behavior, therefore, has a positive economic impact.

The Central Bank of Kenya Act was amended through the Finance Act 2012, to provide for sharing of both negative and positive credit information among banks. This amendment paved the way for the adoption of full file reporting (sharing of both negative and positive information).

Various public organs in the country incorporated credit reports as a tool for vetting/determination of suitability for officers wishing to hold public office. This development has highlighted the growing importance of the credit information sharing mechanism in Kenya. It is envisioned that credit information sharing will continue to be instrumental in the decision making process of credit providers in Kenya as they seek to mitigate risks associated with information asymmetry.

Since the commencement of the Credit Information Sharing (CIS) mechanism in July 2010, all the 43 licensed commercial banks in Kenya and institutions under the Deposit Protection Fund Board continue to submit negative credit information to the licensed CRBs within the required timeframes. Further, the banks have incorporated the CIS mechanism in their credit appraisal systems by obtaining credit reports from the CRBs while appraising loan applications.

1.1.2 Non Performing Loans

Loan portfolio which constitutes a large portion of assets in most banks is relatively illiquid and exhibits the highest credit risk (Koch and MacDonald, 2000). Lending is the principle activity of commercial banks and the loan portfolio is the largest asset and the predominant source of revenue for the lending institutions (Morsman, 1993).

The question of loan default is related with non recovery or repayment of loans. When a borrower cannot repay interest and/or installment on a loan after it has become due, then it is qualified as default loan or non-performing loan (Chowdhury & Adhikary, 2002). It is known as non-performing, because the loan ceases to “perform” or generate income for the bank.

In the industry there is a general distinction between a narrow definition of NPLs and a broad definition of the expression. The narrow approach equals to the criterion stated in the regulations of the New Capital Accord of Basel II and understands NPLs as loans that are past due and unpaid for more than 90 days (usually equally to three dates of payment) (see Bundesbank, 2003, pp. 12, 13; Hamberger and Diehm, 2004, p. 182f). This classification approach resembles to the standard used in most G-10 countries (see Cortavarria et al., 2000, p. 11).

The broad definition of the term “non-performing loans” is also encompassing sub-performing loans. That loan type is already defaulted but has not met the Basel II criterion. Furthermore, the broad approach contains watch list loans which are still performing but have a certain probability of default in the near future and an internal bank rating of B– and worse (see Kroll and Mercer Oliver Wyman, 2005, p. 6).

In contrast to other NPL markets such as the USA and several Asian countries which encompass loan portfolios of banks and financial institutions as well as publicly-traded corporate bonds, the German distressed debt market primarily consist of loans of banks or other financial institutions (Schalast and Daynes, 2005, p. 1).

Since the distinction between non- and sub-performing loans is not essential for the purpose of this analysis, in the following, the expression NPL will be used as a synonymous for all loans which are approached by resolution and workout strategies and are potentially traded in distressed debt transactions.

Many banks focus on the corporate or wholesale lending, which poses a challenge for the management to maintain the required liquidity position (Akhtar, 2007). This lending is mostly long-term, which may create liquidity problems for a bank (Kashyap et al., 2002).

The loan retirement process slows down in the banks during periods of poor production of resources in the economy. This situation gives rise to non-performing loans (NPLs). When NPLs experience a rapid increase, liquidity crisis becomes inevitable.

1.1.3 The Effect of CRBs on the Level of NPLs

By exchanging information about their customers banks can improve their knowledge of applicants' characteristics and past behaviour. In principle, this reduction of informational asymmetries can reduce adverse selection problems in lending, as well as change borrowers' incentives to repay, both directly and by changing the competitiveness of the credit market. The Indian viewpoint alluding to the concepts of 'credit culture' owing to Reddy (2004) and 'lazy banking' owing to Mohan (2003a) has an international perspective since several studies in the banking literature agree that banks' lending policy such as credit checks before issuing loans is a major driver of nonperforming loans (McGoven, 1993, Christine 1995, Sergio 1996, Bloem and Gorters, 2001).

Cumulatively, a total of 2.3 million and 28,733 credit reports had been requested by banks and customers respectively from the two licensed CRBs as at 31st December 2012. The credit reports requested by banks stabilised during the year ended 31st December 2012 at 1,015,327 in comparison to 1,021,717 reports in the year ended 31st December 2011. On the other hand, credit report requests by customers increased by 305% from 5,607 in the year 2011 to 22,692 in the year 2012. The increased utilization of credit reports by banks are expected to reduce information search costs and subsequently offer competitive terms of borrowing to customers with a good credit track record and ultimately reduce the level of NPLs .(Bank Supervision Annual Report, 2012)

According to Prof. Njuguna Ndung'u, governor Central Bank of Kenya during annual address in year 2008, noted that the realization of credit information sharing in the banking sector will not only bring good news to the banks and the banking sector but also to the borrowers and the economy as a whole in the sense that lenders will be in a position to access comprehensive credit data and will be able to price risk accordingly for both good and bad borrowers hence reducing their bad debt portfolios.

1.2 Problem Statement

The problem of non-performing loans is one that drags on the economy in that it disintermediation of bank-system lending caused by the erosion of banks' profitability, causes stagnation of economic resources and cautious behavior of corporations and consumers due to a decline in confidence in the financial system. Non-performing loans has been a persistent problem in Kenyan commercial banks, leading to the collapse of 37 banks as at 1998. Bad borrowers who know that banks have been operating in isolation have exploited the information asymmetry to create multiple bad debts in the banking industry in Kenya, distorting the lending business in the credit market thus adversely affecting bank performance, threatening banking sector stability and curtaining growth of the credit to the private sector due to the high interest charged on facilities to compensate on the credit risk. While the Kenyan commercial banks have faced difficulties over the years for a multitude of reasons, the major cause default problems continues to be directly related to not understanding the credit standards of borrowers and poor credit risk management (Central Bank Annual Supervision Report, 2000). The credit decision should be based on a thorough evaluation of the risk conditions of the lending and the characteristics of the borrower which is done by accessing credit reports from the licensed CRBs.

Bad loans fuel banking crisis and result in the collapse of some of these institutions with their attendant repercussions on the economy as a whole. Kane and Rice (2001) stated that at the peak of the financial crisis in Benin, 80% of total bank loans portfolio which was about 17% of GDP was nonperforming in the late twentieth century.

According to the banking survey by Central Bank of Kenya (2012), the high interest regime witnessed in the first half of 2012 impacted negatively on the quality of loans and advances. As a result, non-performing loans (NPLs) increased by 16.8 percent from Ksh. 53.0 billion in December 2011 to Ksh. 61.9 billion in December 2012. Similarly, the ratio of gross NPLs to gross loans increased by 2% percent in December 2012.

However, despite licensing of CRBs in Kenya and their facilitation of data and credit information sharing, no much study has been undertaken to determine their effect on non performing loans in Kenyan commercial banks. This research therefore aimed to answer the following question; what is effect of credit reference bureaus on the level of non-performing loans in commercial banks in Kenya?

1.3 Research Objective

The objective of this study is to establish the effect of credit reference bureaus on the level of non- performing loans in commercial banks in Kenya.

1.4 Value of the Study

The findings of this study will be of benefit to the management of commercial banks to develop credit risk management policies that will enable them achieve their long-term goals by enabling them to identify customers with ability to pay on time and thus can be granted credit.

The study will contribute to literature and form part of empirical review and may inspire prospective researchers to explore more dimensions in the effect of credit reference bureaus on credit access and would therefore form the basis for future research

The study also will inform and enlighten the public on the roles and impact of credit reference bureaus and credit information sharing since there is much misconception of the same.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The purpose of this chapter is exploring the various studies and publications relating to the research problem and what various scholars and authors have said about the effect of credit reference bureaus on non-performing loans. This chapter critically reviews theoretical models explaining information sharing: adverse selection theory and moral hazard theory as well as interest rates. Also critical review of empirical studies undertaken and an effort to evaluate contributions is made and pertinent knowledge gaps identified.

2.2 Theoretical Literature

2.2.1 Adverse Selection Theory

Pagano and Jappelli (1993) show that information sharing reduces adverse selection by improving banks information on credit applicants. In their mode of doing business, each banking institution has private information about local credit applicants, but has no information about foreign applicants. If banks exchange information about their clients' credit worth, they can assess also the quality of foreign credit applicants and lend to them as carefully as they lend to local customers. By reducing information asymmetry between lenders and borrowers, credit registries allow loans to be extended to safe borrowers who had previously been priced out of the market, resulting in higher aggregate lending. The impact of European Scientific Journal May 2013 edition vol.9, No.13 ISSN: 1857 – 7881 (Print) e - ISSN 1857- 7431 173 information sharing on aggregate lending in this model is vague. When banks exchange credit information about borrowers' kinds, the increase in

lending to good credit borrowers may fail to compensate for an eventual reduction in lending to risky types.

The adverse selection problem signals that when lenders cannot distinguish good from bad borrowers, all borrowers are charged an normal interest rate that reflects their pooled experience. If this rate is higher than worthy borrowers deserve, it will push some good borrowers out of the borrowing market, forcing in turn to banks charging even higher rates to the remaining borrowers. Through sharing of the credit information, the lender is able to distinguish bad borrowers from good borrowers in the market. Better access to information helps lenders measure borrower risk more accurately and to set loan terms and conditions accordingly. Good borrowers with low risk would be given more attractive prices, stimulating credit demand, and fewer higher-risk borrowers would be rationed out of the market because of lenders inability to offer these borrowers accommodating rates (Barron and Staten, 2008). Padilla and Pagano (2000), show that if banks exchange credit information on defaults, borrowers are encouraged to apply more energy in their projects. In both models non-payment is a sign of bad quality for outside banks and carries the penalty of higher interest rates or no future access to credit facility and a high chance of default.

The exchange of information between banks may also reduce the informational rents that banks can extract from their clients within lending relationships, as shown by Padilla and Pagano (1997) in the context of a two-period model where banks have private information about their borrowers. This informational advantage confers to banks some market power over their customers, and generates a hold-up problem: anticipating that banks will charge predatory rates in the future, borrowers exert low effort to perform, resulting in high default

and interest rates, and possibly market collapse. If they commit themselves to exchange information about borrowers' types, however, banks restrain their own future ability to extract informational rents, leaving a larger portion of the surplus to entrepreneurs. As a result, these will invest greater effort in their project, resulting in a lower default probability, lower interest rates and greater lending relative to the regime without information sharing.

2.2.2 Moral Hazard Theory

The moral hazard problem implies that a borrower has the incentive to default unless there are consequences for his future applications for credit. This result from the difficulty lenders have in assessing the level of wealth borrowers will have accumulated by the date on which the debt must be repaid, and not at the moment of application. If lenders cannot assess the borrower's wealth, the borrower will be tempted to default on the borrowing. Forestalling this, lenders will increase rates, leading eventually to the breakdown of the market Alary and Goller (2001)

Lenders' Moral Hazard- Padilla and Pagano (1997) developed a model in which the performance of a loan depends on the quality of the borrower and on her effort. Initially, each bank possesses private information on the quality of a borrower. As in Rajan (1992), after extending a loan to a borrower a bank can exploit its private information on his quality and threaten to withhold credit to extract rents from him (hold up). Anticipating that the returns of his effort will be (partially) appropriated by the bank, the borrower has then a reduced incentive to exert effort ex ante. In turn, this worsens his repayment performance. Banks can tackle this incentive problem by committing ex ante to sharing one with another their proprietary information about borrowers' quality. Expecting that this information pooling will promote competition among lenders, borrowers will be reassured that no hold

up will be possible and will step up their effort, lowering delinquency rates, Padilla and Pagano (1997)

Borrowers' Moral Hazard -A channel through which a credit bureau can affect lending outcomes is by imposing discipline on borrowers. In Padilla and Pagano (2000), lenders' information sharing induces borrowers to exert effort because they "perform for a broader audience", that is, if they are delinquent on their contractual obligations, their misconduct will be disclosed to more lenders. Thus in this context information sharing mitigates borrowers' moral hazard. However, Padilla and Pagano (2000) also underscore that this effect weakens if lenders pool information on borrowers' characteristics in addition to information on delinquencies. In this case, a high quality borrower knows that anyway his high quality will be disclosed to lenders, regardless of whether his credit history is good or bad.

2.2.3 Interest Rates

Interest rate is the price a borrower pays for the use of money they borrow from a lender/financial institutions or fee paid on borrowed assets, Crowley (2007). Interest can be thought of as "rent of money". Interest rates are fundamental to a 'capitalist society' and are normally expressed as a percentage rate over one year. Interest rate as a price of money indicates market information concerning probable change in the purchasing power of money or future inflation (Ngugi, 2001). Financial institutions facilitate mobilization of savings, diversification and pooling of risks and allocation of resources (Collins NJ, et al, 2011). However, since the receipts for deposits and loans are not harmonized, intermediaries like banks incur certain costs (Ngugi, 2001). They charge a price for the intermediation services offered under uncertainty and set the interest rate levels for deposits and loans. The disparity

between the gross costs of borrowing and the net return on lending defines the intermediary costs which include information costs, transaction costs, administration, default costs and operational costs (Rhyne, 2002). Interest rate spread is well-defined by market microstructure characteristics of the banking sector and the policy environment (Ngugi, 2001).

Further, Chand (2002) singles out issues of governance which encompasses maintenance of law and order and provision of basic transport and communications, all imposing on security, a lack of which has been found to be a cause for high transaction costs resulting in large intermediation costs. When there is high intermediation cost, reflected in the high interest rate spread; the borrower may be unable to repay his/her loan owing to the cost of such borrowings.

2.3 Empirical Studies

A growing body of empirical evidence supports the hypothesis that information sharing enhances successful credit risk management. Analyses of credit bureau data confirm that credit reporting reduces the selection costs of lenders by allowing them to more accurately predict individual loan defaults (Barron and Staten, 2003; Kallberg and Udell, 2003; Powell et al., 2004; Luoto et al., 2007).

Experimental evidence by Brown and Zehnder (2007) shows that a public credit reference bureaus can motivate borrowers to repay loans, when they would otherwise default. The impact of information sharing on the level of non-performing loans has been tested by two cross-country studies. Based on their own survey of credit reporting in 43 countries, Jappelli and Pagano (2002) show that bank lending to the private sector is larger and default rates are lower in countries where information sharing is more solidly established and extensive.

These cross-sectional relations persist also controlling for other economic and institutional determinants of bank lending, such as country size, GDP, growth rate, and variables capturing respect for the law and protection of creditor rights.

Djankov et al. (2007) confirm that private sector credit relative to GDP is positively correlated with information sharing in their study of credit market performance and institutional arrangements in 129 countries for the period 1978–2003. Firm-level data suggest that information sharing may indeed have a differential impact on credit availability for different firm types. Love and Mylenko (2003) combine cross-sectional firm-level data from the 1999 World Business Environment Survey with aggregate data on private and public registries collected in Miller (2003). They find that private credit bureaus are associated with lower perceived financing constraints and a higher share of bank financing (while public credit registries are not), and that these correlations are particularly strong for small and young firms.

Galindo and Miller (2001) also provide evidence that information sharing reduces credit constraints at firm level. Examining balance sheet data of large companies in 23 countries they find a positive relation between credit access and an index of information sharing. Evidence also supports the theory that information sharing reduces moral hazard. Doblas-Madrid and Minetti (2009) find that if lenders enter credit information sharing institution, their borrowers improve their repayment performance –delinquent payments on leases and loans decrease.

Brown and Zehnder (2007) find empirical evidence that the lending market would collapse due to credit risk in the absence of information sharing institution and reputational banking. However, their study also showed that establishing credit reference bureaus encouraged borrowers to repay their loans by allowing lenders to identify borrowers with a good payment history. The study showed that an information sharing institution positively impacted the credit market in the following ways: Without credit reference bureaus, borrowers had a tendency to repay loans only when they planned to maintain their current lending relationship. However, in economies with a credit information institution, borrowers had a higher chance of repaying their loans regardless of whether they were planning to continue their current lending relationship or not. Thus, it can be implied that credit sharing institutions, by documenting borrower behaviour, can positively impact borrower repayment and reduce NPLs.

The presence of CRBs reduces the information monopoly of a lender on its borrowers, thus reducing the extra rents that lenders can charge their clients. According to Jared Getenga (2007), one of the features that banks deliberate when deciding on a loan credit application is the estimated chances of recovery. To arrive at this, credit information is required on how well the applicant has honoured past loan obligations. This credit information is important because there is usually a definite relationship between past and future performance in loan repayment. Very often, this history is not within the bank's reach because the potential borrower's repayment records are scattered in the various archives of the other financial institutions where the customer has previously borrowed. Whenever a borrower has credit information that the lender cannot access, this is officially referred to as information asymmetry.

Kalberg and Udell (2003) also point out that information exchange from multiple sources improves the precision of the signal about the quality of the credit seeker. As a result, the default rate reduces. In contrast, the effect on lending is vague, because when banks exchange credit information about borrowers' categories, the implied increase in lending to good borrowers may fail to compensate for the reduction in lending to risky borrowers.

Banking competition for borrowers strengthens the positive effect of information sharing on lending: when credit markets are competitive, information sharing reduces informational interest charged and increases banking competition, which in turn leads to increased lending. Information sharing can also create incentives for borrowers to perform in line with banks' interests. Klein (1992) shows that information sharing can motivate borrowers to pay their loans, when the legal atmosphere makes it difficult for banks to implement credit agreements. In this model borrowers repay their loans because they know that defaulters will be blacklisted, reducing external finance in future.

Some papers analyze the effectiveness of credit bureaus, and generally find that credit reports are an important tool to assess consumer default risk (Chandler and Parker, 1992; Barron and Staten, 2003). This is confirmed by Kalberg and Udell (2003), who document that trade credit history in Dun & Bradstreet's reports improves default predictions relative to financial statements alone.

Also Cowan and De Gregorio (2003) find that in Chile positive and negative information in credit reports contributes to predict defaults. This improved assessment of credit risk appears to translate into higher lending. Galindo and Miller (2001) find a positive relation between

access to finance (debt) and an index of information sharing in the Worldscope database, using the firm-level sensitivity of investment to cash flow as a proxy of credit constraints. They find that well-performing credit reporting systems reduce the sensitivity of investment to cash flows.

Using a pseudo panel-based model for several Sub-Saharan African countries, Fofack (2005) finds evidence that economic growth, real exchange rate appreciation, the real interest rate, net interest margins, and inter-bank loans are significant determinants of NPLs in these countries. The author attributes the strong association between the macroeconomic factors and non-performing loans to the undiversified nature of some African economies.

2.4 Summary of the Literature Review

Commercial banks and financial institutions are now exposed to non performance of loans caused by high default rates by borrowers. Studies show that the management of default risk and ultimate reduction of NPLs has become essential for the survival of banks. The focus of good risk management is the identification and treatment of these risks and objective is to add value to all the activities of the commercial banks. The effect of such management from the studies shows that it increases the probability of success, and reduces the probability of NPLs and hence the profitability of the banks.

The presence of CRBs from the studies carried out depicts that there is a reduction the information monopoly of a lender on its borrowers, thus reducing the extra rents that lenders can charge their clients. A number of studies have been carried out about many aspects of information sharing in other parts of the world outside Africa and little focus has been laid to African and more so Kenya. This study therefore was done to fill this knowledge gap by establishing the effects of CRBs on level of NPLs in commercial banks in Kenya

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the research design and methodology of this study. It describes the target population, the data collection methods, as well as data analysis. This chapter contains; research design, target population, data collection, data analysis and the research model.

3.2 Research Design

An events study was used for the purposes this study. An event study is concerned with the impact of an event on corporations. Economy-wide events are often used in large sample event studies, which examine the effect of a particular event on relevant firms e.g. a new item of legislature (Schipper and Thompson, 1983; Schumann, 1988). The event in this case was the legislation of Credit Reference Bureau Regulations, 2008 which was operationalised effective 2nd February 2009 and the impact on the level of non-performing loans in commercial banks in Kenya.

3.3 Population and Sample

The target population consisted of the 43 banks as licensed by the CBK. The table below shows the target population and the breakdown of the banks based on their market share.

The list of the banks is shown in appendix I

Table 3.1: Target Population

Category	Banks Share	Market	Number of Banks	Percentage
Large	53.7%		6	14%
Medium	36.8%		15	35%
Small	9.5%		22	51%
Total	100%		43	100%

Source (Bank Supervision Report 2012)

The census approach or study was used where 42 banks were used to get the information required. One bank was left out since it is under statutory management and not operational

3.4 Data Collection

Secondary data was used to analyse the level of non-performing loans. Data was obtained from the annual financial statements for the six years from 2007 to 2012, as these financial statements are audited, they are considered to have an acceptable level of reliability (Neuman 1997). Other relevant data was obtained from various internal reports, other official documents and relevant publications such as the bank supervisions report.

The credit referencing and checks data was collected from Credit Reference Bureau Africa Limited.

3.5 Data Analysis

To meet the objective of the study, secondary data collected from the financial statements from the year 2007-2012. These statements were available on each of the banks website and provided the gross NPLs, the net loans and advances and the provisions for the loans and

advances. To arrive at the gross loans and advances, the provisions were added back to the net loans and advances. The data was then analysed by way of statistical tests specifically t-test and Microsoft excel spreadsheet was used to perform the calculation

The number of credit checks done by the banks was collected from Credit Reference Bureau Africa Limited and was provided by analysis team of the company. The data was then analysed using regression analysis and t-tests, Microsoft excel spreadsheet was used to perform the calculation

The result for the two tests was then presented in tables and graphs and interpreted in order to draw conclusions and recommendations. Further analysis of quantitative data was then done by narrative analysis. The researcher presented the description of the findings for reader's interpretations and opinion.

In the events study approach, first I used mean-adjusted return model to tabulate the normal level of non-performing loans before the introduction of the legislation. This was tabulated by taking an average level of non-performing loans for of each sample bank for the year 2007-2009.

NPL data relating to the period 2010-2012 (after introduction of CRBs) was collected and analysed against the normal return to give the change in level of NPLs as below:

$$ARit = Rit - NRit$$

Where

ARit- change in the level of NPL of bank *i* at time *t*

Rit- actual level of NPL of bank *i* at time *t*

NRit- normal level of NPL

A t-test statistical analysis was performed to test if CRBs influence the level of NPLs. The null hypothesis is CRBs have no influence on the level of NPLs

ARit=0

The t-statistical formula used was:

$$t = \frac{x - \mu_0}{s/\sqrt{n}}$$

Where:

s-is the sample standard deviation

n-is the sample size.

The degree of freedom used in this test is $n - 1$

μ_0 - is the overall average value of the level of NPLs and

x -is the sampling average value of the level of NPLs

Further analysis was used to show the relationship between the variables;

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon$$

Where:

Y=Level of Non-Performing Loans

β_0 =the constant variables that affect level of NPLs of commercial banks in Kenya when the predictor values X_1 is zero

β_1 , = Is constant regression coefficient representing the condition of the independent variables to the dependent variable

X1- Credit Information Sharing

ε - Error term explain the variability of factors under study.

Using Ms Excel we carried out The Analysis of Variance (ANOVA) to test the significance of the model, the constant and coefficient of the model.

3.5.1 Test of Significance

Using Ms Excel we carried out The Analysis of Variance (ANOVA) to test the significance of the model, the constant and coefficient of the model. To conduct the tests, the Hypothesis had to be formulated as indicated below:

Ho: $\beta_1=0$

Implies that X_1 (the number of credit checks) is unimportant on predicting Y (level of NPL)

Ha: $\beta_1>0$ or $\beta_1<0$

Implies that X_1 (the number of credit checks) is important on predicting Y (level of NPL)

At 95% confidence level, the p-value would be 5% (0.05). After the tests, the study considered the resultant p-values (sig. value) to enable a decision to be taken on whether the model, constant and coefficient in the model are significant. P-value smaller than 0.05 implied significant models, constant and the coefficient and vice versa

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents analysis and findings of the study as set out in the research methodology of the effect of CRBs on the level of NPLs in the commercial banks in Kenya based on the following research question: what is effect of credit reference bureaus on the level of non- performing loans in commercial banks in Kenya? This chapter analyses the variables involved in the study and estimates of the model presented in the previous chapter.

4.2 Data Presentation

Information was collected from the published financial statements of 42 banks. This was out of an initial target of 43 banks, one bank, Charter House Bank is under statutory management and financial statements were not available. This represented more than 97% of the target population.

Data for this study was quantitative and statistical techniques were used to analyse the data. The data was processed in Excel and the processed data was then presented in tables, graphs and explanation given in prose.

The findings are presented and interpreted according to the following study objective: to establish the effect of credit reference bureaus on the level of non- performing loans in commercial banks in Kenya

4.3 Mean-Adjusted Return Model

The ratio of gross nonperforming loans to the loans and advances of the banks (Net loans and advances plus the loan loss provisions) was analysed from 2007-2012. The average level of NPLs in 2007-2009 was taken to depict the normal level of non-performing loans before

the introduction of the legislation (CRBs) and the average ratio of NPL in 2010, 2011 and 2012 was measured to give the change in the NPLs in 2010, 2011 and 2012.

Figure 4.1 shows the average level of NPLs before the introduction of CRBs and after the introduction of CRBs.

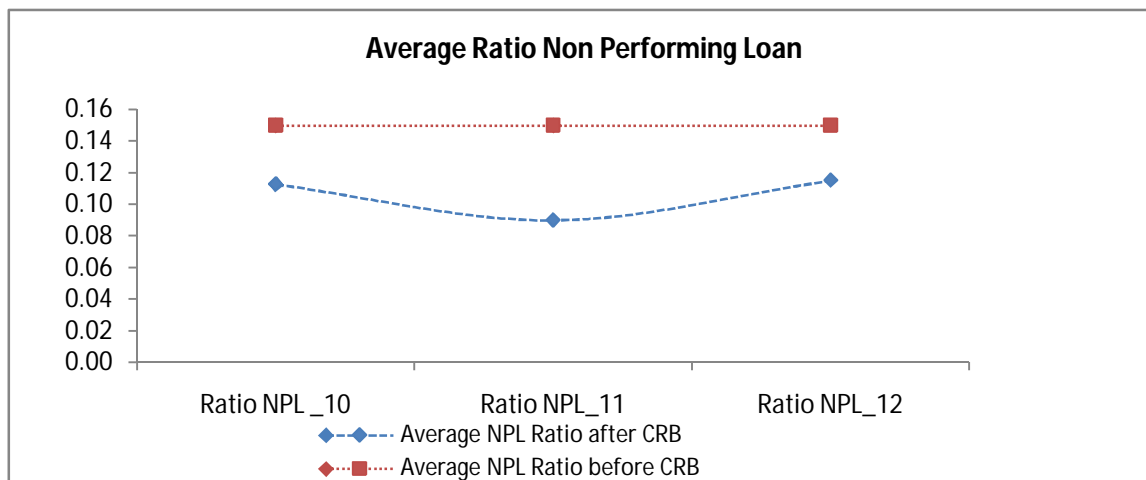


Figure4.1- Average ratio of NPLs 2007-2012 (Source: Author)

In the period 2007 to 2009, the ratio of NPL was averagely at 15%, this dropped to 11% 2010, followed by a drop to 9% in 2011 and a rise to 13% in 2012. Evidently, the ratio of non- performing loan seems to be low in the period after 2009. Hence, indicating that there was an effect of credit reference bureaus in same period. The level of NPLs reduced as a result of the introduction of CRBs.

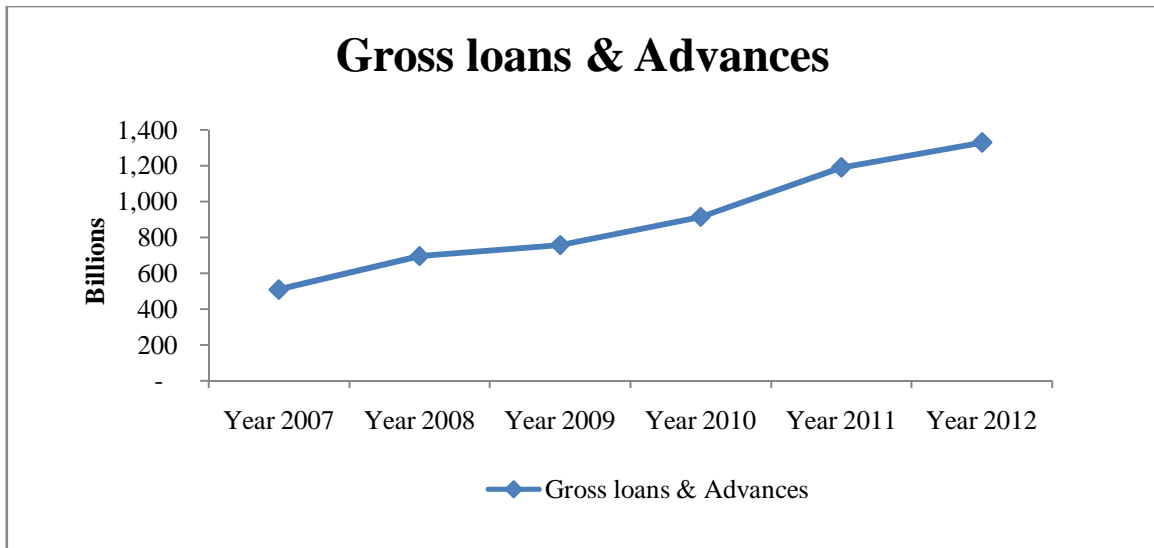


Figure4.2- Gross loans and advances 2007-2012 (Source: Author)

In the period 2007 to 2009, the level of gross loans and advances increased steadily from 508.7 billion in 2007 to 1330.40 billion in 2012 as shown in table above.

4.4 T-Test Analysis on the effect of CRBs on the Level of NPLs

A t-test statistical analysis was performed to test if CRBs influence the level of NPLs with the results from above.

Null hypothesis: There is no positive significant effect of credit reference bureaus on the level of non- performing loans in commercial banks in Kenya

Alternative hypothesis: There is positive significant effect of credit reference bureaus on the level of non- performing loans in commercial banks in Kenya

The confidence level is 95% implying that p-value is at 0.05(5%).

For $P < 0.05$, we reject the Null hypothesis.

In 2010, the two-tail p-value for this t-test is $p=0.003$ (0.00307475) and $t=3.13$. Since, the p is actually less than 0.05, We therefore reject the null hypothesis and conclude that there is sufficient statistical significant evidence that the presence of credit reference bureaus had effect on the level of non- performing loans in commercial banks in Kenya in the year 2010 as shown on appendix II.

In 2011, the two-tail p-value for this t-test is $p=0.04$ (0.043684682) and $t=2.04$. Since, the p is actually less than 0.05, we therefore reject the null hypothesis and conclude that there is sufficient statistical significant evidence that the presence of credit reference bureaus had effect on the level of non- performing loans in commercial banks in Kenya in the year 2011 as shown on appendix III.

In 2012, the two-tail p-value for this t-test is $p=0.177$ (0.177531025) and $t=1.37$. Since, the p is actually greater than 0.05, we therefore do not reject the null hypothesis and conclude that there is no sufficient statistical significant evidence that the presence of credit reference bureaus had effect on the level of non- performing loans in commercial banks in Kenya in the year 2012 on appendix IV

4.5 Level of NPLs and number of credit checks/reports at CRB

To show the relationship between the level of NPLs and CRB, regression analysis was carried out on the number of checks done at Credit Reference Bureau Africa and the level of NPLs.

The number of checks increased as shown on the graphs below:

2010

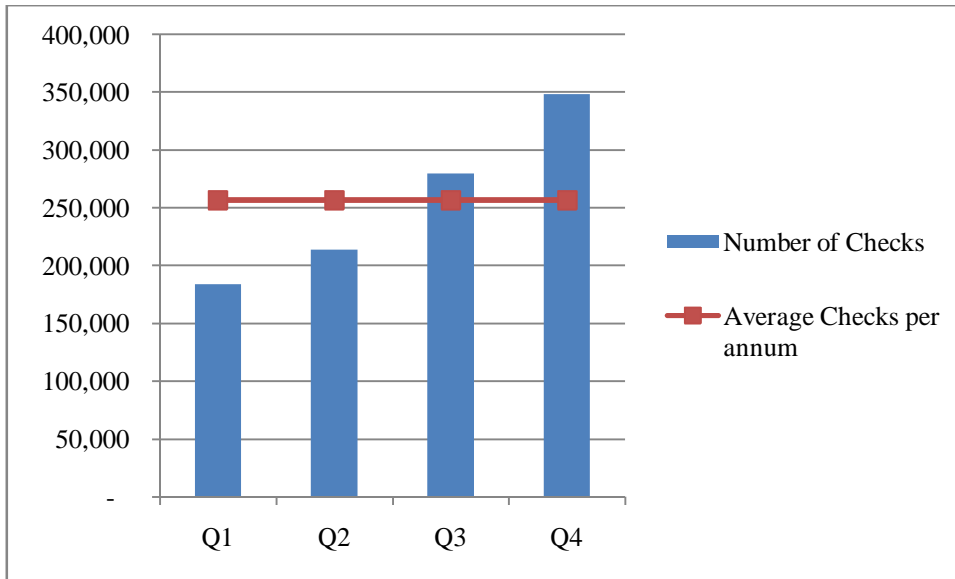


Figure 4.3- Checks per annum 2010

There was an upward trend in the number of checks in 2010. Commercial banks in Kenya started submitting data to the bureaus in 2010.

2011

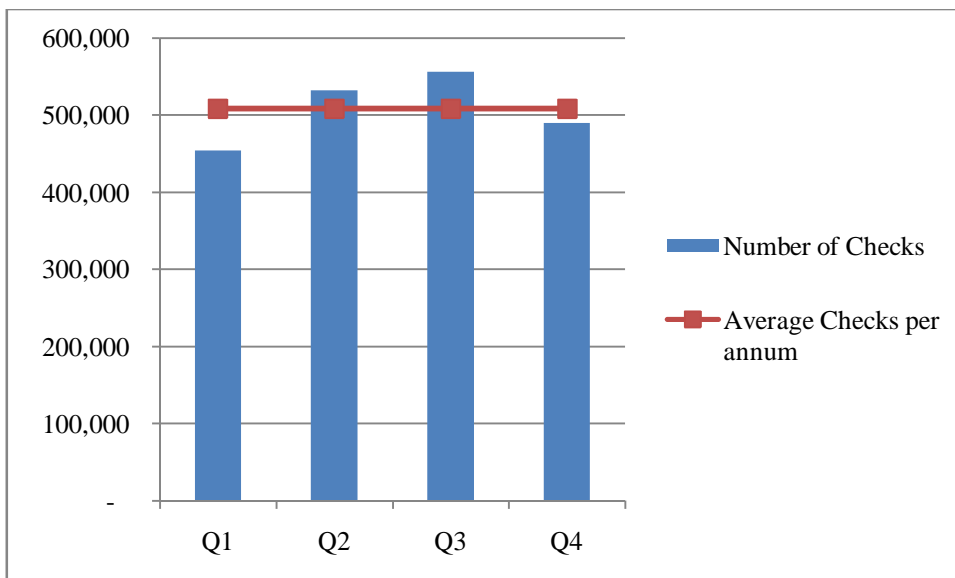


Figure 4.4- Checks per annum 2011

In 2011 there was a steady increase in the number of checks done by the commercial banks all through 2011 except in the fourth quarter when interest rates started rising.

2012

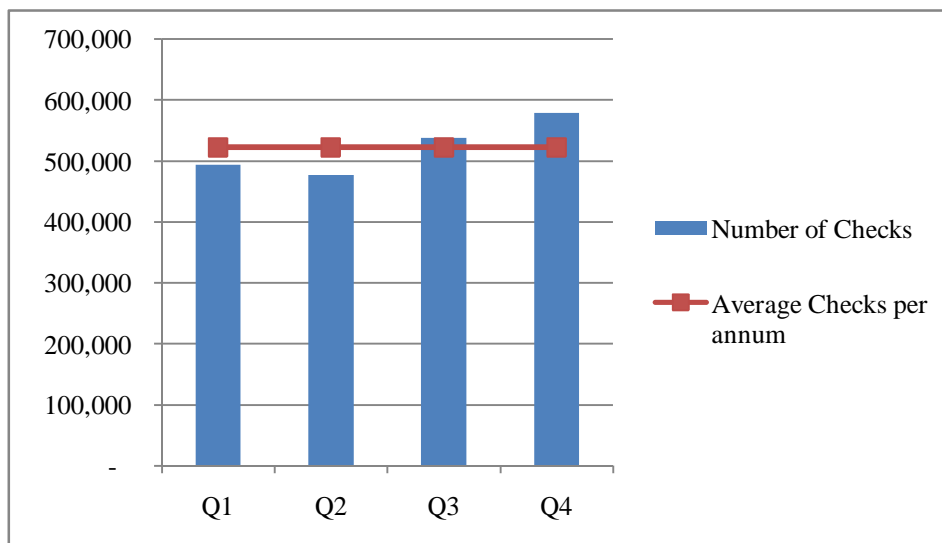


Figure 4.5- Checks per annum 2012

In 2012 there was a below average number of checks done by the commercial banks all in the first half of the year due to the increase in inflation and interest rates but later picked up in second half of 2012.

4.6 Regression Analysis

Regression analysis was carried out to determine the relationship between CRBs and the level of NPLs in the commercial banks in Kenya

Regression Statistics	
Multiple R	0.8456
R Square	0.7150
Adjusted R Square	0.7079
Standard Error	0.0587
Observations	42

Table 4.1 –Regression Statistics

The adjusted R^2 is known as Coefficient of determination. It measures the proportion of change in the dependent variable, in this case Non- performing Loan, the can be explained by the independent variable, the credit checks. An adjusted R^2 of 0.70(70%) implies that 70% change in Non-performing loans can be explained or attributed to by the credit checks

4.6.1 Testing the Significance of the Regression Model

Regression Model:

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon$$

Hypothesis

$$H_0: \beta_1 = 0$$

Implies that X_1 (the number of credit checks) is unimportant on predicting Y (level of NPL)

$$H_a: \beta_1 > 0 \text{ or } \beta_1 < 0$$

Implies that X_1 (the number of credit checks) is important on predicting Y (level of NPL)

ANOVA Table

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Sig. F</i>
Regression	1	0.346	0.346	100.344	0.000
Residual	40	0.138	0.003		
Total	41	0.484			

Table 4.2 –Anova Table

There are two parts to interpret in the regression output: To determine whether or not the overall regression model is significant, we consider the ANOVA table. Since the Sig F or P-value is a small number i.e. ".000" which is actually lower than level of significance of 0.05. This means that linear model significantly fits the data.

Coefficient Table

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	0.304059	0.021	14.478	0.000	0.262	0.347	0.262	0.347
Credit			-		-	-	-	-
Checks	-0.000025	0.000	10.017	0.000	0.00003	0.00002	0.00003	0.00002

Table 4.3 –Coefficient Table

The second part of the regression output to interpret is the Coefficients table "Sig.". Here two values are given. One is the significance of the Constant (intercept) in the regression equation. It merely tells us that this value is (0.304) significantly different to zero. If some Bank were to score zero on the credit Checks we would predict an average score of 0.304 for the Non-Performing loans.

The second "Sig." value gives us the significance of the predictor of the dependent variable (Non-Performing Loans).

In this case we are using only one predictor (credit Checks), so because the overall model is significant, the "Sig." value is actually lower 0.05 level of significance. We therefore conclude that credit checks are significant in predicting the Non performing loans

The resultant regression model is:

$$Y = 0.304 - 2.5 \times 10^{-5} X_1 \text{ or}$$

$$\text{Level of NPL} = 0.304 - 2.5 \times 10^{-5} \text{Number of checks}$$

$$\beta_1 = -2.5 \times 10^{-5}$$

$$\beta_0 = 0.304$$

Without the presence of CRBs the contribution from other factors affecting the level of NPLs can be measured by (β_0) which in this case is given by 0.304.

Otherwise the contribution of the CRBs to the level NPLs in commercial banks in Kenya can be measured by (β_1) which in this case is 2.5×10^{-5}

Therefore the presence of CRBs does have an effect on the level of NPLs in commercial banks in Kenya.

4.7 Summary of Findings and Discussions

4.7.1 Effect of CRBs on the NPLs on Commercial Banks in Kenya

The results from the tests revealed a significant drop in the level of NPLs after the introduction of CRBs in 2010, 2011 and 2012. In the period 2007 to 2009, the ratio of NPL was averagely at 15%, this dropped to 11% 2010, followed by a drop to 9% in 2011 and a rise to 11.5% in 2012 as shown on Fig 4.1

The findings above are in line with the findings of Padilla and Pagano (2000) and Madrid and Minetti (2009) that information sharing reduces borrowers moral hazard .When customers expect that their borrowing delinquencies will be shared, this information pooling will lead to discipline on payment thus lowering delinquency rates and the level of NPLs.

The results from the tests revealed a rise in the gross loans and advances after the introduction of CRBs in 2010, 2011 and 2012. In the period 2007 to 2009, the gross loans and advances awarded by the banks increased from 914.90 in 2010 to 1330.40 in 2012 as shown on Fig 4.2

The findings above are in line with the findings of Pagano and Jappelli (1993) that information sharing reduces adverse selection by improving banks information on credit applicants and when banks exchange credit information about borrowers' kinds, there is increase in lending to good credit borrowers. By reducing information asymmetry between lenders and borrowers, credit registries allow loans to be extended to safe borrowers who had previously been priced out of the market, resulting in higher aggregate lending.

There is an inverse relationship between the number of credit checks done by the banks and the level of NPLs in the banks as shown on the regression model and table 4.3. The findings

above are in line with the findings of Jappelli and Pagano (2002) show that bank lending to the private sector is larger and default rates are lower in countries where information sharing is more solidly established and extensive.

Further research on the credit checks showed that the number of checks done in steadily increased from 2010-2012. But in 2012 at the checks done at Credit Reference Bureau Africa by the banks reduced tremendously (below average) in the first half of 2012 showing that not many checks were done by the banks when issuing loans thus not much emphasis was laid in CRBs in the first half. The findings also reveal that the NPLs were not influenced by the presence of CRBs suggesting that other variables other than credit reference bureaus impact on the level of NPLs.

Similar to previous studies, however, we find a significant positive contemporaneous association between the real interest rate variable) and NPLs (Fofack, 2005). This indicates that when a commercial bank increases its real interest rates this may translate immediately into higher non-performing loans.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter presents the summary of findings, conclusions drawn from the findings, policy recommendations and recommendations for further studies. The chapter also highlights the limitations of the study.

5.2 Summary of the Research Findings

The research project objective was to evaluate the effect of credit reference bureaus on the level of nonperforming loans in the commercial banks in Kenya. The research focuses on the level of NPLs before the introduction of CRBs and the level of NPLs after the introduction of CRBs.

The study showed that the introduction of CRB had an effect on the level of NPLs in the year 2010 & 2011. Availability of information about the borrowers by the banks does surely reduce the use level of NPLs. This is supported by the findings of Kalberg and Udell (2003) that the information exchange from multiple sources improves the precision of the signal about the quality of the credit seeker and as a result, the default rate reduces.

In 2012 however the study showed that the level of NPLs was not affected by the CRBs, reason being there was a rise in inflation and the level of interest rates in the first half in 2012 led to an increase in the level of NPLs. According to previous studies by Barron and Staten (2008) good borrowers with low risk would be given more attractive prices, stimulating credit demand but this did not happen in Kenyan commercial banks and the

interest rates affected both the good and bad borrowers leading to an increase in the level of NPLs

5.3 Conclusion

The study concluded that indeed credit reference bureaus have an effect on the level of nonperforming loans in the commercial banks in Kenya.

The passing of the Banking Act passed in 2006 that made it mandatory for the Deposit Protection Fund and institutions licensed under the Banking Act to share information on nonperforming loans through credit reference bureaus licensed by the Central Bank of Kenya and the establishment of a Credit Referencing Bureaus in Kenya represents a significant undertaking and from the study carried out, this has added value to the banks.

In addition, the study also concludes that lenders therefore need to base their decisions on relevant information about their borrowers on automated and sophisticated credit information sharing systems which are key to managing credit risk. This will result in better risk management for lenders, reduced NPLs and improved profitability.

The study concludes that Credit Referencing Bureaus in Kenya are key enablers for the growth of a nation's consumer economy and the quality of consumer credit portfolios, whilst protecting the privacy and credit exposure of individual consumers.

Additionally the study also concludes that CRBs offers credit scoring and information sharing that can facilitate the building of information capital that will guide the pricing of loans by financial institutions. Banks at the appraisal stage can price loans with vastly

enhanced information set as compared to the current situation. Customers, armed with their credit histories, will also be empowered to negotiate better terms for credit with banks. This is definitely a win-win situation that will catalyze growth of credit for investment and wealth creation.

The study further concludes that, other factors that lead to bad loans in the bank are; high interest rates that make it hard for some to pay and diversion of funds by borrowers. These causes make many borrowers not to honour their obligations hence leading to many nonperforming loans like was the case in 2012.

5.4 Limitations of the Study

The target population used for this study was small compared to the population of all lending institutions in Kenya. Whereas all lending institutions may require the services of CRBs, only banks have access to this service thus limiting the study of the effect of CRBs to NPLs of commercial banks in Kenya only.

This study applied the use secondary data only. The collection of secondary data from the annual reports of the banks was also a challenge since some banks did not have annual reports from way back in 2007 on their websites. The researcher however, managed to contact the banks and the annual reports were provided.

The fact that the study only used secondary data limited the scope of the study. Primary data may have been collected by way of questionnaires to determine factors like the loan application processes, if checks were done on all loans and advances awarded and if the banks stakeholders thought that CRBs had an effect on the level of NPLs.

The event study model was used to test the effect of CRBs on the level of NPLs in the commercial banks in Kenya. The introduction of CRBs in this case was the event. There are other events that may also affect the level of NPLs such as interest. Therefore, the use of CRBs only was limiting.

The time period for collection of data was limited and this posed a challenge. Data for this study was collected within a period of one month and given the depth of the study, one month was not adequate. Due to the limited time period, secondary data from the financial statements for the period before the introduction of CRBs was collected for only three years, 2007 and 2009. This limited the scope of the study.

5.5 Recommendations of the Study

5.5.1 Policy Recommendation

Based on the findings, the researcher would recommend that the banks could establish a credit management team that would be responsible and ensure that all customers who may seek to take up a facility with the bank are vetted and checked against the licensed CRBs in Kenya before the approval of the facility.

The researcher would recommend that the other sectors in the industry may make use of CIS by asking their customers, employees and suppliers for their credit reports which are readily available from the CRBs before transacting, employing or doing business with them as this will go a long way in enhancing a culture of credit worthiness.

The government should license more bureaus to increase the availability of information among the banks and as well as individuals.

Regulations should place emphasis on confidentiality of information handled by CRBs and also places stringent restrictions on the use and application of such information. Banks and CRBs should not share information with unauthorized third parties. The regulations need to provide for stringent penalties for such breaches by CRBs

The government and commercial banks in Kenya should carry out awareness seminars about the credit policies and the credit information sharing system to remove the negative notion of 'blacklisting' from the consumers of banking products and the general public and enhance its importance to the public.

The government should also consider allowing credit information systems extended to other non-bank credit providers in order to ensure proper credit information sharing. This is because a lot of people also get access to credit from a whole host of non-banks including, microfinance institutions, SACCOs, other financial sector regulators and utility companies.

5.5.2 Suggestions for Further Research

Further studies can be performed on other sectors of the economy other the banking industry on the factors that may affect the level of NPLs which may result in different findings.

Further research on the change of the level of non performing accounts/loans can be carried out by institutions that furnish CRBs with defaulters information such as HELB so as to determine if there is an effect of CRBs on their non performing portfolios.

Further study can be carried out on the effect of CRBs on NPLs and an expansion of the model used where one can use more than one event that affect the level of NPLs. The event

study model was used test the effect of CRBs on the level of NPLs in the commercial banks in Kenya. Multi regression can also be used with more than one factor affecting the level of NPLs

The study can be widened by collecting secondary data covering a wider period of time, for instance 10 years which may result in different findings.

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APPENDICES

Appendix I-List of Commercial Banks in Kenya

1	Kenya Commercial Bank Ltd	23	Consolidated Bank of Kenya Ltd
2	Equity Bank Ltd	24	Gulf African Bank Ltd
3	Cooperative Bank Ltd	25	Giro Commercial Bank Ltd
4	Standard Chartered Bank (K) Ltd	26	Equatorial Commercial Bank Ltd
5	Barclays Bank of Kenya Ltd	27	Fidelity Bank Ltd
6	CFC Stanbic Bank Ltd	28	Guardian Bank Ltd
7	NIC Bank Ltd	29	Victoria Commercial Bank Ltd
8	Diamond Trust Bank Ltd	30	Development Bank of Kenya Ltd
9	Commercial Bank of Africa Ltd	31	Habib A.G. Zurich
10	I&M Bank Ltd	32	K-Rep Bank Ltd
11	Citibank N.A.	33	Trans-National Bank Ltd
12	National Bank of Kenya Ltd	34	First Community Bank Ltd
13	Baroda Bank Ltd	35	Paramount Universal Bank Ltd
14	Chase Bank Ltd	36	Habib Bank Ltd
15	Bank of Africa Ltd	37	Oriental Commercial Bank Ltd
16	Prime Bank Ltd	38	Credit Bank Ltd
17	Imperial Bank Ltd	39	Jamii Bora Bank Ltd
18	Family Bank Ltd	40	Middle East Bank (K) Ltd
19	Bank of India	41	UBA Bank Kenya Ltd
20	Ecobank Kenya Ltd	42	Dubai Bank Ltd
21	African Banking Corporation Ltd	43	Charterhouse Bank Ltd
22	Fina Bank Ltd		

Appendix II- T Test 2010

T-Test: Paired Two Sample for Means

	<i>Ratio NPL 2007-2009</i>	<i>Ratio NPL 2010</i>
Mean	0.151890303	0.0928178
Variance	0.026135237	0.0092254
Observations	42	42
Pearson Correlation	0.636330084	
Hypothesized Mean Difference	0	
Degree of Freedom	41	
t Stat	3.137331706	
P(T<=t) one-tail	0.001537375	
t Critical one-tail	1.681070704	
P(T<=t) two-tail	0.00307475	
t Critical two-tail	2.016692173	

Appendix III- T Test 2011

t-Test: Paired Two Sample for Means

	<i>Ratio NPL 2007-2009</i>	<i>Ratio NPL 2011</i>
Mean	0.130094871	0.092817793
Variance	0.02242218	0.009225394
Observations	42	42
Pearson Correlation	0.593507616	
Hypothesized Mean Difference	0	
Degree of Freedom	41	
t Stat	2.048128909	
P(T<=t) one-tail	0.023342341	
t Critical one-tail	1.681070704	
P(T<=t) two-tail	0.043684682	
t Critical two-tail	2.016692173	

Appendix IV-T Test 2012

T-Test: Paired Two Sample for Means

	<i>Ratio NPL 2007-2009</i>	<i>Ratio NPL 2012</i>
Mean	0.107802946	0.092817793
Variance	0.012835879	0.009225394
Observations	42	42
Pearson Correlation	0.772092106	
Hypothesized Mean Difference	0	
Degree of Freedom	41	
t Stat	1.370862805	
P(T<=t) one-tail	0.088765512	
t Critical one-tail	1.681070704	
P(T<=t) two-tail	0.177531025	
t Critical two-tail	2.016692173	