

**EFFECTS OF CREDIT INFORMATION SHARING ON NON-
PERFORMING LOANS OF COMMERCIAL BANKS IN KENYA**

BY

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DECLARATION

This research project is my original work and has not been presented for a degree in any other university:

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DEDICATION

To

My dear loving mother

Halima Jimale

(I thank God for you every day)

And

My caring father

Musa Aden

(Your care is above all fathers in this world)

My

Sister Hafsa; and brothers Abdimalik and Suleiman

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ABBREVIATIONS AND ACRONYMS

CBK	Central Bank of Kenya
CIS	Credit Information Sharing
CRBs	Credit Reference Bureaus
IMF	International Monetary Fund
GDP	Gross Domestic Product
MFI	Monetary Financial Institutions
NPAs	Non-Performing Assets
NPLs	Non-Performing Loans
ROA	Return on Assets
ROE	Return on Equity
SPSS	Statistical Package for Social Sciences

ABSTRACT

Credit information sharing schemes help financiers in identifying the defaulters through accessing the clients' credit status as the information concerning a client is readily available through the credit bureau (CB). This study aimed at determining the effect of credit information sharing on non-performing loans in commercial banks in Kenya. A descriptive design was the preferred method as all the 43 commercial banks in the country. The preferred method of data collection was through secondary sources. An event study methodology was applied and also descriptive statistics like the mean for data analysis. Credit information sharing was compared with non-performing loans ratio 7 years before and 7 years after credit information sharing. The findings established that the t statistics for NPLs before CIS and NPLs after CIS was significant hence an indication that there was a significant positive variation in the level of nonperforming loans before and after credit information sharing. Additionally, the results revealed that t statistics value for ROA before CIS and ROA after CIS was insignificant hence an indication of no significant variation linking credit information sharing and ROA. The results also revealed the t statistics value for ROE before CIS and ROE was insignificant hence an indication that there is no significant variation between credit information sharing and ROE. It concluded information sharing significantly influences non-performing loans among commercial banks in the country but credit information sharing does not influence the profitability of commercial banks in terms of ROA and ROE. The study recommended that management of commercial banks to continue sharing credit information in order to reduce the level of nonperforming loans.

CHAPTER ONE:

INTRODUCTION

1.1 Background of the Study

Credit References Bureaus (CRBs) are institutions that serve a complement commercial banks' lending activity. Credit bureaus are information brokers, who provide lenders with repayment habits and current in-debtness of credit applicants (Sinare, 2008). Non-performing loans (NPLs) arise when, for lack of information, un-creditworth borrowers are given loans. Often this threatens the survival of banks. Schreiner (2001) notes that most financial institutions are affected by non-performing loans. Consequently, banks globally have adopted the need to screen prospective borrowers by independent agencies, to establish their credit-worthiness before advancing funds to them. Such agencies facilitate credit information sharing. This is a concept financial institutions and related bodies share credit worthiness of a person seeking to secure a loan, lately, through a central body, called Credit reference bureaus

Various theories and scholars have reiterated that sharing credit information helps in separating risky borrowers from safe ones and at the same time lower the lending rates (Artigas, 2004). Moral hazard arises where the borrower does not honor the pledge of repaying the loan (McIntosh & Wydick, 2007). There may exist Information asymmetry where one party has more information pertaining the market than other competing parties while adverse selection is the inability of the lender to separate the safe borrowers from the risky ones (Curak, Pepur & Poposki, 2013). Thus, CIS solves the moral hazard and adverse selection problems through credit reference bureaus, which act

to bridge the gap on the information pertaining to a particular borrower which they avail to the lenders (Maina et al., 2016).

The Kenyan scenario has seen banks lend money to serial defaulters. This arises from the fact that these institutions have different credit information about their borrowers. Borrowers have continuously taken advantage of the inadequate information by the lenders hence the increased number of defaulters in many financial institutions. This has consequently led to rise in level of NPAs. Banks face problems dealing with asymmetric information which is due to borrowers' informational blurriness and moral hazard that exists in credit markets. Thus, the challenge of non-performing loans prompted the CBK and other stakeholders like KBA, to amend the Banking Act (Cap 488 Laws of Kenya) to allow for sharing of information regarding non-performing loans. As matter of fact, section 31 (4) of the Banking Act provides for creation of credit reference bureaus (CRBs) as a vehicle for information sharing for purposes of addressing NPLs problem in Kenya's commercial banks.

1.1.1 Credit Information Sharing

This refers to the procedure whereby financiers present the information concerning the credit status of their clients to CRB so other credit providers can share (Jappelli & Pagano, 2005). They help assign the information concerning the clients' creditworthiness, which helps in reducing the number of NPLs among the financial institutions (Peria & Singh, 2014). The report produced by the CRB include client's particulars such as; information on loan repayment, debtor's character, bankruptcy, delay in loan repayment settlement (Wasseja, Oseso & Ochieng, 2016).

Credit information sharing schemes help financiers to avoid the excessive losses suffered when they lend to the risky borrowers which increases the number of NPLs and this information is availed by the credit bureaus which are publicly or privately owned (Peria& Singh, 2014). This is a common and vital factor in the current banking system as each and every client has to be screened before accessing funds from any financial institution since MFI's provides for both their institution clients and those of other banks. Moreover, information sharing allows creditors make a proper assessment of potential customer risk profile and hence the institutions are able to separate the safe from risky borrowers (Turner & Varghese, 2010).

This is vital especially among the developing nations whereby majority of the citizens are low income earners and default rate is high (Brown et al., 2007). CIS enables banks to distinguish between bad and good borrowers. Therefore, defaulters will not be able to walk into a bank and get credit. Lenders who provide their personal information to credit bureaus are able to accessthe information presented on time (Jappelli& Pagano, 2005). The number of reports generated by credit bureaus and requested by lenders and clients is frequently used to proxy the level of credit information sharing.

1.1.2 Non Performing Loans

The Basel Committee (2001)and the International Monetary Fund (IMF) assert thatnon-performing is one whose both interest on the loan, and the relevant portion of the principal has not been paid for a period of over 90 days. Similarly, any loan whose outstanding interest is capitalized, financed again,or on agreement, the payment of such

interest has been deferred; and /or where there are sufficient reasons to believe that recovery of such outstanding interest in full is questionable.

Nonperforming loans have negative effect on economic and financial costs. Their presence hampers investment, increases deposit liabilities, shrinks the operations margin and limits bank liquidity. This in turn, constrains the availability of credit. When left to compound, an economic credit crunch will result from the erosion of the bank's assets therefore banks continually incur costs to manage NPLs through the use of reference bureaus, allocating provisions and outsourcing debt recovery services (Sultana, 2002).

Leyland and Pyle (1977) found banks with more NPLs incurring carrying costs on non-income generating assets which stunt profitability and adequacy of the bank's capital. They also stated that quality assets are dependent on credit information. According to Nelson, Vasanthi, and Selvaraju (2006), if the banks are not keen to ensure that their loans do not go into default then these blue chip companies will go tumbling down and the entire economy will be threatened. Portfolio management strategies are key objectives observed by banks so as to reduce NPLs are important objectives of the banks. Since unsecured personal loan policies change rapidly, stringent measures such as adherence to credit information sharing have been enhanced to curb this dynamism.

1.1.3 Credit Information Sharing and Non-Performing Loans

Although loans are the major source of commercial banks revenues, they are also the major contributors of their collapse through high number of defaults which is a common thing especially among the low-income earners. Credit risk can be defined as the risks that a borrower may not repay a loan making the lender to lose on principal or interest

accruing. When the growth of NPLs increases and loans fail to perform, the liquidity of as well as the returns are affected negatively. This eventually leads to a banking crisis (Kipyego&Wandera, 2013).

According to Padilla and Pagano (2000), exchanging borrowers' information has several effects which include the knowledge that banks have about loan applicants' characteristics as well as reduce problems of adverse selection. It also reduces the informational surplus costs that banks could possibly incur to get information from their customers. On the other hand, information exchange is used as a tool to discipline borrowers whereby it helps in closing out insolvent debtors from credit while assisting to eliminate the borrowers' incentive to be overly indebted through simultaneous multiple borrowing from many banks without their knowledge.

A study by Ocharo (2013) on the impact of sharing information on NPLs in Kenyan commercial banks established that there is a negative effect on credit information sharing and NPLs and that the level of NPLs tends to reduce with increase in credit information sharing. Additionally, Kisengese (2014) also assessed the effects of CRB on NPLs in Kenyan banks and revealed an existence of an inverse correlation linking the two variables.

1.1.4 Commercial Banks in Kenya

The banking sector in Kenya comprises of 43 banks with 42 being commercial banks and 1 as a mortgage finance company (MFC). Commercial banks in Kenya are classified into large bank, medium banks and small banks. Large banks have a cumulative composite index of above 5 percent, below 5 but above 1 are medium banks while below 1 are small

banks. The index is computed on the basis of assets base, size of deposits, capital adequacy, and number of deposit accounts and loan accounts.

Since independence, Kenya financial sector grown from 5 banks to 83 bank in 1980, then closed 43 banks between 1980-2005. This is besides the recent banking stress of 2015-16. Putting the current number at 43 banks (Misati, Njoroge, Kamau and Ouma, 2010). Since the Commercial banks has expanded its branch network giving it a growth of 530 to 1,102 branches as from the beginning of 1999 to the end of June 2011, deposit accounts rose from one million ranging 20,000- 30,000 staff whereas ATMs registered an increase from 262 to 2,021, (CBK, 2011).

The contribution of the banking industry is critical in achieving vision 2030 aspiration. Banks are faced with the task of developing a safe and reliable payment system amongst business people and organization. Trust, confidence and integrity in ICT payment systems can only be achieved through the use of internet (GoK, 2008).

1.2 Research Problem

Credit bureaus have emerged as essential information centers for probable lender in any economy. Their services have been appreciated by all lenders who do not want the risk of incurring bad and non-recoverable loans arising from loan defaulters. For banks, nonperforming loans have been a major source of banking stress. This is based on the fact that the business of a bank is lending money for interest income, and loan recovery. Consequently, loan defaulting simply brings down the entire business of a bank. In support of the recommendations by Basel 11 (bank committee of banking supervision, 2005), globally, banks should adopt practices of credit risk management that

are most suitable so as to keep off falling into problems of non-performing loans which influence its performance. Identification of poor creditors before issuing loans to them is all what CBRs should do.

Most of the financial institutions in Kenya have suffered from information asymmetry which breeds the adverse selection and moral hazard problem. Over the years, customers have been enjoying the regulatory protection of confidentiality. Banks were prohibited from sharing customer banking information and this led to increasing information asymmetry and non-performing loans, since defaulters could move from one bank to another without detection. According to CBK banking supervision report of 2016, commercial banks and other institutions under the deposit protection fund board have progressively submitted credit information about their borrowers to the licensed CRBs within the laid-out timelines as per the requirements of the credit Information Sharing (CIS) mechanism. The banking sector has resorted into integrating the CIS reports before considering advancing loans.

Several international empirical studies have been undertaken on credit information sharing. Peria and Singh (2014) analyzed the effect of credit bureaus on accessing loans in the financial institutions where the results revealed that they have tremendously improved the ease at which loans can be accessed especially among the nations whereby contract execution is weaker but the study did not focus on nonperforming loans. Grajzl and Laptieva (2011) also studied the effect of sharing credit information and profitability of banks in Ukraine where a direct correlation linking the two variables was established but the study focused on lending and not on NPLs.

Locally, a few studies have been carried out around credit information sharing and how it impacts on profitability of banking sector in Kenya. They include Aloyo (2013) who examined the effects of credit reference bureaus on profitability in Kenyan banking sector but used different independent variables from those of this study; Chakazamba, Ndialo and Ntililwe (2013) who have also studied the same idea but from the Zimbabwean perspective. However, little study has been done on the effect it has had on the commercial banks' non-performing loans which forms this study's background. Thus, the study aimed at finding out the effects of credit information sharing on non-performing loans of commercial banks in Kenya?

1.3 Research Objective

To determine the effect of credit information sharing on non-performing loans of commercial banks in Kenya.

1.4 Value of the study

Findings and recommendations of this study will add to the existing literature on the topic under study which will enrich it and form basis for the scholars interested in carrying out further studies in the future. It will also help bridge the study gaps which exist on the topic under study. It will also contribute considerably to credit information sharing.

This study's findings shall be used by financial institutions, governments and borrowers as well. Banks and non-banking financial institutions will evaluate the value of using CBR's information and its impact on their profitability. This should provide direction on the practice of sharing information amongst the institutions. The study will add value to the relevance of CRB's effect on information symmetry, adverse selection and moral

hazard of prospective borrowers. The study will also help the credit managers in understanding the impact of information on credit history.

These research findings will be of use to the government as it will come up with solutions of handling the challenges faced by the CRB and non-performing loan in the country. It will further help in the amendment of policies stipulated in the 2008 regulations of the CRB which govern the licensing and operations of CRBs as set out forward by Central Bank of Kenya.

CHAPTER TWO:

LITERATURE REVIEW

2.1 Introduction

In this chapter, relevant theoretical and empirical literature review is discussed. In each case their relevance to this proposed study is highlighted. It contains the theoretical review, determinants of non-performing loans, empirical review, conceptual framework and a literature review summary as well.

2.2 Theoretical Review

Theories informing this study include, information asymmetry theory, moral hazard theory and adverse selection theory have been discussed below. Their relevance to the study is also identified.

2.2.1 Information Asymmetry Theory

Akerlof (1970) advanced the theory of information asymmetry. Using an automobile market, Akerlof observed that buyers have knowledge of the entire set of goods available on the market. But sellers have intimate knowledge of specific goods they want to sell. This results in inequity of knowledge between the sellers and the buyers. The sellers were observed to use this knowledge gap to sell goods of lower quality to buyers, thus taking advantage and hence reaping from buyers with limited information.

The contract and economic theories define the information asymmetry theory as the study of transaction decisions where one party exhibits more market information than the other.

This scenario brings about varying transactional capabilities among market participants which result in awry transactions which is an indication of market failure(Yun, 2009). The theory of finance argues that information asymmetry among the various market players influence all external financing methods through limiting availability or by increasing costs. Therefore, the acquisition and use of bank lines is influenced by information asymmetry since short-term bank credit is the main external source for firm liquidity. Studies done by other authors however state that the capital market frictions is mitigated by the use of short-term credits through reduced information asymmetry and increased monitoring (Faulkender& Petersen, 2006).

If reduction of information asymmetry can be achieved through line acquisition and use, then firms with line access need to exhibit little information asymmetry compared to firms without line access and more actively used lines should be adopted by transparent firms in order to attain liquidity management. The empirical research that is already in place argues that information asymmetry greatly influences the lending capability of the bank and that there are restrictions to the use bank lines by firms as substitutes of liquidity (Hardin and Hill, 2010). Information asymmetry directly influences the willingness of the lenders to lend. More risk is as a result of the uncertainty due to greater variability in investment opportunities and the level of performance.

Banks basically use operation of cash flow measures in the evaluation of debt service and determination of repayment capacity. Most bank borrowings are brought about by need to access to equity markets and public debt (Faulkender and Petersen, 2006). Those firms that are affected by adverse information asymmetry have limited ability to pay-off or reduce their credit line as expected. The fact that the monitoring cost by lenders is

increased by information asymmetry problems limits the less transparent firms from obtaining and using the lines of credit as an alternative liquidity source.

2.2.2 Moral Hazard Theory

The term moral hazard is used to describe the problem of asymmetric information which comes after each transaction. The fact that the lender is not certain whether the borrower will pay back the loan due to some undesirable behavior subjects the lender to a hazard about the borrower (Pagano & Jappelli, 1993). It could also be that banks engage in high risk investment activities or charges higher interest rates that makes it difficult for borrowers to repay. Moral hazard arises out of information asymmetries since the flow of information between the borrowers and lenders do not make any economic sense.

Moral hazards may be ex-post or ex-ante. Ex-ante moral hazard is more favorable for borrowers not to pass negative information to potential lenders. The Ex-post moral hazard situation asserts that borrower clients who can repay their debt can choose to default payment or enter into more risky activities than those being offered to the lender. Government intervention is needed. Moral hazard model shows that, the existence of credit bureaus increases the incentives of the borrowers to repay and it results in a welfare gain when designed appropriately.

The studies by Freixas and Rochet (1997) concluded that modern microeconomic banking models are determined by improvements in information economics that were missing when the monetarist and traditional Keynesian theories were developed. Economists are still trying to find out the factors which bring about macroeconomic instability thus we should expect new the microeconomic theory models of banking to the

business cycles macroeconomic theory. The rate of economic growth mainly depends on the financial institutions' efficiency in modern micro economics. The financial systems are also dependent on accurate information regarding borrowers and the project being funded (Chakraborty & Play, 2001).

2.2.3 Adverse Selection Theory

The scenario where one individual has more market information than the other in a trading relationship is referred to as adverse selection Akerlof (1970) and Spence (1973). The 2001 Economic Science Nobel prize was awarded to Spence, Stiglitz and Akerlof, for analysis of markets faced with asymmetric information. This entire quoted article investigates the effects of adverse selection on the labor insurance markets and products.

The first phase in analyzing the theory was developed on a principal known as Lemon principal Akerlof (1970). He used an example of his home country where he cited that the local lenders were charging high rates to their customers. He argued that the huge established banks charged lower rates than the small banks whose rates were almost double those of the large banks. The difference in rates is mainly contributed by the cost of gaining the clients credit information which is higher to the small banks. Therefore, arbitration by the difference in the two rates leads to the emergence of middleman who acts to bridge the gap between the two hence attracting the lemons (Akerlof, 1970). This is a common scenario to the auto industry where the bad vehicles outperform in terms of sales the good ones.

The problem of this theory arises when the client is not able to gain information pertaining to the characteristics of the vendor or the rule of thumb of the seller (Nayyar,

2010). When it comes to financial matters in the bank industry, the theory is as a result of potential bad credit risks advancing for loans (Mishkin, 2011). The lenders are in most cases not able to separate the bad and good borrowers hence end up charging high rates to cover up for the amount that may be lost during the process (Jappelli & Pagano, 1999). High risk takers are however always not scared by high interest loans when they decide borrow loans (Mishkin, 2011). Ultimately, in capital market instances, the lenders who are partially informed are afraid of high interest loans due to the fear that those high interest rate borrowers are most likely to be defaulters. This form of screening helps identify the bad debtors from good ones. This leads to the decrease of amount of loans given to the lender.

According to Pagano and Jappelli (1993), information pertaining to the debtors helps eliminate the problem through availing more information to banks which is then used on credit applicants. The asymmetric information theory argues that it is more difficult to distinguish bad borrowers from good borrowers which lead to problems of adverse selection and moral hazard (Auronen, 2003). This theory explains that the party with more information regarding the item being traded in the market is in a better position to negotiate for better terms concerning a transaction as compared to the one with little information (Auronen, 2003). And the party with little information about the item being traded is capable of making either right or wrong decisions regarding the transaction. Both moral hazards and adverse selection and have significantly brought about on-performing loans accumulation in banks (Bofondi and Gobbi, 2003).

2.3 Determinants of Non-Performing Loans

Non-performing loans has been a major concern for commercial banks investors, in that it directly affects the profitability of banks and consequently their expected returns. Key factors that are believed to play a part in the overall level of non-performing loans are as follows:

2.3.1 Listing of Loan Defaulters

Carolina (2009) revealed that only negative information is shared in the bureaus where the names of the defaulters can be accessed but they don't provide information on the names of the good debtors. This has been boosted by the use of records on the information obtained from other sources such as tax defaulters and the police records. This information is gathered together especially in developed states where individuals are assigned the credit ratings and list the risky borrowers as well as safe ones.

Petersen (2008), the information on the credit rating of a borrower is accessed at a cost from the commercial banks. This is an expense to a bank which leads to an increase in the rates to recover the amount spent on screening the clients. Adverse problem may however arise when there exists some vital information which was not revealed to the lender therefore the lenders are not able to determine borrower's ability to repay the loan. This presents a chance for the borrower to fail to repay the loan as they know they cannot be detected by the system about their credit ratings which leads to huge losses to the banking sectors that in turn increase the rates at which they lend to the borrowers.

2.3.2 Interest Rates

This is the amount charged for the services provided and in this case the amount advanced to the borrowers. The federal banks set their rates which they may increase or reduce depending on the intended aim on influencing the economy. These rates are one of the major reasons for the number of the defaulters as high rates leads to many defaulters and vice versa. The number of NPLs has direct correlation to the rate of interest (Nkusu, 2011). This variable influence on many other factors in the economy as a whole hence the federal banks use them to implement the monetary policies in a nation.

2.3.3 Inflation

Inflation is the persistent increase in the prices of goods and services which leads to eroding purchasing power of the domestic currency (Gezu, 2014). This means the goods and services the currency used to purchase previously cannot be purchased by the same amount as the CPI has increased (Rizvi& Khan, 2015). Increased rate of inflation reduces the ability to repay their loans as their income reduces due to the increased prices of commodities while their income remains constant. Where the inflation can be controlled through monetary policies, the rates are increased hence increasing the loan amount (Klein, 2013).

Inflation implies that the borrowers have to adjust their spending to repay the loans. Hence, correlation linking inflation and non-performing loans can have a direct or an inverse impact to the economy (Farhan et al., 2012). According to Turan and Koskija (2014), revealed that NPLs have a direct correlation to inflation. This compels the lenders to increase their rates to reflect the prevailing market conditions which imply increase in

the cost of capital hence reduced investments in the country. Inflation in many times is a disadvantage to the lenders (Rizvi& Khan, 2015).

2.3.4 Bank Size

This is determined by total assets owned by the banking institutions. The scholars have presented an ambiguous result on the correlation linking bank size to NPLs. Larger banks due to their size of their assets can take risks by lending to risky borrowers which increases the default rate in these institutions. Stern and Feldman (2004) established a direct correlation linking large banks to risky lending. Larger banks are able to diversify their assets which reduce the chances of suffering huge losses which can lead to their closure or bankruptcy. Salas and Saurina (2002) revealed the existence of an inverse correlation between the two variables.

Large banks can withstand the challenge of becoming bankrupt as a result of lending to risky borrowers. This implies the existence of a going concern principal among the large banks and their ability to survive in the long run. They are also able to overcome the challenge of illiquidity which is a major challenge in many financial institutions. This is due to their ability to use their assets to invest in different portfolios hence creating a cushion and preventing them from collapsing especially during the economic slump. Wheelock and Wilson (2000); Langrin (2001) banks size has a direct correlation to its going concern.

2.3.5 Economic Growth

Beck, Jakubik and PiloIU (2013) observe that real gross domestic product (GDP) growth is one of the major contributors in NPLs ratios. Consequently, economic recession

remains one of the major factors impacting on the banks performance. High GDP growth rate reveals high earnings, which increases the disposable income of the citizens hence reducing the default rate (Klein, 2013). The opposite is also true, as the economy experiences economic slump it makes it difficult for the borrowers to repay their loans (Farhan et al., 2012). Skarica (2013) also argue that high GDP has an inverse correlation to NPLs.

According to Turan and Koskija (2014) real gross domestic product has an inverse link to NPLs as it increases, the number of NPLs reduces and when it reduces the number of NPLs increases. Conversely, when there is a decline in GDP, nonperforming loans increases while unemployment increases as well presenting the borrowers with a major challenge in repayment of their loans (Klein, 2013). In addition, Rizvi and Khan (2015) posit an existence of an inverse association linking GDP to NPLs, which implies high economic growth consequences low NPLs.

2.4 Empirical Review

Khemraj and Pasha (2010) studied the factors influencing NPLs in among banks in India. The empirical results show a negative correlation linking economic growth to NPLs implying that as economy grows, the number of NPLs reduces and vice versa. Additionally, banks which lend to risky borrowers by charging high rates have high number of NPLs. Their study however revealed weak correlation exists that large banks are able to separate the risky borrowers from safe one with ease compared to small ones.

Kargi (2011) carried out a study to determine the impact of NPLs on ROA of Nigerian banks. The study applied ROA ratio as indicators of banks profitability which was

obtained from annual records of inspected banks 2005-2009 utilizing descriptive statistics model. The discoveries uncovered that credit risk administration significantly affects the performance of Nigerian banks. The study inferred that banks' benefit is contrarily impacted by nonperforming loans, in this way presenting them to incredible danger of illiquidity and loss.

Chernykh and Theodossiou (2011) carried out a study to analyse the factors influencing the performance of loans in developing nations using bank-level information from 881 banks in Russia. The variables of concern include size, capitalization, liability, managerial expertise and location of individual banks. The findings reveal that size which is determined by banks Assets is the major aspect influencing not only loans expended but also long-term loans. This is attributed to the fact that large banks due to the number of Assets they own are able to overcome the risks associated with lending to risky borrowers. The study thus demonstrates that there are supply-side constraints to credit expansion, although it did not consider the role of collateral on bank lending levels.

Magnifique (2013) examined the impact of management of credit risk and profitability banks in Rwanda. The study aimed at determining how credit risk impacts on the returns of commercial banks in the country and risk monitoring mechanism influenced commercial banks' profitability in Rwanda. The descriptive research design was utilized to assess the impact of legislation on financial performance of commercial banks. Data was collected from primary sources through the use of questionnaires which were then analyzed with the help of SPSS. The study concluded that all the measures of credit risk management have a direct correlation to commercial banks' profitability in Rwanda with an exception of risk monitoring.

Locally, Shisia (2014) analyzed the significance of (CRB) in managing NPLs in Kenyan banking sector. The study used secondary sources from the existing literature which covered a 6-year period (2009-2014). The study findings established a strong and positive relationship between CRB and NPLs in the banking sector. Regression results revealed factors such as the person's reputation as well as guarantors have a direct correlation to the performance of NPLs among the commercial banks in the Kenya. The study recommended the Kenyan CRB firms should incorporate other bureaus in the East African community to determine the credit ratings of an individual.

Kusi and Ansah-Adu (2015) investigated the impact of sharing credit information on accessing loans across different wage categories. The study used secondary sources of data for a 10-year period (2002-2012). Study findings revealed access to bank loans has a significant influence to the ease of accessing bank loans with people earning high wages can access loans with ease compared to those with low income who have to overcome numerous challenges before accessing bank loans. It further revealed that sharing information can help ease the challenge faced in accessing loans especially among the low-income earners. Further, the study found that growth of GDP is directly correlated to NPLs.

Kiage, Musyoka and Muturi (2015) investigated the effect of information sharing in commercial banks in the Western part of Kenya. It sampled 30 credit officers from 20 commercial banks and collected data using a questionnaire. The study findings established that costs of information sharing had an adverse relationship to the profitability of banks in the region. The study recommended that financial institutions and credit bureaus should safeguard private information which they hold.

Toroitich and Omwono (2015) assessed the association linking NPLs to profitability of Equity Bank (K) ltd, Eldoret Town. The study adopted a correlation research design from secondary sources covering the year 2008-2014. The findings of the study established that when the non-performing loans increased, the performances of equity bank branches were affected negatively. The study recommended that the credit department staff should have higher loan targets as this contributes significantly to the profits of the bank. The study also recommended that the non-performing loans should be kept at the minimum.

Mugwe and Oliweny (2015) examined the impact of credit information sharing on profitability of Kenyan banks. The study collected data from all 40 commercial banks in Kenya covering 10 years (2004-2015). Descriptive study was employed in analyzing data. The study results indicated an increase in ROA, ROE among the commercial banks after the establishment of CRB (2010 to 2014).

2.5 Conceptual Framework

The conceptual framework gives a portrayal of how the factors identified are related to each other. The factors characterized here are credit information sharing and non-performing loans. The independent variable was Credit Reference Bureaus Information Sharing as measured by the number of credit requested by commercial banks from credit reference bureaus reports shared. Non-performing loans was the dependent variable which the study seeks to explain and it will be measured by nonperforming loans ratio.

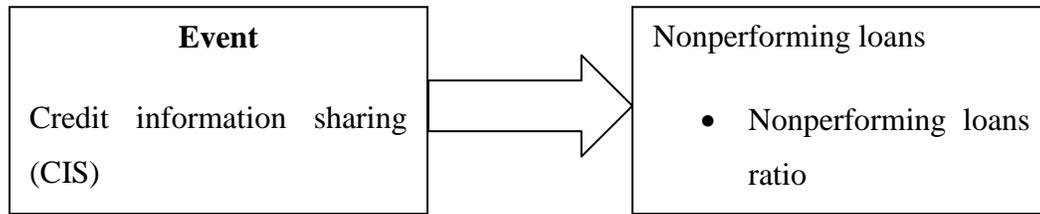


Figure 2.1: The Conceptual Model

Source: Researcher (2017)

2.6 Summary of the Literature Review

Commercial banks and financial institutions are now exposed to nonperformance 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. Good risk management mainly focuses on the identification and treatment of these objectives and risks in order to add value to the activities of the commercial banks. The effect of such management from the studies shows that it increases the likelihood of success and reduces the likelihoods of NPLs and hence the profitability of the banks.

The banking industry is faced with the challenge of obtaining a variety of information regarding the payment history of clients to be used in the credit assessment process. The Kenyan banks have since 2008 subscribed to credit reference bureaus which provide information concerning the customers. This bureau seeks to provide up to date, instant and accurate information on the potential clients who might want to adverse loans making it cost effective and easier to assess and manage risk thus reduce indulging in risky ventures which lead to improvement in the quality of client profitability portfolio.

CHAPTER THREE:

RESEARCH METHODOLOGY

3.1 Introduction

The methodology of the study will be outlined which will be applied to objectively establish the influence of CRB ratings on NPLs. It also shows the population of study, research design, and criterion applied to collect and analyze data.

3.2 Research Design

Descriptive cross sectional was adopted for the study. A descriptive study involves a description of all the elements of the population. It allows estimates of a part of a population that has these attributes. Identifying relationships among various variables is possible, to establish whether the variables are independent or dependent. Cross-sectional study methods are done once and they represent summary at a given timeframe (Cooper & Schindler, 2008).

3.3 Population

This refers to the characters to be applied in the study which stand equal chance of being selected for the study (Mugenda & Mugenda, 2003). This study's population was all the 42 commercial banks that were in operation in Kenya in the years 2002 to 2016. Since the population of the study is finite, a census study was undertaken.

3.4 Data Collection

The data used in the study was obtained from secondary sources. It will entail using two sets of secondary data. First includes the amount of NPLs in commercial banks covering 2002 to 2016. It will be obtained from CBK annual reports for all the years. Second one includes credit reports accessed by banks and individuals from CRBs yearly. The quarterly reports which will be obtained from CBK from 2002 to 2016. Also, collected will be banks' loans and advances net of suspense interest for the same period, banks total assets as well as net NPLs.

3.5 Data Analysis

The study adopted an event study methodology and also used descriptive statistics like the mean, standard deviation to summarize the analyze data. Event study methodology assesses the effect of firms' performance. In the context of this study, there was credit information sharing which will be compared with non-performing loans ratio 7 years before and 7 years after credit information sharing.

3.5.1 Analytical Model

The study used the paired t- test model as follows

$$Paired\ t - test = \frac{x - \mu}{\frac{s}{\sqrt{n}}}$$

Where;

x = Population mean

μ = t critical value

S = Sample mean

n = Sample size

For the study, on-performing loans were measured using the non-performing loans ratio (NPLR) which is presented as ratio of NPLs to total outstanding loans while profitability which was incorporated as a control was measure using ROA and ROE. Credit information sharing was determined using the number of credit reports requested by commercial banks.

3.5.2 Tests of Significance

P-values were used to establish statistical significance of the study variables where if ($P < 0.05$) it was considered significance while where ($P > 0.05$) it was considered insignificant. Significance tests were carried out at 95% confidence levels.

CHAPTER FOUR:

DATA ANALYSIS, RESULTS AND INTERPRETATION

4.1 Introduction

This chapter provides an analysis of the research findings and discussions of the study findings. The chapter outlines the descriptive statistics, the graphical presentations of the variables, correlations, the paired sample tests and an interpretation of the findings.

4.2 Descriptive Statistics

Descriptive statistics entails the paired samples test and the graphical presentations of the considered variables.

4.2.1 Paired Samples Statistics

Table 4.1: Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	NPLs before CIS	.12471	7	.045243	.017100
	NPLs after CIS	.05043	7	.014752	.005576
Pair 2	ROA before CIS	.03014	7	.011437	.004323
	ROA after CIS	.03129	7	.002812	.001063
Pair 3	ROE before CIS	.23800	7	.089547	.033846
	ROE after CIS	.20114	7	.018739	.007083
Credit reports requested		2310992.57	7	2205695.87	833674.67

Source: Research Finding

Table 4.1 shows the paired samples descriptive statistics. The table indicates that the average value of nonperforming loans before credit information sharing was 0.12471 while the mean value of nonperforming loans after CIS was 0.05043. This indicates that non-performing loans were high before CIS than after CIS. The table also shows that the average ROA and ROE before CIS were 0.03014 and 0.23800 while the average ROA

and ROE after CIS were 0.03129 and 0.20114 respectively. The table shows the mean value credit reports requested by commercial banks in Kenya was 2310992.57.

4.2.2 Graphical Presentations

Table 4.1: Non Performing Loans

Years	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
NPL	0.719	0.099	0.110	0.182	0.149	0.081	0.073	0.067	0.052	0.036	0.038	0.043	0.047	0.058	0.079

Table 4.1 above shows a drop in non-performing loans from 2002 to 2003 and an increase from 2004 to 2005 and a steady drop from 2006 up to 2016.

4.2.2.1 NPLR Trend

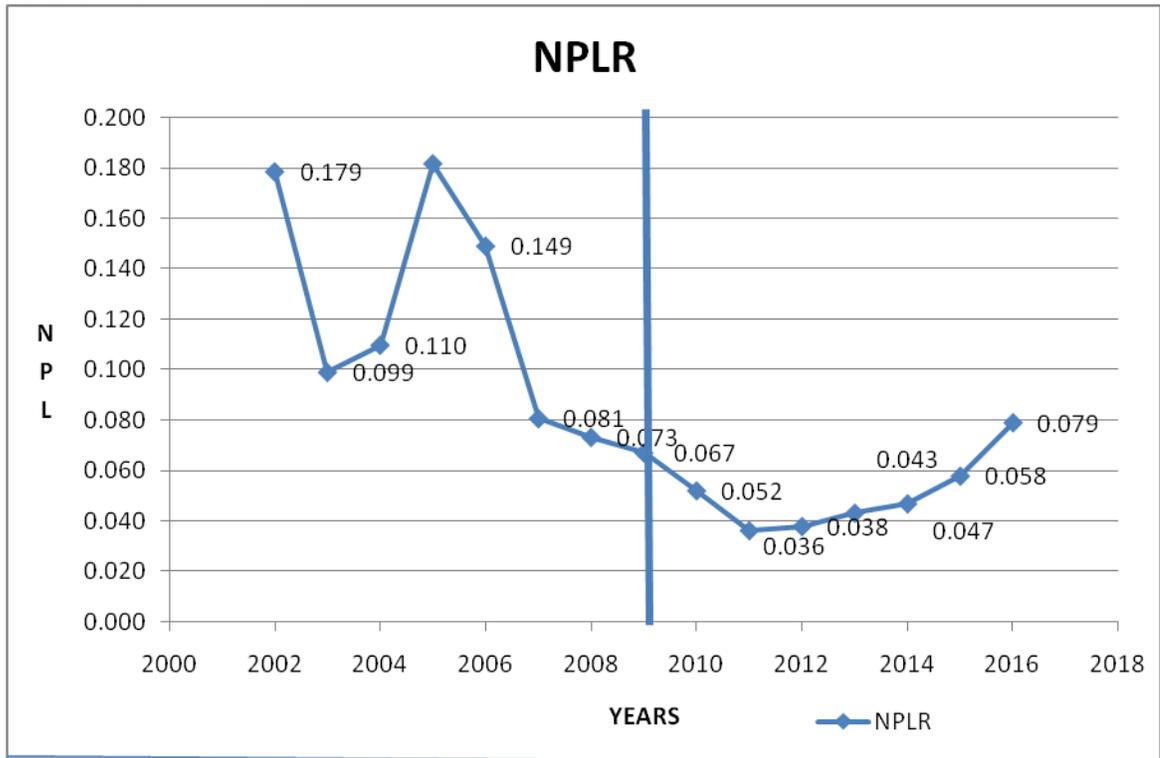


Figure 4.1: NPLR Trend

Source: Research Findings

Figure 4.1 shows that nonperforming loans sharply decreased between 2002 and 2003 but a sharp increase was witnessed in 2004 and 2005 then a gradual fall in nonperforming loans from 2006 although to 2011 and then a gradual increase from 2012 to 2016.

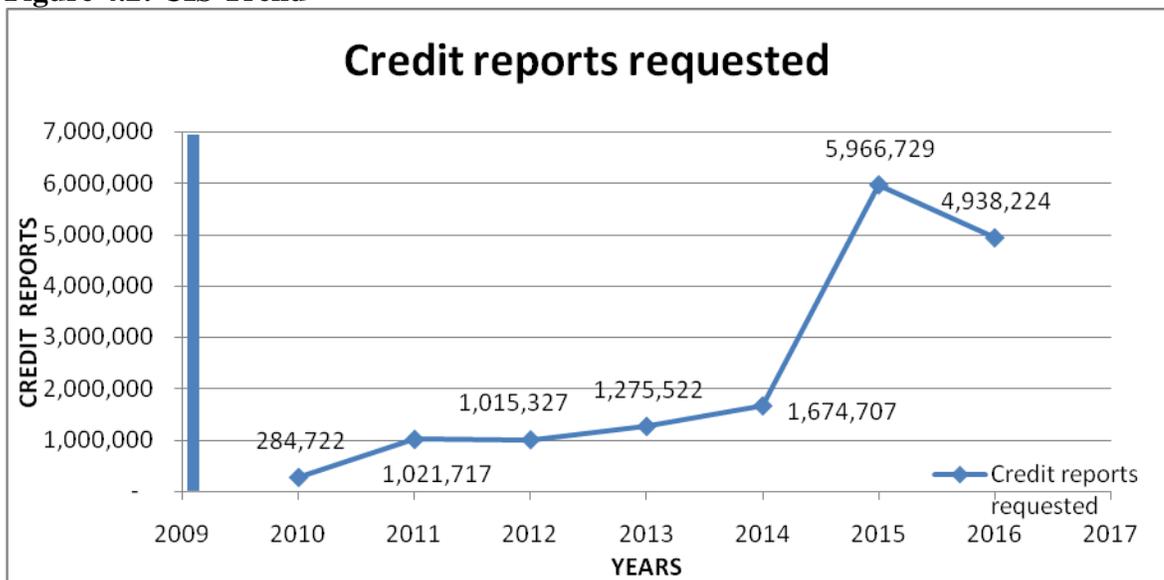
4.2.2.2 CIS Trend

Figure 4.2 shows the trend of credit reports requested by banks in Kenya. According to the figure, credit reports requested by commercial banks increased gradually from 2010 although to 2014 but a steady increase was witnessed in 2015 and a fall in 2016, which may indicate that lending, might have dropped in 2016 but in the previous year lending was increasing.

Table 4.2: Credit Information Sharing Trend

Years	2010	2011	2012	2013	2014	2015	2016	2017
Credit reports	284,722	1,021,717	1,015,327	1,275,522	1,674,707	5,966,729	4,938,224	

Figure 4.2: CIS Trend



Source: Research Findings

4.2.2.3 ROA Trend

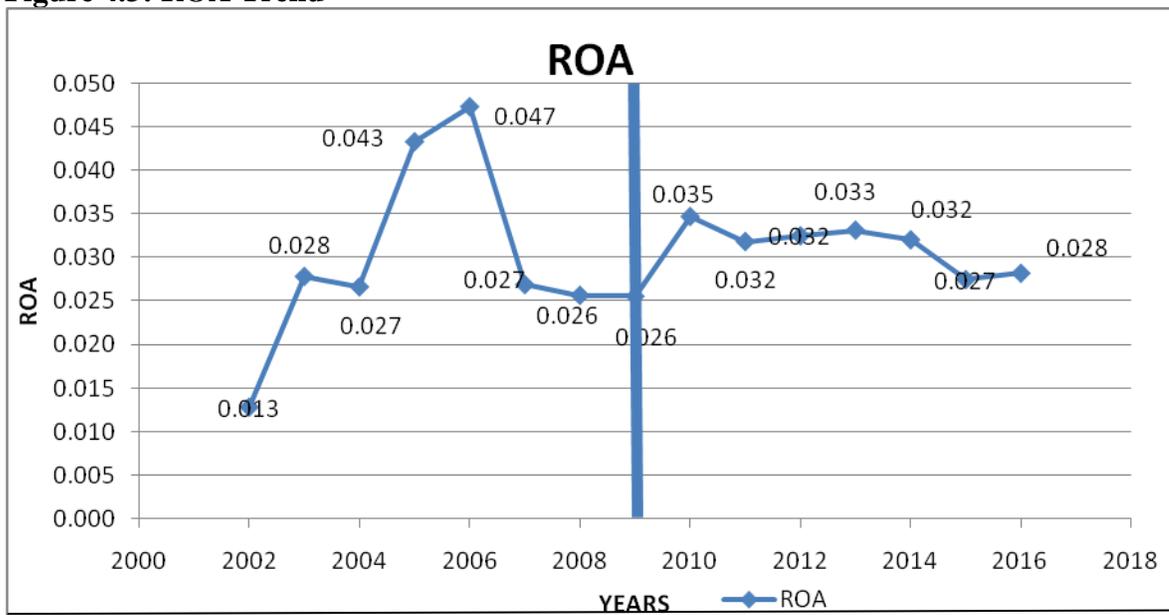
Figure 4.3 shows the ROA of commercial banks from 2002 to 2016. The figure shows that the ROA for banks was steadily increasing from 2002 although to 2006 but ROA

steadily declined in 2007, 2008 and 2009 thereafter a rise was witnessed in 2010 and a gradual decline from 2011 up to 2016.

Table 4.3: Return on Assets Trend

YEARS	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
ROA	0.013	0.028	0.027	0.043	0.047	0.027	0.026	0.026	0.035	0.032	0.032	0.033	0.032	0.027	0.028

Figure 4.3: ROA Trend



Source: Research Findings

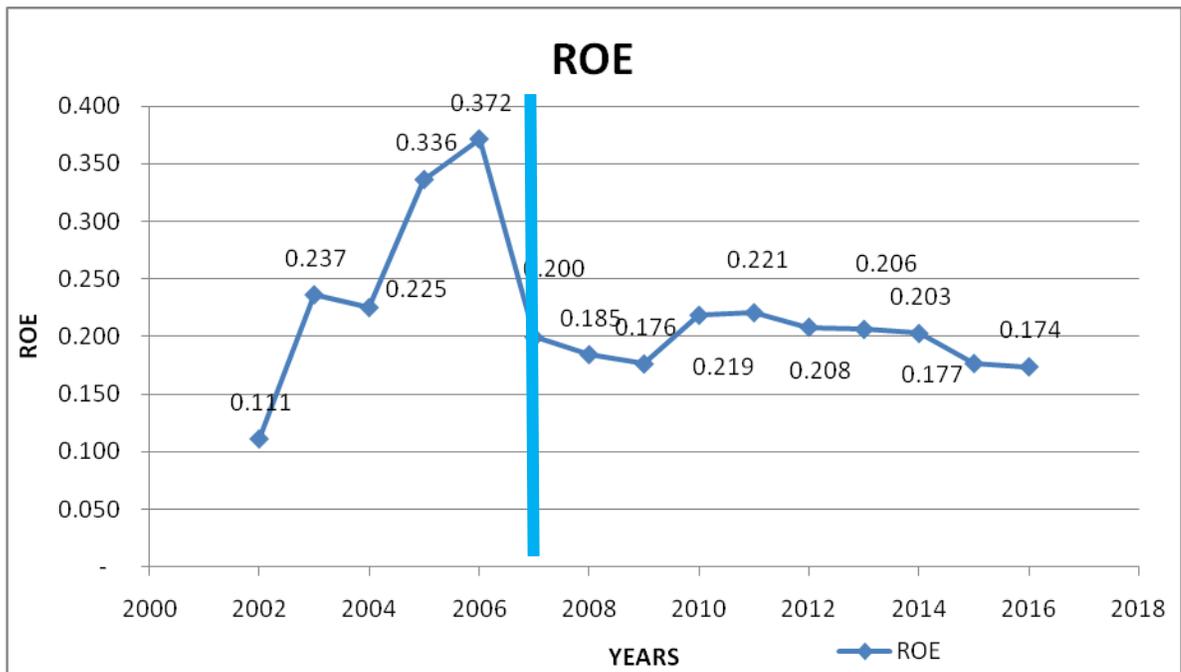
4.2.2.4 ROE Trend

The ROE trend on figure 4.4 show that ROE increase steadily from 2002 to 2007 and the declined in 2007 up to 2010 then increased in 2011 but declined again all through to 2016.

Table 4.4: Return on Equity Trend

YEARS	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
ROE	0.111	0.237	0.225	0.336	0.372	0.200	0.185	0.176	0.219	0.221	0.208	0.206	0.203	0.177	0.174

Figure 4.4: ROE Trend



Source: Research Findings

4.3 Correlations

This indicates the correlations between the paired samples. Table 4.3 indicates the results

Table 4.3: Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	NPLs before CIS & NPLs after CIS	7	-.419	.349
Pair 2	ROA before CIS & ROA after CIS	7	-.033	.945
Pair 3	ROE before CIS & ROE after CIS	7	.070	.882

Source Research Findings

The correlation on table 4.3 indicates that there is a weak negative correlation between non-performing loans and before CIS and after CIS, and also between ROA before and after CIS. The table further indicates that there is a weak positive correlation between ROE and CIS and CIS.

4.4 Inferential Statistics

The statistical package for social sciences was employed to run the Paired Samples Statistics for NPLs, ROA and ROE before and after credit information sharing. The results were as follows

Table 4.3: Paired Samples Tests

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	NPLs before CIS – NPLs after CIS	.074286	.053140	.020085	.025139	.123432	3.699	6	.010
Pair 2	ROA before CIS – ROA after CIS	-.001143	.011866	.004485	-.012117	.009832	-.255	6	.807
Pair 3	ROE before CIS – ROE after CIS	.036857	.090195	.034091	-.046559	.120274	1.081	6	.321

Source: Research findings

Table 4.4 indicates the paired samples test. The table indicates that the t statistics for NPLs before CIS and NPLs after CIS is 3.699 is significant at 95% confidence level. This indicates that there is a significant positive variation in the level of nonperforming loans before and after credit information sharing. The table also shows that t statistics value for ROA before CIS and ROA after CIS is -0.255, which is insignificant at 95% confidence level hence an indication that there is no significant variation between credit information sharing and ROA. Finally, the table indicates that the t statistics value for ROE before CIS and ROE after CIS is -0.046559, which is insignificant at 95% confidence level hence an indication that there is no significant variation between credit information sharing and ROE.

4.4 Interpretation of the Findings

The study established the t statistics for NPLs before CIS and NPLs after CIS was 3.699 significant at 95% confidence interval (CI). This means a significant direct variation in the level of nonperforming loans before and after credit information sharing hence there is direct relationship between CIS and Nonperforming loans among Kenya's banking institutions. Shisia (2014) who established that blacklisting has both inverse and positive impact on the performance of NPLs in the financial institutions. Kusi and Ansah-Adu (2015) also revealed credit sharing makes accessing loans easy. Ocharo (2013) also found NPLs tends to reduce with increase in credit information sharing. Kisengese (2014) also revealed it reduces the number of NPLs by lending only to safe borrowers.

The findings established that the t statistics value for ROA before CIS and ROA after CIS was -0.255, which was insignificant at 95% confidence level. This means that there is no

significant variation between credit information sharing and ROA. Finally, the results established that the t statistics value for ROE before CIS and ROE after CIS was -0.046559, which was insignificant at 95% confidence level. This meant that there was no significant variation between credit information sharing and ROE. Mugwe and Oliweny (2015) however established ROE, ROA and net interest margin had a positive relation after establishment of CRB (2010 to 2014). Kiage, Musyoka and Muturi (2015) also established that costs of information sharing had an adverse impact on the profitability of commercial banks.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This is presentation of summary of the study findings, provides the study conclusions and gives recommendations. The chapter also presents the limitations of the study and suggests areas, which require additional research.

5.2 Summary

The study aimed at establishing the effect of credit information sharing on non-performing loans of commercial banks in Kenya. It explored the information asymmetry theory, moral hazard theory and adverse selection theory. The independent variable was Credit Reference Bureaus Information Sharing as measured by the number of credit requested by commercial banks from credit reference bureaus reports shared. Non-performing loans was the dependent variable which the study seeks to explain and it will be measured by nonperforming loans ratio. The study used a descriptive research design and used secondary data from all commercial banks in Kenya from 2002 and 2016. An event study methodology was adopted where credit information sharing which will be compared with non-performing loans ratio 7 years before and 7 years after credit information sharing.

The paired samples descriptive statistics established that average value of nonperforming loans before credit information sharing was 0.12471 while the mean value of nonperforming loans after CIS was 0.05043. The findings also revealed that the average

ROA and ROE before CIS were 0.03014 and 0.23800 while the average ROA and ROE after CIS were 0.03129 and 0.20114 respectively. The finding revealed that the mean value credit reports requested by commercial banks in Kenya were 2310992.57.

The results of graphical trends indicated that nonperforming loans sharply decreased between 2002 and 2003 but a sharp increase was witnessed in 2004 and 2005 then a gradual fall in nonperforming loans from 2006 although to 2011 and then a gradual increase from 2012 to 2016. According to the results the trend of credit reports requested by increased gradually from 2010 although to 2014 but a steady increase was witnessed in 2015 and a fall in 2016. The results established that the ROA and ROE of commercial banks was steadily increasing from 2002 although to 2006 but ROA steadily declined in 2007, 2008 and 2009 thereafter a rise was witnessed in 2010 and a gradual decline from 2016 although to 2016.

The findings on paired samples correlation established a weak inverse relation linking NPLs and before CIS and after CIS, and also between ROA before and after CIS but there is a weak direct association linking ROE and CIS and CIS. The findings established that the t statistics for NPLs before CIS and NPLs after CIS is 3.699 were significant at 95% confidence level hence an indication that there was a significant positive variation in the level of nonperforming loans before and after credit information sharing. Additionally, the results revealed that t statistics value for ROA before CIS and ROA after CIS is -0.255, which was insignificant at 95% confidence level hence an indication that there is no significant variation between credit information sharing and ROA. The results also revealed the t statistics value for ROE before CIS and ROE after CIS is -

0.046559, which was insignificant at 95% confidence level hence an indication that there is no significant variation between credit information sharing and ROE.

5.3 Conclusions

The findings of the research established the relationship between NPLs before CIS and NPLs after CIS was positive and significant at 95% confidence level. The study therefore concludes a strong positive variation in the level of NPLs before and after credit information sharing hence there is direct relationship between CIS and Nonperforming loans among commercial banks in Kenya.

Study findings also revealed that the correlation linking ROA before CIS and ROA after CIS was insignificant at 95% confidence level. The study therefore concludes that there is no significant variation between credit information sharing and ROA. The research also established that the relationship between ROE before CIS and ROE after CIS was insignificant at 95% confidence level. The study concluded there is no strong variation linking credit information sharing and ROE.

5.4 Recommendations

The study made the conclusion of existence of strong positive variation in level of NPLs before and after credit information sharing. Hence recommending that the management of commercial should ensure that they share credit information since credit information sharing reduces non-performing loans among commercial banks.

The study also concluded that there was no significant variation between credit information sharing and the measures of profitability of returns on assets and return on

equity. The study nonetheless recommends that commercial banks should enhance credit information sharing since a reduction in NPLs.

5.5 Limitations of the Study

This study focused on credit information sharing among commercial banks and its influence on NPLs. The findings thus are limited to commercial banks and no other financial institutions like deposit taking micro finance institutions, which are required to share their credit information and savings, and credit cooperative societies, which voluntarily share their clients' credit information.

The study also used an event methodology study and the annual credit reports requested by banking institutions. However, there was no investigation on the effect of credit information and its effect of nonperforming of a specific banks or individual banks in Kenya.

5.6 Suggestion for Further Research

This study aimed at determining the relationship between non-performing loans and credit information sharing using an event study methodology. However, past studies have used regression to establish the relationship between credit information and sharing and other concepts in the banking sectors. This study therefore recommends a similar study on the effect of credit information sharing on financial performance of commercial banks using the event study methodology. Additionally, the study recommends a similar study on the other types of financial institutions like microfinance banks, which are required by law to share credit information.

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APPENDICES

Appendix I: Commercial Banks in Kenya

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

Source: Central Bank of Kenya - 2017

Appendix II: Research Data

Year	NPL	Total loans	Net income	Total assets	Equity	No of Credit reports
2002	43,872	245,610	5,630	439,821	50,540	0
2003	37,875	382,290	13,549	487,024	57,288	0
2004	34,640	315,321	14,738	553,708	65,393	0
2005	68,600	377,400	26,697	616,702	79,339	0
2006	65,300	437,900	34,633	731,988	93,167	0
2007	41,899	518,920	24,968	928,947	125,134	0
2008	48,175	656,678	29,697	1,157,769	160,938	0
2009	50,902	757,760	33,594	1,315,937	190,480	0
2010	47,730	914,910	57,209	1,648,786	261,536	284,722
2011	42,928	1,180,956	63,280	1,988,846	286,450	1,021,717
2012	50,122	1,318,570	74,360	2,289,649	357,037	1,015,327
2013	67,724	1,564,635	88,021	2,656,639	426,496	1,275,522
2014	90,377	1,922,857	100,501	3,138,905	495,457	1,674,707
2015	124,152	2,142,150	93,991	3,423,835	531,488	5,966,729
2016	178,674	2,257,489	102,229	3,627,858	587,767	4,938,224

Source: Central Bank of Kenya - 2017