EFFECT OF CREDIT INFORMATION SHARING ON THE CREDIT MARKET PERFORMANCE OF COMMERCIAL BANKS IN KENYA

BY

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DECLARATION

I declare that this research project is my original work and that it has not been previously submitted for a degree at the University of Nairobi or any other university.

Signed: ……………………… Date: ……………….

Henry Kiplangat Koros

D61/67629/2013

Supervisor's Declaration

This research project has been submitted for examination with my approval as the University Supervisor.

Signed: ……………………… Date: ……………….

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DEDICATION

I dedicate this work to my friends and family for the sacrifice they have made for me to complete this study successfully. Their concern, support, encouragement and enthusiasm have inspired me to achieve this goal.

ABSTRACT

The study sought to determine the effect of credit information sharing on the credit market of commercial banks in Kenya, as well as review of the growing body of theoretical and empirical studies that have attempted to investigate the various dimension and effects of information sharing on the credit market performance in the context of the commercial banks in Kenya since its launch in 2010 as a way of mitigating the information asymmetry between the lenders in the credit market one to lack of institutional mechanism that could allow the exchange of information among banks concerning the borrowers characteristics. A census of the 43 commercial bank that are licensed under by Kenya Banking Act was carried out where secondary data was collected from their published financial statement financial statement between years 2008 to 2014. Two CRBs (CRB Africa and Metropol CRB) provided data on the intensity of use of the credit reports by different banks. The researcher used descriptive statistics, regression analysis and correlation efficient method. In order to test this relationship regression analysis was run with total loans minus non-performing to total loans as the dependent variable and the log of total loans advanced and the number of CRB enquiries made by commercial banks in Kenya as the independent variables. The findings were that credit market performance as measured by total loans minus non-performing to total loans is positively related to credit information sharing (number of CRBs enquiries made by commercial banks), total loans advanced and total assets. Increase in credit market performance was enhanced after the establishment and operationalization of credit information mechanism compared as before. The study therefore recommends that the government should extend credit information sharing beyond the commercial banks and also facilitate sharing of both positive and negative information. Thus the use of credit information sharing was found to be of a positive effect on the credit market performance of commercial banks in Kenya.

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LIST OF ACRONYMS/ABBERVIATION

CBK: Central Bank of Kenya.

CIS: Credit Information Sharing

CRB: Credit Reference Bureau

DPFB: Deposit Production Fund Board

GDP: Gross Domestic Product

GNP: Gross National Product Per capital

HHI: Herfindahi-Hirschman Index

ICRG: International Risk Guide

KCISI: Kenya Credit Information Sharing Initiative

NPLs: Non Performing Loans

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Asymmetric information between borrowers and lenders can prevent efficient allocation of credit as shown by a broad range of literature (Jappelli & Pagano, 1999). Lending is an important element of financial intermediation, which is itself at the heart of an economy's financial architecture. It therefore necessities policy makers to continually review the credit market to minimize inefficiencies that hinder faster economic growth.

Good borrowers have been disadvantaged by high interest rate and stringent collateral requirements as banks cushion themselves against the risk of high non-performing assets. These challenges have been an outcome of information asymmetry, which in the past continually led to the rejection of good credit risk applicants because their credibility could not be objectively proven. On the flip side, serial defaulters adversely affected bank performance, threatened sector stability an inhibited growth of credit to the private sector. As a result, the need to introduce credit referring as a risk management tool was identified by Kenyan lenders as necessary to create a vibrant and globally competitive financial sector (Kenya credit information sharing initiative, 2008- 2011).

In a number of countries, lenders (bank, finance companies, credit card companies, retailers, suppliers, extending trade credit) routinely share information on the creditworthiness of their borrowers through credit bureaus, information brokers that in some case are set up and owned by the lenders themselves and in others operated

independently for profit by a third party. Information sharing improves the pool of borrowers, decreases default and reduces the average interest rate. In addition, the volume of lending may increase as information sharing explains the customer bases (Pagano & Jappelli, 1993).

Jappelli and Pagano (1999) provided an initial investigation of the impact of information sharing on aggregate credit market performance. It shows that in countries where information sharing was perfectly established and extensive, the bank lending to the private sector was larger and there exist low default rates as a result of mitigation by public and information sharing. In the advent of credit information sharing serial defaulters will be nipped and currently there are high expectations that incentives of good credit behavior will attract competitive, pricing of credit facilities following the borrowers strict adherence to the contract terms of loans since their repayment pattern and history can be shared among financial lenders in the credit market leading to low default rates, reduce interest rates and expanded credit market (CBK, 2010).

1.1.1 Credit Information Sharing

Credit information sharing (CIS) also known as credit reporting can be defined as a process where banks and other credit providers submit information about their borrowers to a credit reference bureau so that it can be shared with other credit providers. It enables the banks to know how borrowers repay their loans (http://www.kenyacreditinfo.com/).

This exchange can be voluntary or imposed by regulations. When it occurs spontaneously, it is affected by information brokers, known as "credit bureaus", which

operate on the principle of reciprocity, collecting, filling and distributing the information supplied voluntarily by their members. In many counties a great deal of information exchange also occurs via "public credit registers". These are generally managed by central banks, with compulsory reporting of data on borrowers which are then processed and returned to the lenders (Japelli & Pagano, 2000).

Information asymmetry between banks and borrowers has for long constrained innovation and financial information. This state of affairs has led to the front-loading of search costs and a risk premium in the cost of credit, this has led to the high cost of credit that has constrained the expansion and deterred access to credit by a significance proportion of Kenyans (CBK, 2010).This asymmetry of information give rise to selection of problems for lenders and potential moral hazard of borrowers, which may lead to a rationing of credit (Stiglitz & Weiss, 1981). Information sharing mechanisms reduce adverse selection by improving the pool of borrowers and the knowledge of applicants' characteristics therefore improving bank efficiency in the allocation of credit (Houston, lin, lin, & Ma, 2010).

Credit information sharing offers an opportunity to promote access to affordable credit to more Kenyans for it enables borrowers to build track record that can be used in accessing credit. Credit information sharing has increased vibrancy in the market for the borrowers and lenders. Borrowers will be able to access enhanced facilities as they grow their credit histories and track record. Conversely credit providers will be able to develop new and competitive products that will tap into previously un-served and underserved market

niches with the power of available information thus impacting positively on the banking sector and the Kenya economy (CBK, 2010).

It has become increasing apparent that credit information sharing indeed enhances credit performance of commercial banks and overall profitability. The sharing of positive information allows for the debtor to create "reputation collateral" often in the form of a credit score, which can provide valuable information to the credit market, and signal a borrower's individual credit worthiness to a large pool of lenders (Kiage, Musyoka and Muturi, 2015).

1.1.2 Credit Market Performance

Credit markets perform the crucial function of intermediation of funds between savers and investors and improve the efficiency in allocation of resources, a crucial role in sustaining a country's growth. Credit markets also play a key role in the monetary transmission mechanism (Bernanke, Ben and M. Gertler, 1995). Banks which are major players in the credit market play an important role in providing various financial services and products, including hedging of risks.

Sharing of credit information creates significant impact on efficiency and expansion of the credit markets for it enables access to credit, improve lending performance and enhance greater financial inclusion. Enhanced financial access arises whenever information collateral is built into credit decisions. The outcome is fewer mistakes by lenders, less default by borrowers and appropriate pricing of credit (CBK, 2012).

Banks which are major players in the credit market have been attributed more to their information gathering capacity which arises out of the existence of asymmetric information and moral hazard problems. Savers usually have incomplete information on the affairs of companies, which makes it more difficult for companies to obtain direct financing from the market (Love *et al*, 2003). By reducing the costs of acquiring and processing information, financial institutions encourage mobilization of savings and improve resource allocation. The level of credit to the private sector as a proportion of the Gross Domestic Product (GDP) is used to measure the level of access to credit (CBK, 2014).

1.1.3 Credit Information sharing and Credit Market Performance

Recent years have witnessed the spread of information sharing arrangements. The deterioration of the information that banks have may lead to suboptimal decisions and inadequate credit allocation. Information acquisition by financial intermediaries is an essential function (Jappelli and Pagano, 2006). It can improve the allocation of credit in the economy, which is one of the main sources of bank profits. Better knowledge of the loan applicants allows banks to weed out perennial defaulters. At the same time, the information acquired over the course of a lending relationship allows an incumbent bank to hold up its borrowers and extract information rents which compensates the bank for the cost of acquiring information.

Jappelli and Pagano (1993) pointed out that exchange of information on borrower type decreases default rates and reduces average interest rates which are indicator of credit market performance. Information sharing among borrowers would lead to lower interest rates and increased lending (Padilla and Pagano, 1997). Empirically testing these predictions Jappelli and Pagano (2000) found that credit information sharing is associated with higher lending, measured by private credit to GNP ratio, and lower defaults.

1.1.4 Commercial banks in Kenya

The banking sector comprised of the central bank of Kenya, as a regulatory authority, 44 banking institutions (43 commercial banks and one mortgage finance company). Out of the 44 banking institutions, 30 were locally owned banks comprised 3 with public shareholding and 27 privately owned while 14 were foreign owned. One of the key developments in the banking sector is the harmonization of the credit information sharing (CIS) framework in order to enhance the robustness of the existing CIS mechanism and to facilitate full file reporting by commercial banks and micro finance institutions (CBK supervision report, 2014).

A successful roll out of the credit information sharing mechanism amongst banks with the major objectives to facilitate credit scoring mechanism, enhance information capital and introduction of other value added products such as decision models was officially launched in July 2010 (Kenya Credit Information Sharing Initiative Progress Report, 2008-2011) and fully rolled out effective 2014 (CBK supervision report, 2014). This was pursuant to the gazzeting of regulations governing the Licensing, operation and

supervision of the banking sector credit reference in July 2008. Today all commercial banks and the deposit protection fund board (DPFB) share negative information on their customers with licensed references bureaus (CRBS).

1.2 Research problem

Credit markets present asymmetric information problems. Lenders (commercial banks) know neither the past behavior nor the intentions of credit applicants (Nyangweso, 2013). In Kenya, information asymmetry between banks and borrowers has for long constrained financial intermediation between the surplus and deficit sectors of the economy lending to high costs of credit that have hampered the expansion of business and deterred access to credit by a significant proportions of Kenyans (CBK, 2010). Further this information asymmetry problem also been a contributory factor to the high levels of non – performing loan in the country's banking sector (Muthoni, 2014).

Credit information sharing mechanism amongst banks was therefore facilitated by government licensing of CRBs to reduce problems of information asymmetries. Credit information sharing assist in making credit accessible to more people, and enabling lenders and business reduce risk and fraud and hence sharing of credit information between financial institution in respect of customer credit behavior has a positive economic impact (Munee, 2013). This may overcome adverse selection and moral hazards in the credit market lowering interest rates and reducing defaults. The banking industry as a whole has faced challenges in attaining wide- ranging information on client's payment history for use during their credit assessment process. Since 2008, banks

in Kenya have subscribed to CRBs that provide information regarding customers (Riungu, 2014). The CRBs were expected to improve the efficiency of the credit markets through reduced default rate, increased credit availability and reduce cost of credit.

Although there is strong evidence that credit information sharing improves the efficiency of the credit market, most of this is limited to the developed countries (Muthoni, 2014) and aggregate credit market volume is higher in countries where information sharing is more developed (Jappelli and Pagano, 2002 Djankov et al., 2007). Kallberg and Udell (2003) show that there is an effect of information in credit market which arises from the problem of coverage and bias by the public and private credit reference bureaus. They point out that the problem could be more severe in voluntary information than where there is government intervention. Jappelli & Pagano (1999) in their empirical analysis, attempted to overcome the econometric problems posed by the endogeneity sharing by relating credit market performance to lagged measures of the quality and intensity of information sharing.

Several research studies have been done in relation to commercial banks in Kenya: Kipyegon (2011) studied on credit information sharing and the performance of the banking sector. The research findings indicated that credit information sharing and the performance of the banking sector are strongly related. Gettee (2012) studied on the relationship between credit information and economic growth in Kenya: (Amayo, 2011) studied on the challenges of adoption of credit information sharing among Kenyan banking industry: Muthoni (2014) did a study on credit information sharing bank

characteristics and credit markets performance in Kenya. However, little research studies have been done on effects of credit information sharing on the credit market performance of commercial banks, yet it is through credit information that lenders (commercial banks) are able to analyze borrowers to enhance their credit market performance. This study therefore seeks to carry out research on the effects of credit information sharing the credit market performance of commercial banks in Kenya.

1.3 Research objectives

The objective of the study was to determine the effect of credit information sharing on the credit market performance of commercial banks in Kenya.

1.4 Value of the study

This research study intended to establish the effect of credit information sharing on the credit market performance of commercial banks in Kenya. This study will be of significant in following ways:

To academic and researchers the findings of this study will enhance existing body of knowledge and provide for further research on this topical issue of information asymmetry. It will provide a critical look on whether credit information sharing can be relied to improve the performance of the credit market.

The study will be of benefit to the economy for through credit information sharing among finance lenders there is increased lending, rise in productivity, greater stocks of capital and reduction in average interest rate, poverty and income inequality alleviation.

The study will provide Government and Financial institution to draw up policies which improve resource allocation efficiency by solidifying credit performance, thus contributing to higher economic growth and advancement.

To the borrowers, it will reinforce borrower's incentive to perform, either via reduction of bank's rent or through a disciplinary effect. Informational rents that banks can extract from their clients within lending relationship will be reduced through the exchange of credit information between banks, thus resulting in efficient credit market performances.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter highlights the theoretical model of the study that is information asymmetry theory, the quality uncertainty theory and moral hazard theory discussing their proposition and implication to the study variables. It also reviews credit information sharing and the determinants of the credit market performances of commercial banks. Empirical literature is also reviewed with the emphasis on the objective of the study, methodology and the results. Lastly a summary of the literature review is given.

2.2 Review of Theories

2.2.1 Information Asymmetry Theory

Information asymmetry arises if one party possesses information which is not accessible and thus unknown to the counterparty. This can be used as a competitive advantage by the party which benefits from an unequal distribution of information. By definition information asymmetries can also arise between market participants on financial markets in general and on secondary credit markets more specifically (Leland and Pyle, 2012). The key issue is if a better-informed market participant capitalizes on his information advantages and thus influences market structure and pricing patterns.

According to Robinson (2001), this theory is based on the assumption that banks are unable to complete successfully with informal lenders because such lenders have access

to better information about credit applicants than formal institution can obtain cost effectively. Information asymmetry may influence line of credit availability and use since some sources of repayment are based on access to public capital markets (Hardin and Hill, 2010). Information asymmetry impacts a lenders' willingness to lend which comes with uncertainty in bank credit level performance. A large portion of related monitoring costs is likely transferred to borrowers in the form of higher interest rates and data collection costs which may lead to some borrowers reducing their use of bank lines of credit. Moreover, if monitoring is imperfect and the lenders cannot eliminate information asymmetric bank credit may be rationed (Nyangweso, 2013). These greatly influence the credit market performance of commercial banks.

By exchanging information about their customers, banks can improve their knowledge of applicants' characteristic, past behavior and current debt exposure. In principle this reduction of information asymmetric 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 (Brown, Jappelli and Pagano, 2009). Trustworthy transfer of information is the main issues to overcome existing information asymmetries. Improved information flows enhance the sufficiency and stability of the entire financial system. To the study, this theory implies that credit information sharing will reduce information asymmetry problem which in return will reduce non performing loans to the financial institutions and improve their credit market performance.

2.2.2 Quality Uncertainty Theory

According to Arrow (1985), prior to the contract formation the contract partners are unsure about the performance quality of the respective counterpart. Akerlof (1970) introduced the concept of quality uncertainty to financial literature. Based on theoretical model he proves that quality uncertainty is present on financial markets and directly impacts the behavior of market participants. On the other hand, the interaction of quality and uncertainty may explain important institutions of the credit market. In banking institution borrowers use some market statistic to judge the quality of prospective borrowings. In this case there is incentive for lenders to market poor quality product, since the returns for good quality accrue mainly to the entire group whose statistic is affected rather than to the individual lender. As a result there tend to be a reduction in the average quality of products also in the size of the credit market. The theory implies that by credit information sharing, adverse selection problem will be mitigated which is expected to improve credit market performance of commercial banks.

2.2.3 Moral Hazard Theory

Moral hazard is a risk parameter which becomes important after the (financial) contract is signed between the two parties (Trezzini, 2005). Ex-post one contract party is able to see and evaluate the outcome but not the action performed by the counterparty to achieve this outcome. In addition, one contract party cannot verify if the outcome is linked to the actions carried out by his contractual counterpart or if the outcome is merely the result of external impact factors which are beyond the contract partner's influence (Mirrlees, 1999).

The moral hazard problem implies that a borrower has the incentive to default unless there are consequences for this future application for credit. This result from the difficulty lenders have in assessing the level of wealth borrowers will have accumulated by the date 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. For stalling this lenders will increase rates leading eventually to the breakdown of the market (Alary and Goller, 2001).

Information sharing can motivate borrowers to repay loans, when the legal environment makes it difficult for banks to enforce credit contracts (Klein, 1992). In this model borrowers repay their loans because they know that defaulters will be blacklisted, reducing external finance in future. In both models default is a signal of bad quality for outside banks and carries the penalty of higher interest rates, or no future access to credit (Kiage, Musyoka and Muturi, 2015). Information sharing improves borrowers' incentives to repay the loans and help overcome moral hazard of borrowers (Padilla & Pagano, 2000). This therefore implies that by going with the theory, credit information sharing will have positive impact on credit market performance of commercial banks.

2.3 Determinates of Credit Market Performance of commercial Banks

Determinates of credit make performance of commercial banks are stochastic variables that determine the output. Djankoy et al, (2007) confirm that private sector of credit relative to GDP is positively correlated with information sharing in their recent study of credit market performance and institutional arrangements in 129 countries for the period

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1978-2003. Jappelli and Pagano (2002) show that economic and institutional determinants of bank lending such as country size, GDP growth rate and variables define that bank lending to the private sector is large and default rates are lower in countries where information sharing is more solidly established and extensive. Studies have shown that bank specific and macroeconomic factor affects the performance of commercial banks (Flamini et al 2009).

2.3.1 Capital Adequacy

Capital is the amount of own fund available to support the bank's business and act as a buffer in case of adverse situation (Athanasoglou et al. 2005). Banks capital creates liquidity for the bank due to the fact that deposits are most fragile and prone to bank runs. Moreover, greater bank capital reduces the chance of distress (Diamond, 2000). Negatively, capital adequacy induces weak demand for liability. Capital adequately is the capital expected to maintain balance with the risk exposure of the financial intuition such as credit risk, market risk and operation risk, in order to absorb the potential losses and protect the financial institution's debt holder (Mutua, 2012). The adequacy of capital is judged on the basis of capital adequacy ratio (Dang, 2011) which shows the internal strength of the bank to withstand losses during crisis.

2.3.2 Liquidity management

Liquidity refers to the ability of the bank to fulfill its obligation. (Mutua, 2012) emphasizes that banks makes money by mobilizing short-term deposits at a lower interest rate and lending or investing these funds in long term at higher rates so it is hazardous for

banks mismatching their lending interest rate. Customer to assets and total loan to customer deposits reflects the liquidity position of a bank (Dang, 2011).

2.3.3 Asset Quality

Asset quality indicators highlight the use of non-performing loan ratios which are the Proxy of assets quality, and the allowances or provision to loan losses reserve (Frost 2004). The highest risk facing bank is the losses derived from the delinquent loans (Dang, 2011). According to (Mutua, 2012), the credit analyst should carry out the asset quality assessment by performing the credit risk management and evaluating the quality of loan portfolio using trend analysis and peer comparison.

2.3.4 Macroeconomic Factors

Credit performance of commercial banks can also be affected by macroeconomic variables as Macroeconomic Policy Stability, Gross Domestic Product, Inflation, Interest Rate and Political Instability. For instances, the trend of GDP affects the demand for bank asset. During the declining GDP growth the demand for credit falls. On the contrary, in a growing economy as expressed by positive GDP growth, the demand for credit is high due to the nature of business cycle. During boom the demand for credit is high compared to recession (Athanasoglou et al. 2005).

2.4 Empirical studies

According to Kallberg and Udell (2003), exchange credit information is a valuable in assessing borrower quality therefore formal information exchange added economic value.

They examined whether credit information in general and business credit information in particular, a valuable mechanism for solving information problems in lending? The study analyzed on the value of private sector credit information focused on the value added by information exchange as at the individual credit decision-making level. Data for the study came from Dun and Bradstreet (D & B) data base on firms in the retailing SIC group with the objective to analyze whether data was informative with respect to assessing borrower quality. A total sample of 2,723 firms consisting of 241 failed and 2482 non-failed firm was used. Three-forty of these samples were used to estimate the model and the remainder was used as a holdout validating sample. The value of exchange generated information was tested in a stepwise logic regression where the dependent variable reflected the probability that the firm will not fail. Variables that indicate borrower quality were used to estimate the logic model. The value of exchange generated information went beyond information that was otherwise available to lenders.

In her comprehensive study on credit information sharing, bank characteristics and credit market performance in Kenya with the specific objectives of the study to determine the effect of credit information sharing on credit market performance in Kenya, Muthoni (2014) concluded that presence of credit information sharing significantly reduced default rates and increases credit availability among financial institutions in Kenya. To achieve this objective, descriptive and explanatory research designs were employed with the collected data analyzed using descriptive statistics (describe and summarized data), inferential statistics and content analysis. A census of 43 commercial banks in Kenya was conducted with both primary and secondary data collected for a period of five years

between 2008 and 2012. Data on defaults rates and credit availability were gathered from the bank supervision department at CBK. Panel data regression models and RE model was used to establish whether introduction of credit information sharing has had an impact on the credit market performance and to estimate the effect of credit information and to estimate the effect of credit information sharing and bank characteristic on default rates in Kenya respectively. Results showed that the presence of information significantly reduced the defaults rates.

Theory predicts that information sharing among lenders attenuates adverse selection and moral hazard and can therefore increase lending and reduce default rates, Jappelli and Pagano (1999) tested these predictions by studying the effects of private and public information sharing on bank lending and defaults. Bank lending and default rate were used as indicators of credit market performances. In their analysis of the effects of information sharing on bank lending to cross domestic product (GDP) ratio was used to measure the size of the credit market. To test the effect of information sharing on default rate the "credit risk" indicator based on the international country risk guide (ICRG) survey of leading international bankers was used as a proxy for the default rate. The ICRG credit risk measure is a composite equal weighted indicator of five types of financial risk. The ordinary least squares (OLs) regression was used to estimate the effects of information sharing on bank lending and default rate. The result of the study showed that the breadth of credit markets was associated with information sharing. Total bank lending to the private sector scaled by Gross National Product (GNP) was larger in countries where information was more solidly established and intense.

Grenade (2007) estimates the determinants of commercial banks interest rate spreads in Eastern Caribbean currency union using annual panel data of commercial banks. The empirical model includes regulatory variables (statutory minimum savings deposit rate) as well as market power, operating cost as a ratio of earning assets, ratio of provisions for loan losses to total earning assets as a measure of credit risk, liquidly risk proxies by the ratio of liquid assets to total assets and a real GDP as an indicator of economic activity. Market power is proxies by Herfindahi-Hirschman Index (HHI) computed using the market shares of loan advances in banking industry. The spread is found to increase with an increase in market power, regulated savings deposit rate, real GDP growth, reserve requirements, provision for loan losses and operating cost.

Djankov et al., (2007) conducted a study of the importance of information and power theories of credit in explaining the variation in the size of private credit markets around the world using new data on private credit institutions for 129 countries during the period 1978 to 2003. The finding and analysis revealed that the private sector credit relative to GDP is positively correlated with information sharing. A measure of legal credit or rights index and data on both the existence of public and private credit register was used to assess the power of theories of credit and information theories of credit respectively.

Munee (2013) conducted a research on the effect of credit information sharing on the financial performance of commercial banks in Kenya. The findings and analysis revealed that a positive relationship exists between credit information sharing and financial of commercial banks thus banks need to build a very strong information sharing premises,

which will enhance the existing management policies and hence improve the financial performance by reducing the proportion of non-performing loans. The study used regression analysis to establish the relationship between NPLs and total number of entries at the CRBs per year per bank and the Return on assets. A forecasting model was developed and tested for accuracy in obtaining predictions. The finding of the study indicate that the model was moderately significant NPLs and total number of entries to the CRBs as an independent variable was linearly related with the dependent variable (Financial performance of commercial banks as measured by ROA) thus multiple linear regression was used.

Nyangweso (2013) in his research, the relationship between credit information sharing and loan performance–case of commercial banks in Kenya found that credit information sharing affects loan performance and if banks undertakes credit referencing during credit appraisal process then loan default rate will decrease. To arrive at this, data on aggregates number of credit reports requested, monthly weighted average lending interest rate and total loans advanced by forty two commercial banks were collected for the period January 2008 to May 2013. The population of the study comprised 43 commercial banks and two CRBS. The research involved the use of regression analysis of loan performance as measured by default rate as the dependent variables while number of credit reports requested by commercial banks, aggregate number of credit reports requested by customers aggregate number of customer inquiries due to adverse actions by financial intuitions and commercial banks' monthly weighted average lending rates were the independence variables. The t-statistics and R-squared were used to determine the

magnitude of relationship between the dependent variable and independent variable. In the aggregate, lending is increased, leading to greater credit market growth, rising productivity and greater capital stock.

Dong (2009) carried out a Study on the effect of creditor information sharing and creditor protection in solving the asymmetric information friction in bank cross-border consolidation decision. The study collected data on the number of banks cross-border consolidation in period 1990 to 2007 across 58 countries. The data set Djankov et al., (2007) was utilized to measure credit information sharing mechanism and creditors' rights index. Bank regulation and supervision variables were used as control while macroeconomic factors and characteristics between the target and acquires countries were controlled for. The gravity –type model with Tobi regression was use and it was found that the existence of information sharing institutions could increase the probability of a country's bank to be international targets.

Kerage and Jagongo (2014) in a study on credit information and performance of commercial banks in Kenya concluded that the breadth of credit market is associated with information sharing that is there is positive relationship between credit information sharing and the performance of the banking sector the relationship is that as the banks share credit information sharing about the borrowers, their respective performance will improve. Results of the study indicate that 87% of the variation in profitability of commercial banks is explained by NPLs, volume of loans, level of interest rate and operation cost. NPLs have a negative and relationship with performance of commercial

banks. A unit increase in non-performing loans will lead to 22.6% decrease in profitability. The findings were that loan performance as measured by loan default rate is negatively related to performance of commercial banks which is in tandem with the findings of Brown (2007). A forecasting multiple regression models was developed and tested for accuracy in obtaining prediction NPLs portfolio, level of interest rates, volume of lending and operating costs as an independent variable was linearly related with the dependent variable profitability.

Wairimu (2013) studied the effect of credit references bureaus on the level of non-performing loans in commercial banks in Kenya. She shows that 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 increase banking competition, which is turn leads to increased lending. Information sharing can also create incentives for borrowers to perform in line with banks' interest. 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 his model borrowers repay their loans because they know that defaulters will be blacklisted, reducing external finance in future.

2.5 Chapter summary

This chapter covered an overview on literature on effects of credit information sharing on credit market performance among commercial banks. Theories and empirical evidence on which the study will be built are reviewed. It covered a review of information asymmetry

theory which describes the condition in which relevant information is not known to all parties involved in the undertaking which can be used as a competitive advantage by the party which benefits from unequal distribution of information, quality uncertainty theory which entails to ex-ante information asymmetry and moral hazard theory which describes the uncertainty from an ex-post perspective.

Theoretical and empirical analyses show that banks' sharing of information on borrowers helps to curtail the effects of adverse selection and moral hazard, reduces credit risk which translates to lower interest rates, makes for readier access to the market and increase the stability of the banking system (Muthoni, 2014). Kallberg and Udell (2003) shows that exchange credit information was valuable in assessing borrower quality therefore formal information exchange added economic value. Most studies that have examined the effect of credit information sharing and credit market performance in developed credit markets, however little study has been undertaken to capture these effects in Africa and more so Kenyan credit markets. The study therefore seeks to fill this knowledge gap by establishing the effect of credit information sharing on credit market performance among commercial banks in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the research methodology of this study. The main aspects include research design adopted, target population, the instruments of data collection, process and data analysis techniques.

3.2 Research Design

This study used a descriptive research design. A descriptive study attempts to describe or define a subject, often by creating a profile of group of problems, people, or events, through the collection of data and the tabulation of the frequencies on research variables or their interaction (Schindler and Cooper, 2008). It serves a variety of research objectives such as descriptions of phenomenon or characteristics associated with a subject population, estimates of proportions of population that have these characteristics and discovery of associations among different variables (Ngechu, 2004). Descriptive research design is chosen because it enables the researcher to generalize the findings to a large population, it allows analysis and relation of variables.

3.3 Population and Sample

The target population is a group of elements to which the researcher wants to make inference and of which have common characteristics (Mugenda & Mugenda, 2003). All the 43 commercial banks licensed by the Central Bank form the target population of the

study as at December 2014. This was based on the consideration that ensured a full representation of the commercial banks. A census approach will be used in this study to allow all commercial banks to be included in the study since the number is small and reachable.

3.4 Data Collection Methods

This study purely used secondary data as a method of collecting data for the study for is useful in providing collaborative information on the problem of the study. Secondary data was collected from supervision annual report and audited accounts submitted to CBK, annual publications by the CRBs and the commercial banks for the period 2008 to 2014. This data relate total loans, total loans advances, total number of entries made by commercial banks at CRBs (number of credit files/reports shared) per year and total assets which are mainly quantitative. This period was chosen because the credit information sharing was introduced in 2008.

3.4.1 Data Reliability

Reliability refers to the degree to which measures are free from random error and therefore yield consistent results (Zikmund, 1997). According to Sekaran (2003) reliability of a measure is an indication of the stability and consistency with which the instrument measures the concept and helps to assess the goodness of the measure. Thus the extent to which any measurement procedure produces consistent results over time and an accurate representation of the total population under study is referred to as reliability. The research used Cronbach's Alpha as a measure of internal consistency. Cronbach's

Alpha is a reliability coefficient that indicates how well items in a set are positively correlated to one another (Sekaran, 2003).

According to Darren and Mallery (2001), coefficient alpha is a measure of internal consistency based on the formula $\alpha = rk/ (I + (K-I) r)$, where k is the number of variables in the analysis and r is the mean of the inter-item correlation. They however caution that the alpha value is inflated by a larger number of variables so there is no set interpretation as to what is acceptable. Nevertheless, a rule of thumb that applies to most situations is given as: $\alpha > .9$ – excellent, $\alpha > .8$ – good, $\alpha > .7$ – acceptable, $\alpha > .6$ – questionable, $\alpha > .5$ – poor and $\alpha < .5$ – unacceptable. An alpha of 0.7 or above is considered to be reliable as suggested by many researchers (Davis 2000; Nunnally 1978). Sekaran (2003) also affirms that normally, reliabilities of 0.7 range is considered acceptable and over 0.8 is good.

3.5 Data Analysis

The study used Step-wise regression to estimate the model for the study and F-test to get the differential effects of the panel data for Ex-ante and Ex-post credit reference bureaus. Kocenda and Vojtek (2009) as well as Handand (1997) have previously used this model in their studies to select characteristics to use in credit markets. Stepwise regression is a semi-automated process of building a model by successively adding or removing variables based solely on the t-statistics of their estimated coefficient to maximize the models predictive and achieve better suitability.

This study used the regression technique to examine the relationship between the dependent variable and independent variables because the technique combines all the independent variables and detects the effect of those variables on dependent variable. A regression analysis is a collective name for the techniques used in modeling and analysis of numerical data consisting of values of dependent variable and independent variable (Hair *et al*, 2006).

The model for the study is specified as follows;

$Y = X_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_{3} + \varepsilon_i$

Where;

Y = Credit market performance ((Total Loans – Non Performing Loans)/ Total Loans)

X_1 = Credit Information Sharing (Number of Credit Reference Bureau enquiries made by commercial banks in Kenya)

X_2 = Size of Credit Institutions Loan Book (Log Total Loans Advanced per year in KSH)

X_3 = Size of the financial institution (Log of Total Assets)

X_0 - Intercept coefficient

ε_i – error term (extraneous variables).

β_1, β_2, and β_3 = are the regression co-efficient or change introduced in Y by each independent variable

The results are said to be statistically significant within the 0.05 level, which means that the significance value must be smaller than 0.05. The significance was determined by the t-value, which indicates how many standard error means the sample diverges from the

tested value (Kothari, 2004). In addition, the Pearson Product Moment Correlation Coefficient was used to test the direction and magnitude of the relationship between the dependent and independent variables at 95% confidence level. The model significance was tested using the analysis of the variance (ANOVA), t-tests, z-tests, F-tests and the chi-square at 95% confidence. A statistical inference technique was used in making conclusions relating to the accuracy of the model.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 Introduction

This chapter presents analysis and findings of the research. The objective of this study was to determine the effect of credit information sharing on the credit market performance of commercial banks in Kenya (2008 to 2014).

4.2 Descriptive Statistics

A descriptive study attempts to describe or define a subject, often by creating a profile of group of problems, people, or events, through the collection of data and the tabulation of the frequencies on research variables or their interaction (Schindler and Cooper, 2008). It serves a variety of research objectives such as descriptions of phenomenon or characteristics associated with a subject population, estimates of proportions of population that have these characteristics and discovery of associations among different variables (Ngechu, 2004). Descriptive research design was chosen because it enables the researcher to generalize the findings to a large population; it allows analysis and relation of variables.

4.2.1 Number of Credit Reference Bureau enquiries made by commercial banks in Kenya

From the findings, it can be noted that the year 2014 recorded the highest value for the Number of Credit Reference Bureau enquiries made by commercial banks in Kenya as

shown by a mean of value of 4.19 while the year 2011 recorded the lowest value for Number of Credit Reference Bureau enquiries made by commercial banks in Kenya as shown by 3.11. In addition, values for stardard deviation depicts variability in Size of financial Institutions during the study period with the highest deviation of 0.83 in the year 2011 and the lowest 0.16 in the year 2014. The findings revealed that there have been a significant increase in credit information sharing during the study period. These findings are well illustrated in table 4.1 below.

Table 4.1: Number of Credit Reference Bureau enquiries made by commercial banks in Kenya

Year	Median (000,000)	Minimum (000,000)	Maximum (000,000)	Mean (000,000)	Std deviation
2011	3.01	2.02	6.00	3.11	0.83
2012	3.22	2.14	6.78	3.13	0.91
2013	3.45	2.17	6.88	3.46	0.22
2014	3.88	3.11	7.98	4.19	0.16

Source: Research Findings, 2015

4.2.2 Size of Credit Institutions Loan Book (Log Total Loans Advanced per year in KSH)

From the findings, it can be noted that the year 2014 recorded the highest value for the Size of Credit Institutions Loan Book as shown by a mean of value of 7.01 while the year 2008 recorded the lowest value for the Size of Credit Institutions Loan Book as shown by 5.55. In addition, values for stardard deviation depicts variability in Size of Credit

Institutions Loan Book during the seven –year period with the highest deviation of 1.24 in the year 2008 and the lowest 0.96 in the year 2014. The findings revealed that there have been a significant increase in Size of financial Institutions during the seven-year period. These findings are well illustrated in table 4.2 below.

Table 4.2: Size of Credit Institutions Loan Book (Log Total Loans Advanced per year in KSH)

Year	Median (000,000,000)	Minimum (000,000,000)	Maximum (000,000,000)	Mean (000,000,000)	Std deviation
2008	4.23	2.45	8.63	5.55	1.24
2009	4.31	2.95	8.25	5.78	1.70
2010	4.76	3.93	9.24	5.91	0.84
2011	5.44	2.60	9.26	5.13	0.66
2012	5.90	1.88	9.59	6.05	0.77
2013	6.78	3.17	10.10	6,28	0.79
2014	7.03	3.91	10.33	7.01	0.96

Source: Research Findings, 2015

4.2.3 Size of financial Institutions

From the findings, it can be noted that the year 2014 recorded the highest value for the Size of financial Institutions as shown by a mean of value of 13.23 while the year 2008 recorded the lowest value for the Size of financial Institutions as shown by 7.44. In addition, values for stardard deviation depicts variability in Size of financial Institutions during the seven year period with the highest deviation of 1.26 in the year 2012 and the

lowest 0.13 in the year 2013. The findings revealed that there have been a significant increase in Size of financial Institutions during the seven-year period. These findings are well illustrated in table 4.3 below.

Table 4.3: Size of financial Institutions

Year	Median (000,000,000)	Minimum (000,000,000)	Maximum (000,000,000)	Mean (000,000,000)	Std deviation
2008	7.34	7.71	8.13	7.44	0.25
2009	8.22	8.55	9.23	8.99	0.80
2010	9.31	5.32	10.11	9.88	0.13
2011	10.11	6.44	11.91	10.90	0.54
2012	12.31	9.25	13.15	12.99	1.26
2013	12.41	8.47	11.54	12.33	1.13
2014	13.11	10.43	13.76	13.23	1.21

Source: Research Findings, 2015

4.2.4 Credit market performance

From the summary 2008 recorded the lowest Credit market performance at 5.19 while 2014 recorded the highest Credit market performance at 7.08, In addition, values for stardard deviation depicts variability in Credit market performance during the seven – year period with the highest deviation of 0.91 in the year 2008 and the lowest at 0.09 in the year 2014. The findings revealed that there have been a significant increase in Credit market performance during the seven-year period. These findings are well illustrated in table 4.4 below.

Table 4.4: Credit market performance

Year	Median (000,000)	Minimum (000,000)	Maximum (000,000)	Mean (000,000)	Std deviation
2008	5.43	4.41	6.22	5.19	0.91
2009	5.36	5.16	7.73	5.42	0.85
2010	5.22	3.15	9.38	5.55	0.81
2011	5.81	4.71	10.33	5.56	0.59
2012	5.83	4.92	10.79	5.67	0.48
2013	6.18	5.12	11.18	6.88	0.13
2014	6.20	9.91	12.89	7.08	0.09

Source: Research Findings, 2015

4.3 Correlations

The Karl Pearson's product-moment correlation was used to analyse the association between the independent and the dependent variables. The Pearson product-moment correlation coefficient (or Pearson correlation coefficient for short) is a measure of the strength of a linear association between two variables and is denoted by r. The Pearson correlation coefficient, r, can take a range of values from +1 to -1.

A value of 0 indicates that there is no association between the two variables. A value greater than 0 indicates a positive association, that is, as the value of one variable increases so does the value of the other variable. A value less than 0 indicates a negative association, that is, as the value of one variable increases the value of the other variable decreases. Pearson's Correlation Coefficient was carried out and the results obtained are presented in table 4.5

Table 4.5: Correlations

		Credit market performance	Number of Credit Reference Bureau enquiries	Size of Credit Institutions Loan Book	Size of financial Institutions
Credit market performance	Pearson Correlation	1	.821[*]	.875[**]	.732[**]
	Sig. (2-tailed)		.001	.0001	.003
	N	34	34	34	34
Number of Credit Reference Bureau enquiries	Pearson Correlation	.821[*]	1	-.340[**]	-.310[*]
	Sig. (2-tailed)	.001		.003	.028
	N	34	34	34	34
Size of Credit Institutions Loan Book	Pearson Correlation	.875[**]	-.340[**]	1	.389[**]
	Sig. (2-tailed)	.0001	.003		.007
	N	34	34	34	34
Size of financial Institutions	Pearson Correlation	.732[**]	-.310[*]	.389[**]	1
	Sig. (2-tailed)	.003	.028	.007	
	N	34	34	34	34

Source: Research data, 2015

On the correlation of the study variable, the researcher conducted a Pearson moment correlation. From the finding in the table above, the study found that there was strong correlation coefficient between Credit market performance and Size of financial Institutions as shown by correlation factor of 0.732, this strong relationship was found to be statistically significant as the significant value was 0.003 which is less than 0.05, the study also found strong positive correlation between Credit market performance and Size of Credit Institutions Loan Book as shown by correlation coefficient of 0.875, this too was also found to be significant at 0.001 level. The study also found strong positive correlation between Credit market performance and Number of Credit Reference Bureau enquiries as shown by correlation coefficient of 0.821 at 0.001 level of confidence.

4.4 Regression Analysis

Regression analysis was also performed to examine the relationship credit market performance and all the independent variables. The following model was adopted for the study.

$$Y= \beta o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \mu$$

Where Y = credit market performance

X_I = Number of Credit Reference Bureau enquiries

X_2 = Size of Credit Institutions Loan Book

X_3 = Size of financial Institutions

B$_1$– β$_4$ are the regression co-efficient or change introduced in Y by each independent variable μ is the random error term accounting for all other variables that affect credit market performance but not captured in the model. .

Table 4.6: Model Summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.867[a]	.751	.735	.35681

Source: Research data, 2015

The adjusted R^2, also called the coefficient of multiple determinations, is the percent of the variance in the dependent explained uniquely or jointly by the independent variables. The model had an average coefficient of determination (R^2) of 0.735and which implied that 73.5% of the variations in Credit market performance of commercial banks in Kenya are caused by the independent variables understudy (Number of Credit Reference Bureau enquiries, Size of Credit Institutions Loan Book, and Size of financial Institutions).

Table 4.7: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	2.789	4	0.742	5.511	.001[b]
1	Residual	5.213	31	0.201		
	Total	2.864	34			

Critical value = 2.588

Source: Research data, 2015

From the ANOVA statics, the study established the regression model had a significance level of 0.1% which is an indication that the data was ideal for making a conclusion on

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the population parameters as the value of significance (p-value) was less than 5%. The calculated value was greater than the tabulated value (5.511 > 2.588) an indication that Number of Credit Reference Bureau enquiries, Size of Credit Institutions Loan Book, and Size of financial Institutions adoption, all have a significant effects on credit marketing performance of commercial banks in Kenya. The significance value was less than 0.05 indicating that the model was significant.

Table 4.8: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	0.911	.251		5.016	.000
Credit Information Sharing	.487	.101	.367	4.823	.000
Size of financial Institutions	.486	.114	.386	4.263	.001
Size of Credit Institutions Loan Book	.431	.128	.343	3.367	.002

Source: Research data, 2015

As per the SPSS generated output as presented in table above, the equation ($Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3$) becomes:

$Y = 0.911 + (.487 X_1) + 0.486 X_2 + 0.431 X_3$

From the regression model obtained above, Constant = 0.911, shows that if all the independent variables (Number of Credit Reference Bureau enquiries, Size of Credit

Institutions Loan Book, and Size of financial Institutions) all rated as zero, share performance would rate 0.911. While holding the other factors constant a unit increase in Number of Credit Reference Bureau enquiries led to 0.487 increases in credit marketing performance. A unit increase in Size of Credit Institutions Loan Book while holding the other factors constant would lead to an increase in credit marketing performance of banks by a factor of 0.431, a unit change in Size of financial Institutions while holding the other factors constant would lead to an increase of 0.486 in growth of credit marketing performance. This implied that Credit Information Sharing had the highest influence on credit market performance of banks (p - value .000). The analysis was undertaken at 5% significance level. The criteria for comparing whether the predictor variables were significant in the model was through comparing the obtained probability value and $\alpha = 0.05$. If the probability value was less than α, then the predictor variable was significant otherwise it wasn't. All the predictor variables were significant in the model as their probability values were less than $\alpha = 0.05$

4.5 Summary and Interpretation of Findings

The study indicates that commercial banks have subscribed to the two registered CRB. The existence of credit registered is associated with increased lending volume growth of customer lending, improved access to financing and a more stable banking sector. It is difficult to have accurate information on the financial ability of prospective borrowers and even more difficult to have accurate information on their credit history (Angulin and scapens, 2000). This makes it extremely difficult for the lenders to assess the credit worthiness of potential borrowers and their ability to pay the loans and hence affecting

their overall credit market performance. The descriptive statistics shows that by facilitating information sharing among lenders credit bureaus has since 2010 with over 1,784,217 exchanges by 2012 indicator of credit market performance growth.

The correlation coefficient between the size of credit institutions loan book as measured by credit market performance is 0.875. This means there is s strong positive correlation between credit market performance and size of credit institution loan books, loan collection are the major assets of banks, thrifts and other lending institutions and are the predominate source of revenue.

The study found a strong positive correlation coefficient between Credit market performance and Size of financial Institutions as shown by correlation factor of 0.732,it was further established that a bank's rate of return on assets is shown to increase with its absolute size, but to decline with its systemic size. Bank risk in turn increases with absolute size, and appears to be largely unaffected by systemic size. A bank's absolute size thus represents a trade-off between bank risk and return. Systemic size, on the other hand, is an unmitigated bad, as it reduces return without a clear impact on risk. In practice, a bank determines its absolute and systemic size jointly, if it remains established in the same country. This implies that banks located in larger countries may have a larger optimal size as determined by a risk and return trade-off; as such banks can increase their absolute size with a relatively small nefarious impact on systemic size.

The analysis established that the regression model had a significance level of 0.1% which is an indication that the data was ideal for making a conclusion on the population parameters as the value of significance (p-value) was less than 5%. The calculated value was greater than the tabulated value (5.511 > 2.588) an indication that Number of Credit Reference Bureau enquiries, Size of Credit Institutions Loan Book, and Size of financial Institutions adoption, all have a significant effects on credit marketing performance of commercial banks in Kenya. The significance value was less than 0.05 indicating that the model was significant.

The findings suggested that for the period when credit information sharing was provided there was increased credit market performance as compared to periods preceding the establishment and operationalization of CRBs. Information about a business or individuals credit record was unavailable making borrowing of money difficult and interest rates high so as to offset the higher perceived risk hence affecting the credit market performance of the lending institution. Credit information sharing helps correct imbalance by allowing banks and other lending institution to collect and share data of potential borrowers, thus allowing lenders to gather information on the credit worthiness of each, thus an impact of the credit market performance of commercial banks.

The study concludes that the effect of credit information sharing on the credit market performance of commercial banks shows a positive relationship between the two variables indicate that with credit information sharing mechanism being operationalized, the credit market performance of commercial banks will be impacted positively.

The findings of this study compares to the finding by Muthoni (2014). In her comprehensive study on credit information sharing, bank characteristics and credit market performance in Kenya with the specific objectives of the study to determine the effect of credit information sharing on credit market performance in Kenya using data on default rates from 43 commercial banks, CRBs, CBK conduced that the presence of credit information significantly reduced default rates on commercial banks.

Nyangewo (2013) revealed that credit information sharing affects loan performance and if banks undertake credit referencing during credit appraisal process the loan default decrease. In the aggregate, lending is increased to greater credit market growth, rising productivity and greater stock. His undertaking on the relationship between credit information sharing and loan performance - case of commercial banks in Kenya using data on loan performance from 43 commercial banks and two CRBs collaborate with the findings of this study.

Credit information sharing has also helped banks and other financial institutions recover loans. That is, when borrowers know that their credit information will be shared, they have an additional incentive to pay. Good borrowers also benefit from lower interest rates, as lenders compete for their business. This has facilitated borrowing of money for business start-up or running which has highly reflected in the financial performance. This concurs with Jappelli and Pagano (2002) findings that bank lending is about twice as large in countries where credit information is shared, irrespective of the type of information exchanged.

The findings further compares to the findings by Kerage and Jagongo (2014) on credit information and performance of commercial banks in Kenya. Using data of NPLs, level of interest rate and operation cost concluded that there is positive relationship between credit information sharing and the performance of the banking sector. The relationship is that as the banks share credit information sharing about the borrowers, their respective performance will improve. NPLs have a negative and relationship with performance of commercial banks which concurs with this study that reduced NPLs impacts positively on the credit market performance of commercial banks.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

This study sought to determine the effect of credit information sharing on the credit market performance of commercial banks in Kenya. Secondary data on number of credit reference bureau enquiries made by commercial banks in Kenya, total assets and total loans advanced by thirty four commercial banks were collected for the period 2008 to 2014. The population of the study comprised 43 commercial banks and two registered CRBs. The study use descriptive statistics (mean, median standard deviation), regression analysis and corrections through pearson correlation co-efficient to determine the effect of credit information sharing on the credit market performance of commercial banks in Kenya.

The research use of regression analysis (to test the relationship) of credit market performance measured by the ratio of total loans minus non-performing loans to total loans as the dependent variable while number of CRB enquiries and total loans advanced per year as the independent variable. In general, the result indicate that credit information sharing affects credit market performance and the more information is available about borrower's characteristic the loan default rate decreases.

The study concludes that credit information sharing has a strong positive correlation with credit market performance of 0.821. There exist a significant a strong positive correlation

between all independent variables and credit market performance. Credit market performance and number of credit reference bureau enquiries as shown by correlation co-efficient of 0.821 at 0.001 level of confidence implies a linearly correlation in such away that increase in number of CRBs enquiries led to increase in credit market performance and vice versa. A unit increase in number of CRBs enquiries holding the other factors constant led to 0.487 increases in credit market performance. On the other hand credit market performance and size of credit institutions loan book as a positive correlation co-efficient of 0.875 at 0.001 level of confidence. The regression analysis concurred with correlation results in that a unit increase in size of credit loan book while holding other factors constant would lead to an increase in credit market performance of banks by a factor 0.431. Lastly, credit market performance and size of financial institutions as positive correlation factor of 0.732. Credit information sharing has a positive effect on the commercial banks in Kenya.

5.2 Conclusion

Information sharing about borrowers' characteristics and their indebtedness can have important effects on credit markets activity. First, it improves the banks' knowledge of applicants' characteristics and permits a more accurate prediction of their repayment probabilities. Second, it reduces the informational rents that banks could otherwise extract from their customers. Third, it can operate as a borrower discipline device. Finally, it eliminates borrowers' incentive to become "over-indebted" by drawing credit simultaneously from many banks without any of them realizing.

Banks have an incentive to hold diverse portfolios. While this may be an optimal strategy in terms of lowering individual risk, it induces a negative externality on the system. The benefits of diversification, minimizing a portfolio's exposure to idiosyncratic risk, are countered by an increase to systemic connectedness when other banks hold similar portfolios. A shock to a certain class of assets will affects all banks that hold these assets. If a large fraction of banks are holding a comparable collection of assets, then a large negative shock will cause these banks to all become distressed simultaneously (Ibragimov et al. 2011). Therefore, larger banks holding more diversified portfolios are typically recognized as being more stable, whereas when one fails he probability that this shock also affects other banks is high. On the contrary, smaller banks hold a smaller set of assets, and are thus more isolated from the rest of the system. Therefore, size may be positively associated with SI, opposite the relation to individual risk.

5.3 Recommendations to Policy and Practice

The study recommends that the government should consider allowing credit information systems extended to other non-bank credit providers in order to ensure proper credit information sharing and curb unfair competition since credit worthiness of a larger percentage of the population is shared. 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.

The study also recommends that the Kenya bankers association, central bank of Kenya and the Kenya government through the ministry of National treasury put

measures that ensure compliance adherence to the CRB regulations. This will improve the quality of information supplied to the databases and cut information search costs in the future.

There is need of a constant collaboration and sharing of information between the financial institutions and the credit reference bureau. This is to improve the reports provided by credit reference bureau to the financial institutions and also to make sure any challenges in accessing the database is reported promptly. Commercial banks should install a customer monitoring system which would reduce credit track records, risk premiums and search costs imposed on customers by the banks. This would increase the customer base which would enhance performance in the banks.

5.4 Limitations of the Study

Credit information sharing in Kenya is relatively new. The credit market participants may not have fully embraced the use of credit information sharing. Credit information sharing is currently limited to commercial bank and the results may not be generally applicable in other financial firms such as SACCOs.

The study used the ordinary least square regression method of analysis which may have its own weaknesses compared to other methods which may limit the general applicability of the study results. However, this descriptive and correlation study relied on secondary data which was collected from supervision annual report and audited accounts submitted

to CBK, annual publications by the CRBs and the commercial banks for the period 2008 to 2014.

Data was used as they were obtained from the sources and the researcher had no means of verifying for the validity of the data which were assumed to be accurate for the purpose of this study. The study results are therefore subject to the validity of the data used.

The researcher conducted the study within a short period of time. Carrying out this study while working on full time was not easy. This was encountered during data collection to ensure that the study is successfully by covering at least 34 banks out of the 43 banks to enable inference of the study findings

5.5 Areas for Further Studies

This study focused on effect of credit information sharing on the credit market performance of licensed commercial banks, abroad study covering factors affecting credit information sharing between bank, MFIs and SACCOs in Kenya should be recommended.

Further research should be carried out on factors affecting the effectiveness of credit listed bureaus on reducing non-performing loans and assess whether the results will be different from the finding of this study.

The study used aggregate commercial banks figures, firm (bank) level data on credit access to investigate the relation between credit information sharing and credit availability in the country and possibly explore the effect of credit information sharing on the conduct of borrowers should be the future consideration to be taken into account.

The researcher also recommends that future researcher investigate on borrower behavior in terms of the positive credit information with regard to borrowings made from commercial banks. The study focused on borrower behavior in terms of the negative credit information.

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APPENDICES

Appendix I: List of Licensed Commercial Banks (As At Dec, 2014)

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

Appendix II: List of Licensed Commercial Banks whose Financial Records where

Available (As At Dec, 2014)

1. African Banking Corporation Ltd
2. Bank of Baroda Ltd
3. Bank of India
4. Barclays Bank of Kenya Ltd
5. CFC Stanbic Bank Ltd
6. Chase Bank (K) Ltd
7. Citibank N.A Kenya
8. Consolidated Bank of Kenya Ltd
9. Co-operative Bank of Kenya Ltd
10. Credit Bank Ltd
11. Development Bank of Kenya Ltd
12. Diamond Trust Bank Ltd
13. Dubai Bank Ltd
14. Equatorial Commercial Bank Ltd
15. Equity Bank Ltd
16. Family Bank Ltd
17. Fina Bank Ltd
18. Giro Commercial Bank Ltd
19. Guardian Bank Ltd
20. Gulf African Bank Ltd
21. Habib Bank A.G Zurich
22. Habib Bank Ltd
23. Imperial Bank Ltd
24. Kenya Commercial Bank Ltd
25. K-Rep Bank Ltd
26. Middle East Bank Ltd
27. National Bank of Kenya Ltd
28. NIC Bank Ltd
29. Oriental Commercial Bank Ltd
30. Paramount Universal Bank Ltd
31. Prime Bank Ltd
32. Standard Chartered Bank Ltd
33. Trans-National Bank Ltd
34. Victoria Commercial Bank Ltd