

**THE EFFECT OF CREDIT REFERENCE BUREAUS ON THE
FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN
KENYA**

BY

**PETER TUYGEN MUKUNA ALLOYO
REG NO. D61/60389/2010**

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT
OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF
BUSINESS ADMINISTRATION UNIVERSITY OF NAIROBI

NOVEMBER 2013

DECLARATION

This is to declare that this research project is my original work that has not been presented to any other University or Institution of Higher Learning for examination.

Signed: _____ Date: _____

NAME: PETER TUYGEN MUKUNA ALLOYO

REG: D61/60389/2010

DECLARATION BY:

This is to declare that this project has been presented for examination with my approval as the university;

Signed: ----- Date: -----

SUPERVISOR: JOSEPH BARAZA

DEDICATION

To

My dear mum

Margaret Aloyo

(for your love, support, patience, encouragement and understanding)

and

Loving Dad Howard Aloyo

(for giving me the will and determination to complete my studies)

ACKNOWLEDGMENTS

My strength and inspiration comes from above from whom I have sought comfort and peace when times are difficult. My greatest thanks go to the Almighty God.

I wish to express my gratitude to my supervisor, Joseph Baraza who was abundantly helpful and offered invaluable assistance, support and guidance. He was more than a supervisor and for his patience and good counsel. I hereby express my deepest gratitude. The wealth of knowledge he has imparted to me is appreciated and I shall forever be indebted to him.

Special thanks also to all my friends, especially group members; Victor, Wachira, Maureen, Winfred, and Levina for sharing the literature and invaluable assistance.

Besides, i would like to thank the University of Nairobi for providing us with a good environment and facilities to complete this project. Finally, I express my love and deepest gratitude to my beloved parents Margaret Alloyo and Howard Alloyo for their prayers, understanding & endless love.

ACRONYMS & ABBREVIATIONS

CBK – central bank of Kenya

CIS-Credit information sharing

CRB -credit reference bureau

DTM- Deposit Taking Microfinance

FI - Financial institutions

HELB - Higher Education Loans Board

KCB - Kenya Commercial Bank

KPLC- Kenya power and lighting company

NPA - Non-Performing Assets

NPLs - Non- performing loans

PAR - Portfolio at risk

PCR- Public credit registries

SACCO - Savings and Credit Cooperative Organization

SPSS-Statistical Package for Social Sciences

TAT - Turnaround time

ABSTRACT

The study examined the relevance of credit reference bureaus and its effects on the financial performance of banks in Kenya. The specific objective of the study was; to establish the effect of credit reference bureaus on the financial performance of banks in Kenya.

The study adopted a descriptive design and used secondary data in analysis. The target population consisted of 44 banks. The research findings showed that before commissioning of credit reference bureaus the semi-annual financial performance of banks was fairly constant. However the financial performance increased slightly with commencement of credit reference bureaus. The findings also established that consumers and lenders find the credit reference bureaus useful in the financial industry in Kenya which will lead to a bigger credit market, lower default and interest rates, improved profitability for the financial institutions, increase price competitiveness of credit facilities, instill good credit behavior among lenders, improve pool of borrowers, expansion of lending and help improve access to credit in Kenya.

TABLE OF CONTENTS

DECLARATION.....	ii
DEDICATION.....	iii
ACKNOWLEDGMENTS	iv
ACRONYMS & ABBREVIATIONS.....	v
ABSTRACT.....	vi
TABLE OF CONTENTS.....	vii
LIST OF TABLES.....	ix
CHAPTER ONE	1
INTRODUCTION.....	1
1.1 Background of the Study.....	1
1.1.1 Credit Reference Bureau	2
1.1.2 Financial Performance	5
1.1.3 Effects of Credit Reference Bureau on Financial Performance	7
1.2 Problem Statement	11
1.3 Research Objective.....	13
1.4 Value of the Study.....	13
CHAPTER TWO	15
LITERATURE REVIEW	15
2.1 Introduction	15
2.2 Theoretical Review	15
2.2.1 Credit Rationing Theory.....	15
2.2.2 Information Sharing Theory	17
2.2.3 Moral Hazard Theory	19
2.2.4 Adverse Selection Theory	20
Types of Risks.....	23
2.3.1 Portfolio at Risk (PAR)	23
2.3.2 Credit Risk Management	24
2.3.3 Liquidity Risk Management	25

2.4 Management of Loan Portfolio and Credit Reporting	26
2.5 Credit Reference Bureaus Review	27
2.5.1 Overview of Development of Credit Reference Bureaus	28
2.5.2 Credit Reference Bureaus in the Developing World	29
2.5.3 Credit Reference Bureaus in Kenya	29
2.6 Non-Performing Loans.....	31
2.7 Empirical Review	33
2.8 Chapter Summary.....	39
CHAPTER THREE	40
RESEARCH METHODOLOGY	40
3.1 Introduction	40
3.2 Research Design.....	40
3.3 Population.....	41
3.4 Sample Design.....	41
3.5 Data Collection.....	42
3.6 Data Analysis	42
3.6.1 Analytical Model.....	42
CHAPTER FOUR.....	44
DATA ANALYSIS AND PRESENTATION.....	44
4.1 Introduction	44
4.2 Descriptive Analysis	45
4.3 Regression Analysis	48
4.4 Pre and Post-Credit Information Financial Performance	51
CHAPTER FIVE	53
DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS.....	53
5.1 Introduction	53
5.2 Discussions.....	54
5.3 Conclusion.....	55
5.4 Recommendations	56
References.....	57

LIST OF TABLES

Table 4.1: Semi-annually Data	45
Table 4.2: Model Summary	48
Table 4.3: Analysis of Variance (ANOVA)	49
Table 4.4: Regression Coefficients	50
Table 4.5: Group Statistics - Mean Differences.....	51
Table 4.6: Independent Samples Test	51

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Lending is a challenging proposition in any setting particularly in the developing world, where legal/judicial enforcement is weak, where information about the ability and willingness to repay of applicants is not readily available and where many of the prospective lenders are from a poor household/ firms; many of whom have never before borrowed and cannot pledge collateral to guarantee repayment (Gonzalez-Vega, 2003; Conning and Udry, 2007). Lending in Kenya is a direct juxtapose of the prevailing factors in developing and transitional economies.

One of the main tasks of commercial banks is to offer loans, and their main source of risk is credit risk, that is, the uncertainty associated with borrowers' repayment of these loans (Tiffany Grosvenor et al 2010).The Banking (Credit Reference Bureau) Regulations, 2008 became effective in February 2009. The Regulations require all licensed banks to share information on Non-Performing Loans (NPLs) through a Credit Reference Bureau (CRB) licensed by CBK. The role of licensed CRBs is to collect, collate and process data received from approved sources of information and generate credit reports to be used by lenders.

1.1.1 Credit Reference Bureau

A Credit Reference Agency or Credit Bureau (Credit Reporting Agency in the USA) is an organization that collects and collates personal financial data on individuals, from financial institutions with which they have a relationship with. The data is aggregated and the resulting information (in the form of credit reports) is made available on request to contributing companies for the purposes of credit assessment and rating (Wikipedia, 2011). Standard and Poor's (S&P), one of the world's leading credit rating agencies, defines credit rating as "a current opinion of the creditworthiness of an obligor with respect to a specific financial obligation. The opinion evaluates the obligor's capacity and willingness to meet its financial commitments" In other words credit report is an accumulation of information about how you pay your bills and repays loans, how much credit you have available, what your monthly debts are, and other types of information that can help a potential lender decide whether you are a good credit risk or a bad credit risk (Obringer, 2005).

Credit Reference Reports will help banks stem out malpractices in the banking sector since customers whose credit reports indicate as having been involved in malpractices are subjected to stringent terms and conditions. This is also expected to help banks suppress

the levels of NPLs while increasing their loan books. To bank customers, credit information sharing is expected to minimize the problem of information asymmetry in the financial sector. Information asymmetry between banks and borrowers is one of the main contributors to high cost of credit. To this end, banks tend to load a “risk premium” to borrowers because of lack of customer information. This in turn, increases cost of borrowing, meaning repayment of loans go up which translates to a high level of default. The Credit Information Sharing (CIS) mechanism is therefore expected to facilitate the development of information capital to increase information symmetry and allow cost of credit to decline substantially. It is therefore the Central Bank’s expectation that savings arising from the sharing of credit information shall translate to lower cost of credit.

In turn, more Kenyans will be able to access credit from institutions and the building of information capital should also serve as a key substitute to physical collateral. (CBK 2010) Credit Reference bureaus (CRB) complement the central role played by banks and other financial institutions in extending financial services within an economy. CRBs help lenders make faster and more accurate credit decisions. They collect, manage and disseminate customer information to lenders in the form of credit reports. These credit reports will help lenders to decide whether to extend an applicant a loan, credit card,

overdraft facility or extend any other product, which is dependent on customer's ability to repay at a determined cost.

Credit bureaus assist in making credit accessible to more people, and enabling lenders and businesses reduce risk and fraud. Sharing of information between financial institutions in respect of customer credit behavior, therefore, has a positive economic impact. The Banking (Credit Reference Bureau) Regulations, 2008 provides that the information to be shared among the banks is any customer information concerning their customers' non-performing loans (NPLs) as well any other adverse information relating to a customer (negative information).

The central bank of Kenya has licensed two credit reference bureaus; Metropol CRB and CRB Africa ltd to offer banking sector credit information sharing services in Kenya. One of the key indicators of the success of credit market is the proper and effective credit reference bureaus which includes the availability of quality information, affordable credit facilities, and quality of assets; measured as a proportion of net non-performing loans to gross loans, in this case, stock of gross non-performing loans declining, leading to decline on provision for bad debts and hence profitability. Credit Reference Bureaus are a typical response to information asymmetry problems between lenders and borrowers. A Credit

Reference Bureau is an institution that is either publicly or privately owned entity that consolidates information on borrowers from lenders.

1.1.2 Financial Performance

Financial performance is defined as subjective measure of how well a firm can use assets from its primary mode of business and generate revenues (Waweru & Kalani, 2009). This term is also used as a general measure of a firm's overall financial health over a given period of time, and can be used to compare similar firms across the same industry or to compare industries or sectors in aggregation. There are many different ways of measuring financial performance, but all measures are taken in aggregation. Line items such as revenue from operations, operating income or cash flow from operations can be used, as well as total unit sales can be used in measuring the financial performance.

The emergence of Credit Reference bureaus has significantly revolutionized lending and contributed to the improved financial performance of many banks as well as other financial institutions. Before the introduction of CRB, many borrowers used to borrow from one institution to the other without being identified. This led into many financial institutions experiencing immense losses as a result of non-performing loans. Through the use of CRB, the banks are in a position to obtain detailed information on a person's credit history, including information on their identity, credit accounts and loans,

bankruptcies and late payments and recent inquiries. Other information shared include: proven frauds and forgeries; Cheque kiting; false declarations and statements; receiverships, bankruptcies and liquidations; credit default and late payments; use of false securities; and misapplication of borrowed funds (CBK, 2009).

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

1.1.3 Effects of Credit Reference Bureau on Financial Performance

Research by Armstrong, (2008) based on information from several countries across the globe show that the existence of credit registries is associated with increased lending volume, growth of consumer lending, improved access to financing and a more stable banking sector. Further, Hansen *et al*, (2004), highlighted that many borrowers make a lot of effort to repay their loans, but do not get rewarded for it because this good repayment history is not available to the bank that they approach for new loans. Whenever borrowers fail to repay their loans, banks are forced to pass on the cost of defaults to other customers through increased interest rates and other fees. Put simply - good borrowers are paying for bad. Credit reporting allows banks to better distinguish between good and bad borrowers. Angulin and Scapens, (2000) in their study indicated that 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. This makes it extremely difficult for the lenders to assess the credit worthiness of potential borrowers and their ability to pay the loans.

Recent theoretical research suggests a threefold effect of lenders' exchanging information on the credit history of borrowers (Pagano and Jappelli, 1993). First, credit bureaus improve banks' knowledge about applicants' characteristics and permit more accurate prediction of repayment probability. This allows lenders to target and price their loans better, easing adverse selection problems. In this respect the benefit of establishing

a credit bureau is greatest where each bank is confronted by a large number of customers on which it has no previous information, i.e., where borrowers are very mobile. Second, credit bureaus reduce the informational rents that banks could otherwise extract from their customers. They tend to level the informational playing field within the credit market and force lenders to price loans more competitively. Lower interest rates increase borrowers' net return and augment their incentive to perform. Third, credit bureaus work as a borrower discipline device: every borrower knows that if he defaults his reputation with all other potential lenders is ruined, cutting him off from credit or making it much more expensive. This mechanism also heightens borrowers' incentive to repay, reducing moral hazard.

In the adverse selection model developed by Pagano and Jappelli (1993), information sharing improves the pool of borrowers, decreases defaults and reduces interest rates. It can also lead to an expansion of lending. When banks are local monopolists, however, in some cases lending diminishes, because the exchange of information increases the banks' possibility of price discrimination between safe and risky borrowers and the increase in lending to safe borrowers does not fully compensate for the reduction in that too risky types. When credit markets are contestable, lending activity is more likely to increase: competition limits the banks' ability to extract rents from their customers, and information sharing increases banking competition. Moral hazard models also imply that information sharing should reduce default rates and interest rates and increase lending,

either because credit bureaus foster competition by reducing informational rents (Padilla and Pagano, 1996) or because they discipline borrowers (Padilla and Pagano, 1997). In extreme cases, information exchange may make lending feasible in markets where no credit would be extended.

The banking sector in Kenya comprises of Central Bank of Kenya as regulatory authority. The regulated being commercial banks, non-bank financial institutions and foreign exchange bureaus. As at 28th February 2011, the banking sector comprised of 44 commercial banks, one mortgage finance company, one deposit taking micro finance institution and 130 foreign exchange bureaus.

The banking sector was liberalized in 1995 and exchange controls were subsequently lifted. The CBK, which falls under the Minister for Finance docket, is responsible for formulating and implementing monetary policy and fostering the liquidity, solvency and proper functioning of financial system.

The banking sector continued on its growth trajectory in 2009 notwithstanding local turbulence arising principally from the post-election crisis. The sector also emerged unscathed from effects of global financial crisis as it was not exposed to the toxic assets that fuelled crisis. Despite the challenging operating environment brought about by post-

election violence in the first quarter of 2008 and global financial crisis, the banking sector remained stable with all institution remaining adequately capitalized (CBK, 2010). Recent developments in the Kenya banking industry are as follows; first, increase in minimum core capital from 250 million to Kes1 billion by end of 2012, this will enable banks to effectively and competitively serve their market niches. Secondly, Publication of Credit reference bureau regulation in July 2008 which assist in making credit accessible to more people and enabling lenders and business reduce risk and fraud. Third, increase in investment in Information and Communication Technology (ICT); this influences the unit cost of banking services and diversity of product and service that a bank can offer to its customers. Fourth, growth in micro finance and CBK has enforced legislative provisions that require the approval of bank charges (CBK, 2010).

The banking industry serves as a major conduit through which instability may be transmitted to other sectors in the economy by disrupting the interbank lending market and payments mechanism, by reducing credit availability, and by freezing deposits. The fear that increased competition may add to financial system fragility has traditionally motivated regulators to focus on developing policies that preserve stability in the banking sector. (Berger et al 2006). In a situation in which a large number of banks compete, profit margins are eroded and banks might take excessive risks to increase returns.

Current Kenyan market is characterized by high level inflation, intense competition among banking players, high interest rates. The nature of credit market is best summarized by Stiglitz and Weiss (1981), findings that: banks making loans are concerned about the interest rate they receive on the loan, and the riskiness of the loan. As banking industry spread, competition increases, and bad borrowers who default on one loan might simply take their next loan from another financial institution that is unaware of the bad credit history. Rising competition without information sharing among lenders typically leads to a worsening of repayment performance in the sector. In response, credit bureaus have been introduced to help create an open environment of credit information. This can allow lenders to identify good clients by providing information on the borrowers' repayment histories and levels of indebtedness (McIntosh et al 2006).

1.2 Problem Statement

Even though many conducted researches outside the jurisdiction of Africa to suggest that the existence of credit reference bureau (CRB) leads to a bigger credit market, lower default and interest rates, improved profitability and increased competitiveness within the industry, none of the studies have critically examined the relevance of the CRBs and its effect on the financial performance. This study will therefore attempt to fill this

noticeable gap in literature by examining the effect of CRB on the financial performance of Kenyan commercial banks.

The banking industry has in the past been faced with the challenges of obtaining comprehensive information on clients' payment history for use during the credit assessment process. This has led to a high rate of NPLs after defaulters move from one bank to the other to secure credit facilities. According to the February 2011 CBK monthly review, the level of non-performing loans decrease compared to a similar period in 2010. This can be attributed to the use of CRB which came into existence in 2008). Commercial banks currently have better lending policies as CRB has significantly reduced the screening time and aid in taming the serial loan defaulters that seeks to obtain credit from one bank to the other. Although there are many benefits that come as a result of adopting CRB, Credit Reference Bureau alone is not sufficient to reduce NPLs. There are other macroeconomic factors that contribute to NPLs e.g. high inflation rate which leads to the increase in cost of living therefore making borrowers to be unable to service their debt obligations.

Locally, few aspects relating to Credit Reference Bureau have been reviewed in Kenyan context. Mumi (2010) reviewed the impact of credit reference bureau in financial institutions in Kenya; Sigei (2010) researched on evaluating the effectiveness of credit

reference bureau in Kenya. The case of KCB; Nganga (2011) carried out a study on stakeholder perception of credit reference bureau service in Kenya credit market and finally Gaitho (2010) reviewed the role of credit reference bureau on credit access, a survey of commercial banks in Kenya. To the best of the researcher's knowledge, there exists no literature on the effect of credit reference bureaus on the financial performance of commercial banks in Kenya in the Kenyan context. This is the gap the study seeks to address by answering the research question; what is the effect of credit reference bureaus on the financial performance of commercial banks in Kenya?

1.3 Research Objective

To establish the effect of credit reference bureaus on the financial performance of commercial banks in Kenya

1.4 Value of the Study

The study provides an opportunity to banking industry in Kenya on how they can fully utilize implementation of Credit Reference Bureau. It also serves as business re-engineering tool towards making faster and more accurate credit decision which in turn yields value addition in providing financial solutions. It also contributes to the existing body of knowledge on Credit Reference Bureaus in banks especially in Kenya.

This research helps as a framework and a basis in making decision and in particular as a road map towards engaging as a sustainability tool of growth, efficiency in other sectors such as Kenya Power and Lightning Company (KPLC), water companies, City and County Councils, Higher Education Loans Board (HELB), Deposit Taking Micro-Finance (DTM), Savings and credit corporations (SACCOs), and also in other services such as recruitment and other credit providers. In addition, discussions are ongoing to extend credit referencing to sharing of positive information by banks to derive optimal benefits from the credit information sharing mechanism, therefore this research forms a strong ingredient towards a speedy adoption of this initiative.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

According to Saunders, Lewis and Thorn hill (2000) literature review forms the framework on which the research is based as it helps to develop a good understanding of and insight into relevant previous research and emerging trends. This chapter will focus on: theoretical review, types of risk, management of loan portfolio & credit reporting, credit reference review and lastly chapter summary.

2.2 Theoretical Review

In the literature of credit risk, there are various theories that have been fronted by various scholars. These include; credit rationing theory, information rationing theory, moral hazard theory and adverse selection theory.

2.2.1 Credit Rationing Theory

This theory was introduced by Freimer and Gordon (1965) and comprehensively by Stiglitz and Weiss (1981). According to the seminal Stiglitz and Weiss (1981) paper, unsatisfied agents are borrowers. Asymmetric information leads to credit rationing, as lenders cannot distinguish between high quality and low quality borrowers. However, this dominate view is not without criticism. In particular, De Meza and Webb (1987)

vigorously contest this result. They show that asymmetric information in credit markets can lead to the inverse result, which is an excess of credit (over lending).

Banks exist because they screen and monitor borrowers more efficiently than other investors can (Allen and Santomero, 1998). They are specialized in gathering private information and treating it (Freixas and Rochet, 1999). Managing money and deposit accounts, banks own highly strategic information on firms' receipts and expenditures as well as the way that firms develop (Diamond and Rajan, 2001). Despite this plethora of information, relationships between bankers and firms are not perfect. Banks suffer from informational asymmetries (Freixas and Rochet, 1999) such that evolution of prices (interest rates) cannot clear the credit market. Finally, non-walrassian equilibrium arises with a fringe of unsatisfied agents.

The more interesting form of credit rationing is equilibrium rationing, where the market had fully adjusted to all publicly, i.e. why banks ration credit free, available information and where demand for loans for a certain market interest rate is greater than supply. Stiglitz and Weiss (1981) proved that credit rationing occurs if banks charge the same interest rate to all borrowers, because they cannot distinguish between borrowers and screening borrowers perfectly is too expensive. Both assumptions are very simplifying

and do not occur in this manner in the real world. Banks are usually able to distinguish their borrowers up to a certain degree. Moreover, banks face more than only two types of borrowers. Banks usually charge more than just one interest rate to all customers. High-risk borrowers pay a higher interest rate and credit rationing is less likely. However, banks cannot distinguish borrowers perfectly and screening them perfectly is impossible. Thus, credit rationing may occur.

According to Stiglitz and Weiss (1981) adverse selection and thus credit rationing still occurs if banks require collateral. They argue that low-risk borrowers expect a lower rate of return on average. Thus, they are less wealthy than high-risk borrowers on average after some periods. Low-risk borrowers are therefore not able to provide more collateral. Increasing collateral requirements may have the same adverse selection effect as a higher interest rate. Instead Bester (1985) argues that banks only offer contracts in which they simultaneously adjust interest rates and collateral requirements. He proved that there is always a combination of interest rate and collateral requirements so that credit rationing does not occur.

2.2.2 Information Sharing Theory

Research on information sharing is relatively recent and growing. Earlier papers analyze the effect of information sharing in a market with asymmetric information, either moral

hazard or adverse selection (Gehrig and Stenbacka, 2005). In moral hazard setups, information sharing may provide borrowers with higher incentives to perform: because information becomes available to competitor banks, borrowers are happy to perform better because they no longer fear being held-up by the lender-monopolist (Padilla and Pagano (1997). Second, borrowers do not want to (strategically) default, because this will be publicly known: when default information is shared, borrowers will face an increase in interest rates and a decrease in access to finance not only by the current bank, but by the rest of banks in the market - the so called disciplinary effect (Padilla and Pagano, 2000).

More-over, information sharing resolves adverse selection problems when banks have ex-ante informational advantage, as in Pagano and Jappelli (1993), and Padilla and Pagano (2000). By sharing information, banks may learn about those good and bad borrowers of the competitor banks who (exogenously) switched from the previous banks. Gehrig and Stenbacka (2001), however, identify a dark side of information sharing. Rather than starting with ex-ante informational advantage, their adverse selection model considers a two-period competition with symmetric knowledge in period one. In their location model, when banks have less incentives to acquire information for too many customers in period one, when they know they will have to compete away rents on them by sharing information in period two. They show that if information about borrowers' true becomes

known to other banks, second-period competition will be higher and first-period interest rates will have to go up. As a result, information sharing can lead to welfare losses.

However, they assume that all characteristics about true types can be revealed to the outside bank. In contrast, we distinguish between information that can be shared (hard) and information that cannot (soft), relationship specific information. Hauswald and Marquez (2003) show that information processing, providing the screening bank with more informational advantage, will safeguard it from competition allowing to earn rents. Advances in the screening technology, therefore, will increase returns from screening. Access to that same information, on the other hand, levels the playing field for banks and erodes their rents due to increased competition. Thus, technological progress that allows for easier access to the incumbent's information will decrease the returns to investing in such information.

2.2.3 Moral Hazard Theory

Moral hazard refers to the risk that a party to a transaction has not entered into the contract in good faith, has provided misleading information about its assets, liabilities or credit capacity, or has an incentive to take unusual risks in a desperate attempt to earn a

profit before the contract settles. Problems of moral hazard in banks and other financial institutions were evident at many stages of the recent financial crisis (Myerson, 2011).

As Freixas and Rochet (1997) have noted, modern microeconomic models of banking depend on advances in information economics which was not available when the traditional Keynesian and monetarist theories were first developed. So now, as economists confront the need for deeper insights into the forces that can drive macroeconomic instability, we should consider new models that can apply the microeconomic theory of banking to the macroeconomic theory of business cycles. In modern macroeconomic theory economic growth rate depends, crucially, on the efficiency of financial institutions. The financial systems themselves depend on accurate information about borrowers and the project the funds are used for (Chakraborty and Play, 2001)

2.2.4 Adverse Selection Theory

Stiglitz and Weiss (1981) originate the paper of adverse selection theory of credit markets. The theory rests on two main assumptions: that lenders cannot distinguish between borrowers of different degrees of risk, and that loan contracts are subjects to limited (i.e. if project returns are less than debt obligations, the borrower bears no

responsibility to pay out of pocket). This analysis is restricted to involuntary default, i.e., it assumes that borrowers repay loans when they have the means to do so. In a world with simple debt contracts between risk-neutral borrowers and lenders, the presence of limited liability of borrowers imparts a preference for risk among borrowers, and a corresponding aversion to risk among lenders. This is because limited liability of borrowers implies that lenders bear all the downside risk.

On the other hand, all returns above the loan repayment obligation accrue to borrowers. Raising interest rates then affects the profitability of low risk borrowers disproportionately, causing them to drop out of the application pool. This leads to an adverse compositional effect—higher interest rates increase the riskiness of the average riskiness of the applicant pool at a very high interest rate, the only applicants are borrowers who could potentially generate very high return (but presumably with small probability). Since lenders' preference over project risk runs counter to those of borrowers, they may hold interest rates at levels below market-clearing and ration borrowers in order to achieve a better composition and lower risk in their portfolio. Excess demand in the credit market may persist even in the face of competition and flexible interest rates.

In the adverse selection theory, the interest rate may not raise enough to guarantee that all loan applicants secure credit, in times when loanable funds are limited. In general, the volume of credit and level of effort is less than the first-best. Borrowers who have greater wealth to put as collateral obtain cheaper credit, have incentives to work harder, and earn more income as a result. Existing asset inequalities within the borrowing class are projected and possibly magnified into the future by operation of the credit market, a phenomenon that may cause the persistence of poverty. By exchange information about their customers banks can improve their knowledge of applicants' characteristics and behavior. In Principles, this reduction of informational asymmetries can reduce adverse selection problems in the lending, as well as change borrowers' incentives to repay, both directly and by changing the competitiveness of the credit market.

Pagano and Jappelli (1993) show that information sharing reduces adverse selection by improving bank's information on credit applicants. In their model, each bank has private information about local credit applicants, but has no information about non-local applicants. If banks exchange information about their client's credit worthiness, they can assess also the quality of non-local credit seekers, and lend to them as safely as they do with clients. Information sharing can also create incentives for borrowers to perform in line with banks' interest. Klein (1982) shows that information sharing can motivate

borrowers to repay loans, when the legal environment makes it difficult for banks to enforce credit contracts. In his model borrowers repay their loans because they know that defaulters will be blacklisted, reducing external finance in future.

Types of Risks

In the literature of credit rating, there are various types of risks. These include; portfolio at risk, credit risk management and liquidity risk management.

2.3.1 Portfolio at Risk (PAR)

The loan portfolio at risk is defined as the value of the outstanding principal of all loans in arrears, expressed as a percentage of the total loan portfolio currently outstanding.

Portfolio at Risk (PAR) is a standard international measure of portfolio quality that measures the portion of a portfolio which is deemed at risk because payments are overdue. For example; PAR 30 means the portion of the portfolio whose payments are more than 30 days past due. PAR 30 above 5 or 10% is a sign of trouble in microfinance.

High delinquency makes financial sustainable impossible for an institution. Portfolio at risk rates measure the outstanding balance of loans that are not being paid on time against the outstanding balance of total loans (Brown, 2006). McIntosh and Wydick (2004), conclude that credit information systems first create a screening effect that improves risk

assessment of loan applicants, thereby raising portfolio quality, which in turn reduces rates of arrears.

The international standard for measuring bank loan delinquency is portfolio at risk (PAR). Both the numerator and the denominator of the ratio are outstanding balances.

The numerator is the unpaid balance of loans with late payments, while the denominator is the unpaid balance on all loans. The PAR uses the same kind of denominator as an arrears rate, but its numerator captures all the amounts that are placed at increased risk by the delinquency. A PAR can be pegged to any degree of lateness. PAR, a common measure among banks, captures the outstanding balance of all loans with a payment more than 90 days late.

2.3.2 Credit Risk Management

Credit risk is the current or prospective risk to earnings and capital arising from an obligor's failure to meet the terms of any contract with the bank or if an obligor otherwise fails to perform as agreed. The largest source of credit risk is loans. However, credit risk exists throughout the other activities of the bank both on and off the balance Sheet. An effective and sound credit risk management is critical to the stability of an institution.

Institutions use various techniques of mitigating credit risk. The most common are collateral, guarantees and netting off of loans against deposits of the same counter-party.

While the use of these techniques will reduce or transfer credit risk, other risks may arise which include legal, operational, liquidity and market risks. Therefore there is a need for a bank to have stringent procedures and processes to control these risks and have them well documented in the policies. At present, in this jurisdiction, the common credit risk mitigation technique used is collateral. One of the factors that banks consider when deciding on a loan application is the estimated chances of recovery (CBK, 2010). To arrive at this, information is needed on how well the applicant has paid past loans. This information is vital because there is usually a definite relationship between past and future performance in loan repayment.

2.3.3 Liquidity Risk Management

Liquidity Risk is the current or prospective risk to earnings and capital arising from a bank's inability to meet its liabilities when they fall due without incurring unacceptable losses. It arises when the cushion provided by the liquid assets are not sufficient to meet its obligations (CBK, 2010). The prerequisites of an effective liquidity risk management

include an efficient systems and procedures. An effective measurement and monitoring system is essential for adequate management of liquidity risk.

Liquidity risk is the risk that the Bank will encounter difficulty in meeting obligations from its financial liabilities. The Bank's approach to managing liquidity is to ensure, as far as possible, that it will always have sufficient liquidity to meet its liabilities when due, under both normal and stressed conditions, without incurring unacceptable losses or risking damage to the Bank's reputation. The Bank's treasury maintains a portfolio of short-term liquid assets, largely made up of short-term liquid investment securities, loans and advances to banks and other inter-bank facilities, to ensure that sufficient liquidity is maintained within the Bank as a whole. The daily liquidity position is monitored and regular liquidity stress testing is conducted under a variety of scenarios covering both normal and more severe market conditions. The key measure used by the Bank for managing liquidity risk is the ratio of net liquid assets to deposits from customers.

2.4 Management of Loan Portfolio and Credit Reporting

Credit administration is critical in ensuring the soundness of the credit portfolio. It is the responsibility of management to set up a credit administration team to ensure that once a credit is granted it is properly maintained and administered. Credit reporting is a critical

part of the financial system in most developed economies but is often weak or absent in developing countries. It addresses a fundamental problem of credit markets: asymmetric information between borrowers and lenders that can lead to adverse selection and moral hazard.

The heart of a credit report is the record it provides of an individual's or a firm's payment history, which enables lenders to evaluate credit risk more accurately and lower loan processing time and costs. Credit reports also strengthen borrower discipline, since non-payment with one institution results in sanctions with others. Credit reporting, it shows, significantly contributes to predicting default risk of potential borrowers, which promotes increased lending activity (Miller, 2003).

2.5 Credit Reference Bureaus Review

Empirical review constitutes a review of literature from various documents such as published or unpublished reports, dissertation papers, and journals, Sessional papers, and academic handbooks among others. The purpose of this research is to evaluate the effectiveness of credit reference bureaus in commercial banks in Kenya. Finding empirical evidence of CRBs' is inherently difficult and very little is factually known about their operations.

2.5.1 Overview of Development of Credit Reference Bureaus

According to World Bank (2009) survey, data collected reveals that almost 60 countries have Public credit registries (PCRs). PCRs contain information on the performance of borrowers in a financial system and are administered and maintained by either the central bank or bank Supervisor. The region with the highest coverage of public credit registries is Latin America, where 17 countries have established PCRs, including all the largest economies (Argentina, Brazil, Chile, Colombia, and Mexico).

The first countries to establish public credit registries were in Western Europe – Germany in 1934 followed by France in 1946. By the mid-1960s, three other European countries – Italy, Spain and Belgium – had also established PCRs. Early adopters included the former French colonies in Western Africa which formed the West African Monetary Union in 1962 and immediately established public credit reporting following the French example. Also several Middle Eastern and North African nations adopted PCRs in the 1950s and 1960s (Egypt, 1957; Tunisia, 1958; Morocco, 1966; Jordan, 1966; and Turkey, 1951). The PCRs in Argentina and Brazil were established in the 1990s in response to financial crises also with the primary goal of supporting banking supervision. Over time, though, these registries were transformed to also enhance the information to private financial institutions.

2.5.2 Credit Reference Bureaus in the Developing World

Throughout the developing world, the growing availability of consumer credit and the growing competition between Financial institutions have made the necessity of credit information sharing all the more apparent. However, the extent and efficiency of information sharing mechanisms vary greatly between countries and continents. Africa remains the region of the world with the least developed credit information systems, yet the exploding financial sectors in many African countries have sparked interest in the feasibility of the creation of credit bureaus to help manage borrower risk under heightened competition.

Latin America arguably has the most extensive coverage of credit information systems among developing regions, with credit information sharing recently being extended even into the microfinance sector. A pertinent example is Bolivia. Prior to 1999 Bolivian law forbade the existence of private credit bureaus (Campion, 2001), believing credit data was too sensitive and important a topic to entrust to the private sector.

2.5.3 Credit Reference Bureaus in Kenya

The operations, establishment, licensing, governance and management of CRBs, is provided through the banking (Credit Reference Bureau) regulations, 2008.

Establishment and licensing of credit reference bureaus in Kenya, is through an entity incorporated as a limited company under the companies Act and application for a license is made through the central bank of Kenya. A bureau licensed may engage activities such as: store and update the customer information maintain database and generate reports and assess the creditworthiness of a customer. In addition; may carry out market and statistical research and sell to institutions specialized literature.

The Central Bank of Kenya has been mandated by law to license and supervise the operations of such bureaus; many borrowers make a lot of effort to repay their loans, but do not get rewarded for it because this good repayment history is not available to the bank that they approach for new loans. On the other hand, whenever borrowers fail to repay their loans banks are forced to pass on the cost of defaults to other customers through increased interest rates and other fees. Put simply - good borrowers are paying for bad. This is coming to an end with the adoption Credit Reference Bureau.

It involves credit reports; in this case a report is generated by the Credit Reference Bureau, containing detailed information on a person's credit history, including information on their identity, credit accounts and loans, bankruptcies and late payments, and recent enquiries. It can be obtained by prospective lenders only when they have permissible reason as defined in law, to determine his or her creditworthiness. Credit

reporting allows banks to better distinguish between good and bad borrowers. Someone who has failed to pay their loan at one bank will not simply be able to walk to another bank to get another loan without the banks knowing about it. Over time better information on potential borrowers should mean that it will be both cheaper and easier to obtain loans.

These credit reports provide a credit score that is unique to a customer's character. This credit score is a measure of credit risk calculated from a credit report using a standardized formula. A positive score is characterized by frequently paid bills; lack of defaults on outstanding balances; maintaining steady employment; On the other hand, a negative credit score is characterized by late payments; bankruptcy; fraud charges; liens or foreclosures; loss of employment. It is worth noting that sharing of negative credit information does not amount to blacklisting. However, such information is expected to be taken into account by banks while assessing applications for loans and other bank facilities.

2.6 Non-Performing Loans

A non-performing loan (NPL) may be defined as a loan that has not been receiving payments for ninety days or more. The magnitude of non-performing loans is a key

element in the initiation and progression of financial and banking crises (Tiffany and Greenidge, 2010).

Grosvenor et al (2010) observed that, the current global financial crisis, which began in the United States, is attributed to the August 2007 collapse of the sub-prime mortgage market and that commercial banks with greater risk appetite and that are more willing to make loans with a higher probability of default, tend to record higher losses. Further, that the level of NPLs in the US started to increase substantially in early 2006 in all sectors. NPLs are therefore a measure of the stability of the banking system, and thereby the financial stability of a country. From the above, it is clear to see and appreciate why the ability to forecast, monitor and manage non-performing loans is important.

NPLs reflect credit risk for banks arising either from external factors such as depressed economic conditions, or internal factors such as poor lending decisions or both. The ratio of NPLs to assets is an indicator of a bank's asset quality and financial soundness. In the case of the current financial turmoil, a high ratio may indicate that banks are not healthy since they have significant exposure to the origins of the problem. According to (Ng'etich, 2001), controlling NPAs is very important for both the performance of an individual bank and the economy's financial environment. Due to the nature of their business, commercial banks expose themselves to the risks of default from borrowers.

Prudent credit risk assessment and creation of adequate provisions for bad and doubtful debts can cushion the banks risk.

2.7 Empirical Review

Many studies have illustrated how comprehensive information helps lenders better predict borrower default. Kallberg and Udell (2003) found that historical information collected by a credit bureau had powerful default predictive power. A study by Barron and Staten (2003) showed that lenders could significantly reduce their default rate by including more comprehensive borrower information in their default prediction models.

An analogous study – specific to Brazil and Argentina – found similar default rate decreases when more information was available on borrowers (Powell, et al. 2004). Credit markets present asymmetric information problems. Lenders know neither the past behavior and the characteristics, nor the intentions of credit applicants. This creates a moral hazard problem that causes lenders to make credit decisions based on the average characteristics of borrowers rather than on individual characteristics (Rothschild and Stiglitz, 1976).

Moral hazard implies a lower average probability of payment, making credit more expensive. Stiglitz and Wise (1981) states that higher interest rates exacerbate

informational problem, adverse selection, because only higher risk borrowers are willing to accept loans at high interest rates . Additionally, those borrowers that have defaulted with a particular lender are the ones looking for alternative credit sources (Akerlof, 1970). This increases the average risk of lending and the corresponding interest rate. Credit is hence allocated to excessively risky projects, and low risk borrowers face tighter credit constraints. Adequately managing credit risk in financial institutions (FIs) is critical for the survival and growth of the FIs. In the case of banks, the issue of credit risk is of even of greater concern because of the higher levels of perceived risks resulting from some of the characteristics of clients and business conditions that they find themselves in.

In recent decades, a large number of countries have experienced financial distress of varying degrees of severity, and some have suffered repeated bouts of distress (Hardy, 1998). Pazarbasioglu (1999) believes that the best warning signs of financial crises are proxies for the vulnerability of the banking and corporate sector. He showed that full-blown banking crises are associated more with external developments, and domestic variables are the main leading indicators of severe but contained banking distress. He adds that the most obvious indicators that can be used to predict banking crises are those that relate directly to the soundness of the banking system.

In the 1980's and early 1990's, several countries in developed, developing and transition economies experienced several banking crises requiring a major overhaul of their banking systems. Kenya has experienced banking problems since 1986 culminating in major bank failures (37 failed banks as at 1998) following the crises of; 1986 - 1989, 1993/1994 and 1998 (Kithinji and Waweru, 2007; Ngugi, 2001). Presently, several developed countries including the USA are experiencing a banking crisis. For example the Citibank group alone, has written off more than \$39 billion in losses (Elliot, 2008).

The Kenyan banking sector was in the 80's and 90's saddled with a momentous Non-Performing Loans (NPLs) portfolio. This invariably led to the collapse of some banks. One of the catalysts in this scenario was "Serial defaulters", who borrowed from various banks with no intention of repaying the loans. Undoubtedly these defaulters thrived in the "information asymmetry" environment that prevailed due to lack of a credit information sharing mechanism. The development of a sustainable information sharing industry is therefore recognized as a key component of financial sector reforms in almost all developing and emerging economies (CBK, 2010).

Herausgeber (2001) observed that the use of credit risk information systems has become a topic of analysis and promotion within international organizations and national governments. He states that one of the factors limiting the access to credit for micro enterprises is the lack of information on the risk that they represent to the financial intermediaries. As a result, the commercial banks need to make a bigger effort to complete the information they require in order to make decisions over the credit requests they receive, incrementing their operational costs, which are generally transferred to their customers directly or indirectly. Credit service users are generally classified in five categories according to their financial record and capacity. The categories range from A to E or from 1 to 5, depending on the country, indicating increased levels of risk. Users classified as A or 1 are customers who have a minimal or non-existent risk level, to which a premium rate is offered; while those who are classified as E or 5 present the highest risk.

Bank supervisory authorities demand that the regulated institutions set aside reserves according to the customer's risk level, which reaches 100% of the loan in the highest risk category. This implies a financial cost, which is transferred to the customers through the interest rate and other charges. The banking sector is generally classified in the C and D categories (in other words, high-risk customers). This risk is compensated with rates over

the premium interest rate, which makes their access to financing very expensive. Given that the banking sector is an important component in the national economies, the formal and informal financial intermediaries are demanding information about their real and potential customers in order to better evaluate the risk level they present.

On the other hand, the central bank and government are supporting the use of institutional information services as a way of reducing costs of lending and reducing financial risks and barriers to entry for other credit suppliers, all of which should translate into an increase in the credit supply and other financial services for the economy. These efforts are supported by evidence that indicates that where credit bureaus are operating, most of the banks consult the credit risk databases in order to decide whether to grant consumer credit and even more so to grant micro enterprise credit. Additionally, the information obtained from the registries has been better valued than other sources of information used in evaluating credit worthiness, even more than guarantees and financial statements (CBK, 2010).

Banks play a central role in extending financial services within an economy. In support of this role, credit bureaus help lenders make faster and more accurate credit decisions. Credit histories not only provide necessary input for credit underwriting, but also allow

borrowers to take their credit history from one financial institution to another, thereby making lending markets more competitive and, in the end, more affordable. Credit Reference Bureaus (CRBs) assist in making credit accessible to more people, and enabling lenders and businesses reduce risk and fraud.

Andrew Powell et al (2004), states that Information problems have long been at the fore of analyses of credit markets. Indeed, one rationale for banks as institutions is to gather information and establish relationships with borrowers in an effort to surmount these problems. A striking feature of banks is the amount of services that they offer and the economies of scope between them. For example, accounts and payments' services provide valuable data to the bank on the creditworthiness of clients as potential borrower. Jappelli and Pagano (1993), in a model with adverse selection, show that exchanging information on borrower type decreases default rates and reduces average interest rates. In a related paper, Padilla and Pagano (1997) show that information sharing among borrowers would lead to lower interest rates and increased lending.

Locally, various aspects of CRB have been reviewed by various scholars. Sigei (2010) researched on evaluating the effectiveness of credit reference bureau in Kenya. The case of KCB. His study revealed that CRBs play an important role in preventing serial loan

defaulters from accessing credits from other financial institutions thus cushioning financial institutions against unforeseen credit risks. Similar sentiments are also shared by others researchers (Mumi, 2010; Gaitho, 2010). Nganga (2011) carried out a study on stakeholder perception of credit reference bureau service in Kenya credit market. The study reveals that many of the borrowers do not want to be listed in CRBs and would try as much as possible to service their credit facilities so as to protect their reputation.

2.8 Chapter Summary

The purpose of this literature review is to investigate the effect of credit reference bureau. This study will generally highlight the various aspects of demographics and its resulting effect on pricing in real estate sector. The knowledge of this information shall be used in data collection so as to meet the objective of the study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter is a description of the methodology used in the study to find answers to the research question. In this chapter, the research methodology is presented in the following order, research design, target population, sampling procedure, data collection methods, instruments of data collection and finally the data analysis. The following sections provide a detailed description of the methodology utilized in the study.

3.2 Research Design

This study adopted a descriptive design that aims at exploring the effect of credit reference bureaus on the financial performance of commercial banks in Kenya. This is because the study seeks to establish a relationship between two variables. A descriptive survey was undertaken. Descriptive designs result in a description of the data, either in words, pictures, charts, or tables, and indicate whether the data analysis shows statistical relationships or is merely descriptive. Sample survey based on the commercial banks was used to produce results that are broad, credible and conclusive. Survey is preferred as a result of financial constraints and surveys focus on data rather than theory. The research

is quantitative in nature and relies on secondary data obtained from commercial bank's financial reports.

3.3 Population

Target population can be defined as a complete set of individuals, cases/objects with some common observable characteristics of a particular nature distinct from other population. According to Mugenda and Mugenda (1999), a population is a well-defined as a set of people, services, elements and events, group of things or households that are being investigated. The population consisted of 44 commercial banks in Kenya from 2008 to 2012 as indicated in appendix II. This period was considered long enough to provide sufficient variables to assist in determining a trend on the relationship between credit reference bureaus and financial performance. This period is chosen in order to capture the most recent data and to give results that reflect the current trend.

3.4 Sample Design

The sample was made up of 20 banks. Random sampling technique was used in this study. Yearly data for the period 2008 to 2012 was used. The study was limited to the quoted companies due to lack of readily available data among the private companies.

3.5 Data Collection

The study sourced data from secondary sources. The data was obtained from annual financial statements of all the commercial banks and other resourceful information available at the NSE secretariat for 5 years from 2008 to 2012. The data extracted include: portfolio at risk, provision on loans and advances and return on assets from published reports of commercial banks.

3.6 Data Analysis

The collected data from the secondary sources was systematically organized in a manner to facilitate analysis. Data analysis involves preparation of the collected data, coding, editing and cleaning of data so as to facilitate processing using SPSS package. The coded data was keyed into the SPSS program where it was developed into a database and subsequently analyzed. SPSS is preferred because it is systematic and covers a wide range of the most common statistical and graphical data analysis. Regression model was used to establish the relationship between the variables.

3.6.1 Analytical Model

Regression analysis is a statistical technique that can be used to develop a mathematical equation showing how variables are related. In regression terminology, the variable that is predicted is called dependent variable while the variable used to predict the value of

dependent variable is called independent variable. Data collected was analyzed using simple regression analysis. The significance of each independent variable was tested at a confidence level of 95%. In this study, independent variable is the total number of entries at the CRB per annum and dependent variable is return on equity. In order to examine the credit reference bureau and financial performance, the regression equation of the form given below was applied;

Performance = f (Credit Reference Bureau)

$$Y = \beta_0 + \beta_1 (X_1) + e$$

Where Y = Financial Performance (dependent variable) measured by Return on Equity.

X_1 = The total number of entries at the CRBs per year.

β_0 = Constant which defines performance without inclusion of independent variable.

β_1 = Regression coefficient- defines the amount by which Y is changed for every unit change in independent variable.

e = Error Term

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION

4.1 Introduction

This chapter presents the findings on the relationship between credit information sharing and economic performance as indicated by the financial performance. In Kenya, credit information sharing is facilitated by credit information bureaus licensed by the CBK and involves both commercial banks and customers (both as individuals or institutions). In Kenya, there are two licensed credit reference bureaus, namely; CRB Africa which was licensed in 2010 and Metropol Ltd licenced in April 2011. However, the launch of credit information sharing was in July 2010. Therefore, to bring out the effect of the two variables, the data collection covered the periods between 2008 and second semi-annual of 2012.

The study, solely, adopted the use of secondary data sources. The information on financial performance was captured from Kenya National Bureau of Statistics (KNBS) offices while data on credit information sharing data was captured from Central Bank of Kenya (CBK). Semi-annually data was taken to create room for more data points given that the credit information sharing has been undertaken for only two years in Kenya. The study used descriptive statistics (involving mean, standard deviation and quartiles),

regression analysis and mean differences through t-tests to establish the relationship between financial performance and credit information sharing.

4.2 Descriptive Analysis

The data presented below shows that the minimum value of the credit information entries was 0 although this is attributed to the time of commissioning of the same by the CBK.

Table 4.1: Semi-annually Data

Semi-annual	Credit Record Entries	Cumulative Credit Record Entries	Semi-annually Financial Performance (Million Ksh)
Jun-10	0	0	349,422
Sep-10	103,332	103,332	386,207
Dec-10	181,390	284,722	379,145
Mar-11	246,869	531,591	378,376
Jun-11	196,962	728,553	361,849
Sep-11	332,312	1,060,865	401,669
Dec-11	245,574	1,306,439	397,412
Mar-12	244,152	1,550,591	391,469
Jun-12	233,626	1,784,217	402,197
Minimum	0	-	322,757
Maximum	332,312	-	402,197
Mean	198,246	-	383,083
Standard Deviation	96,523	-	18,089
First Quartile	181,390	-	378,376
Second Quartile	233,626	-	386,207
Third Quartile	245,574	-	397,412

As at 30th September 2010, the credit reference bureaus (CRBs) had requested for 103,332 credit reports. During the semi-annual ending March 2011, the number of credit reports entries made stood at 531,591, which increased by 196,962 to 728,553 at end of

June 2011 and subsequently increased by 332,312 to a total of 1,060,865 at end September 2011. This number increased by 245,574 in December 2011, 244,152 in the first semi-annual of 2012 and 233,626 in the second semi-annual to settle to a total of 1,784,217 credit information entries (Table 4.1).

Analysing the data descriptively, it is shown that on average 198,246 credit reports are entered semi-annually through this is subject to a standard variation of 96,523. The first quartile data shows that 25% of the semi-annually entries averaged 181,390 credit reports while at least 75% of the semi-annually entries consisted of 245,574 credit records.

On financial performance, Table 4.1 shows that the minimum amount of financial performance stood at Ksh322,757,000,000 while the maximum was Ksh402,197,000,000. However, 75% of the semi-annuals' financial performance figure were at least Ksh397,412,000,000. Further, the data shows that on average, the financial performance stood at Ksh383,083,000,000.

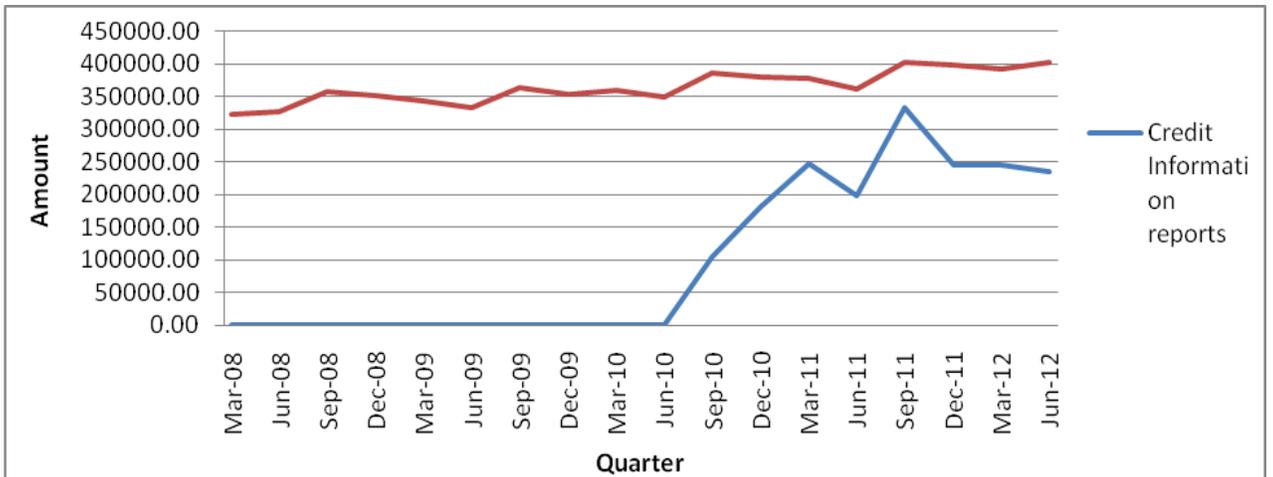


Figure 4.1: Trendline – Financial Performance Versus Credit Information Entries

Figure 4.1 shows that before the commissioning of the credit information sharing, the semi-annually financial performance was fairly constant or stagnated. However, the financial performance increased slightly with commencement of credit information sharing between the second and third semi-annual of 2010, although credit report sharing and entries rose sharply to the end of the first semi-annual of 2011. This sharp increase or uptake of credit reports owed to the entrenching of credit referencing in banks’ credit appraisal processes and increase in public awareness of the credit information sharing mechanisms.

Between, the first and second semi-annual of 2011, credit information sharing entries took a sharp dip which was followed by a slight decrease in financial performance recorded within the same period. Both variables rose third semi-annual of 2011 before a

fall from the forth to first semi-annual of 2012, though semi-annually financial performance fell at a slower rate than credit information reports. These dynamics shows that the two variables were directly or positively related; both variables rising or falling.

4.3 Regression Analysis

The restudy conducted a linear regression analysis to establish the relationship between financial performance growth or performance and credit information sharing. The regression was of the form:

$$\text{Financial Performance} = \beta_0 + \beta_1 * \text{CIS} + \varepsilon$$

Whereby financial performance signified semi-annually net profit; β_0 the regression constant; β_1 regression coefficient; CIS is the semi-annually credit information sharing records; while, ε is the regression error term or the model's significance from Analysis of Variance (ANOVA).

Table 4.2: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.750 ^a	.562	.500	1.280E+10	1.473

a. Predictors: (Constant), Reports Recorded

b. Dependent Variable: Financial Performance

The study sought to establish the regression model significance, the data of which is presented in Table 4.2. From the regression model, a correlation coefficient value of 0.750 was established. This portends a very good linear relationship or dependence of financial performance on credit information sharing. A coefficient of determination (R-square) value of 0.562 was established. This underscores the fact that credit information sharing accounted for 56.2% changes in financial performance in Kenya. A Durbin Watson value of 1.473 shows that the data entered was devoid of autocorrelation among its residuals; a justification for linear regression analysis.

Table 4.3: Analysis of Variance (ANOVA)

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	1.471E+21	1	1.471E+21	8.986	.020a
Residual	1.146E+21	7	1.638E+20		
Total	2.618E+21	8			

a. Predictors: (Constant), Reports Recorded

b. Dependent Variable: Financial Performance

Analysis of Variance was used to test the significance of the regression model as pertains to significance in the differences in means of the dependent and independent variables.

The ANOVA test produced an f-value of 8.986 which was significant at 0.05 significance level ($p = 0.02$). This depicts that the regression model is significant at 95% confidence level; that is, has 2% probability of misrepresentation.

Table 4.4: Regression Coefficients

	Unstandardized		Standardized	t	Sig.
	Coefficients		Coefficients		
	B	Std. Error	Beta		
(Constant)	3.552E+11	1.022E+10		34.742	0.00
Reports Recorded	140509.343	46873.605	.750	2.998	.020

a. Dependent Variable: Financial Performance

The regression equation becomes:

$$\text{Financial Performance} = 355,227,442,711 + 140,509.343 * \text{CIS} \quad p = 0.020$$

From the above regression model, in the absence of credit information sharing, financial performance would be Ksh355,227,442,711 which according to the descriptive data is slightly above its minimum value. This, thus, depicts that while the financial performance won't be zero, the same would underperform.

However, the sensitive of financial performance to changes in credit information sharing report is 140,509.343. This depicts that financial performance is multiplied by 140,509.343 to each unit increase in credit information sharing. A t-test value of 2.998 was established at $p = 0.020$ depicting that this relationship was significant.

4.4 Pre and Post-Credit Information Financial Performance

The study further conducted an independent t-test to establish whether there is as significant differences in the means of the financial performance before and after credit information sharing. This tested the null hypothesis that the means of the two groups are not significantly different against the alternative hypothesis that the means of the two groups are significantly different.

Table 4.5: Group Statistics - Mean Differences

Period	N	Mean	Std. Deviation	Std. Error Mean
Before Credit information sharing	9	3.49E+11	1.241E+10	4.137E+09
After Information Sharing	8	3.87E+11	1.385E+10	4.897E+09

From the results presented in Table 4.5, the means of the semi-annually financial performance before credit information sharing was 3.49×10^{11} compared to 3.87×10^{11} after the credit information sharing. This depicts that the financial performance were higher after credit information sharing than before the same. This underscores the fact that credit information sharing brings about improved economic growth

Table 4.6: Independent Samples Test

	Levene's Test for Equality of Variances		T-Test For Equality Of Means				
	F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference

Equal variances assumed	.151	.703	-6.061E+00	15	.000	-3.859E+10	6.367E+09
Equal variances not assumed			-6.020E+00	14.219	.000	-3.859E+10	6.411E+09

Levene's Test for Equality of Variances tells if the two groups (financial performance before and after credit information sharing) have approximately equal variance on the dependent variable. If the Levene's Test is significant (the value under "Sig." is less than .05), the two variances are significantly different. If it is not significant (Sig. is greater than .05), the two variances are not significantly different; that is, the two variances are approximately equal. From Table 4.6, The Levene's significance is .703, which is greater than .05; the variances are approximately equal.

Following from Levene's test, a T value of -6.06 is established at 15 degrees of freedom. A t-significance value of $p < 0.001$ was also established; thus, there is a significant difference between the two groups (the significance is less than .05). Therefore, the findings establish a significant difference between financial performance before and after credit information sharing. Read together with the results in Table 4.5, the findings illustrate that financial performance is enhanced by credit information sharing.

CHAPTER FIVE

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter discusses the summary of the finding in chapter four. Conclusion and recommendations drawn from these findings are discussed in relation to the objectives of the study which was to establish the relationship between credit information sharing and economic performance.

5.2 Discussions

Credit information sharing was launched in July 2010 and within the first semi-annual, 103,332 credit reports entries had been written. Though 1,784,217 credit information entries have been made (in the second year of the launch) and equal number shared, within the first year of the launch, 728,553 credit information reports had been written. On average, 198,246 credit reports entries made semi-annually. The first quartile data shows that 25% of the semi-annually entries averaged 181,390 credit reports while at least 75% of the semi-annually entries consisted of 245,574 credit records. Minimum amount of financial performance stood at Ksh322,757,000,000 while the maximum was Ksh402,197,000,000; on average, semi-annually financial performance stood at Ksh383,083,000,000.

The trend line of financial performance and credit information reports shows that both variables rose and fell together, though, credit information sharing changed at higher rate than financial performance. This is further justified by a standard variation of 96,523 for credit information reports and 18,089 for the latter. These dynamics shows that the two variables were directly or positively related; however, though financial performance was not highly sensitive to changes credit reports entries or sharing. The findings show that credit information sharing accounted for 56.2% changes in financial performance in Kenya. Financial performance was higher after credit information sharing than before the same; Ksh3.49*10¹¹ compared to Ksh3.87*10¹¹ after the credit information sharing. A t-significance value of p<0.001 was established; depicting a significant difference in financial performance with credit information sharing resulting in enhanced economic growth. From the regression analysis, the model obtained was:

$$\text{Financial Performance} = 355,227,442,711 + 140,509.343 * \text{CIS} \quad p = 0.020$$

The regression model shows that without credit information sharing, the financial performance value would be Ksh355, 227,442,711. The sensitive of financial performance to changes in credit information sharing report is 140,509.343; unit increase in credit information sharing brings about financial performance increased by the stated amount. This relationship was significant at 95% confidence level (p = 0.020).

5.3 Conclusion

Information is the lifeblood of the modern economy. However, before the second semi-annual of 2010, in Kenya, information about a business's or individual's credit track record was unavailable making borrowing of money difficult and interest rates high so as to offset the higher perceived risk. Credit information sharing helped correct this imbalance by allowing banks and other lending institutions to collect and share data on millions of potential borrowers, thus allowing lenders to gather information on the creditworthiness of each. By facilitating information sharing among lenders, credit bureaus has since 2010 with over 1,784,217 exchanges by 2012 enables lending institutions sort good borrowers from bad, price loans appropriately, decrease processing time and reduce screening and other transaction costs. By the same token, 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.

Besides, strong credit information sharing is therefore essential not only to individual prosperity, but also to a country's overall economic growth. The study established that financial performance is rated with credit information sharing with the latter causing the former. Jappelli and Pagano (2002) asserts that information sharing is found in countries with higher financial performance, better law enforcement and poorer safeguards for creditor rights leading to higher bank lending and macroeconomic growth.

5.4 Recommendations

Based on the findings, the study recommends that the Government of Kenya needs to publish the credit-information regulations and create awareness for the same so that lenders can submit credit information of their borrowers (all lenders to report positive and negative information on repayment performance) with the credit bureaus. This owes to the paltry 1,784,217 credit reports being shared with the credit reference bureaus.

The study also recommends that an open system needs to be enhanced to allow financial institutions as well as non-bank entities—retailers, telecom and utility companies—access to credit history of borrowers so as to know which clients to serve and what differential price to charge to cover risks. To facilitate credit information sharing even more effectively, information access should be available at low or no cost.

REFERENCES

- Achou, T.K (2008). *Bank performance and credit risk management*; Masters Degree Project in Finance, University of Skovde, Sweden
- Andrew, P., Nataliya, M. , Margaret M. & Giovanni M. (2006). Improving credit information, bank regulation and supervision: The role and design of public credit registries. *Journal of Corporate Finance*, 9, 25-30
- Akerlof, G. A. (1970).The Market for Lemons: Quality uncertainty and the market mechanism; *Quarterly Journal of Economics*, 5(2), 110-115
- Allen F, Santomero A., (1998). The theory of financial intermediation. *Journal of Banking and Finance*, 21, 1461-1485
- Anita, M. (2001), Credit Bureaus: A necessity for microfinance. *India Working paper no.* 2001-11-01
- Barron, J. M. & Staten, M. (2003).*The value of comprehensive credit reports: Lessons from the U.S. Experience*; Boston, MIT Press
- Bassim, S. (2008). Private credit reporting: The case of morocco, *Emerging Markets Review*, 5, 40-426
- Berger, A.N. (2006). Banking structures and financial stability. *Journal of Finance*, 40(4), 1031-1051
- Gaitho, N. (2010). *The role of credit reference bureau on credit access, a survey of commercial banks in kenya*. Unpublished MBA Project. University of Nairobi.
- Craig, M.S. (2006).Better lending and better clients, credit bureau impact on microfinance. *Markets Review*, 5, 40-426.
- Central Bank of Kenya (2008).*The banking (credit reference bureau)*, regulations, 2008, Nairobi
- De Meza D.E., Webb, D.C., (1987). Too much investment: A problem of asymmetric information. *Quarterly Journal of Economics*, 102, 281-292
- Diamond D., Rajan R., (2001). Liquidity risk, creation and financial fragility: A theory of banking. *Journal of Political Economy*, 2, 287-327
- Freixas X., Rochet J., (1999). *microeconomics of banking*. MIT Press: Cambridge (Mass.)
- FSD Kenya (2008). *Financial education in kenya*, FSD Kenya.

- Hardy, D. (1998). *Are banking crises predictable?* ; Finance & Development, IMF Quarterly Magazine.
- Jappelli, T. and M. Pagano (2002): Information sharing, lending and defaults: Cross-country evidence, *Journal of Banking & Finance*, 5(3), 19-27.
- Jappelli, T, & Marco P. (1993). Information sharing in credit markets, *Journal of Finance*.45(2). 17-19.
- Jevgenijs, S.F.H, and Mehnaz, S. (2006). *Unlocking dead capital: How reforming collateral laws improves access to finance*; A Paper presented at the Korean Finance Association Annual Meeting.
- Jin, G. Z. (2005). Competition and disclosure incentives: An empirical study of HMOs, *Rand Journal of Economics*.
- Jin, G. Z., and P. Leslie (2003). The effect of information on product quality: Evidence from restaurant hygiene grade cards, *Quarterly Journal of Economics*.
- José, L.N. (2001). Credit information sharing mechanisms in Mexico: Evaluation, perspectives, and effects on firms' access to bank credit, *Working Paper No. 114*
- Kallberg, J. G., and Udell, G. F. (2003). The value of private sector credit information, *Journal of Banking and Finance*
- Kenya Commercial Bank, (1999), Chief executive reassures shareholders on bank's growth [online] available: <http://www.kcb.co.ke/news/newsarticle.asp?>
- Kevin, G. & Tiffany G. (2010). Forecasting non performing loans in Barbados: Business, Finance & Economics in Emerging Economies vol. 5
- Kithinji, A and Waweru. N.M. (2007). Merger restructuring and financial performance of commercial banks in Kenya: Economic, *Management and Financial Markets Journal*.
- Lewis, G. (2007). *Essays on choice and matching under information asymmetry*: PhD, thesis, University of Michigan.
- Luoto, J., C. McIntosh, & B. Wydick, B. (2004). Credit information systems in less-developed countries: Recent History and a Test, *Working Paper University of California at San Diego*.
- Margaret J. M (2003). *Credit reporting systems and the international economy*, MIT Press Books. 010RED T

- Martin, B., Tullio J., & Marco, P (2007).Information sharing and credit: Firm-level evidence from transition countries. *RANS ACTIONS SYSTEMS*.
- Mumi, S.M. (2010). *The impact of credit reference bureau in financial institutions in Kenya*. Unpublished MBA Project. University of Nairobi.
- Nelson, M.W. and Victor K. (2009).Commercial banking crises in kenya: causes and remedies, *African Journal of Accounting, Economics, Finance and Banking Research* vol. 4. No. 4. 2009.
- Nganga, M.M. (2011). *A study on stakeholder perception of credit reference bureau service in Kenya credit market*. Unpublished MBA Project. University of Nairobi.
- Ngetich J.C. (2011).The effects of interest rate spread on the level of non-performing assets: A Case of commercial banks in kenya , Vol. 1, No. 1; April 2011. *International Journal of Business and Public Management*.
- Padilla, A. J. and M. Pagano (2000). Sharing default information as a borrower discipline device,*European Economic Review*.
- Powell, A. N. (2004). *Improving credit information, bank regulation and supervision on the role and design of public credit registries*: World Bank Policy Research Working Paper 3443.
- Sigei, R.S. (2010). *Evaluating the effectiveness of credit reference bureau in Kenya. The case of KCB*. Unpublished MBA Project. University of Nairobi.
- Stiglitz, J.E. and Weiss, A. (1981) Credit rationing in markets with imperfect information: *American Economic Review*.
- Trandafir, M. (2010).*Banking sector stability, efficiency, and outreach in kenya*,The World Bank Development Research Group Finance and Private Sector Development Team.
- World Bank (2010). *Doing business in 2010 kenya: Understanding regulation*, World Bank and Oxford University Press, Washington DC.
- World Bank (2005). *Doing business in 2005: Removing obstacles to growth*; Oxford University Press.
- World Bank, (2008). *Kenya: Accelerating and sustaining inclusive growth*; World Bank Report No. 42844.
- Yin, P.L. (2006). Information dispersion and auction prices, Harvard Business School, *Working Paper, No. 06-011*.

APPENDIX

APPENDIX: LIST OF COMMERCIAL BANKS OPERATING KENYA

1 African Banking Corporation, Nairobi
2 Bank of Africa Kenya, Nairobi
3 Bank of Baroda, Nairobi
4 Bank of India, Nairobi (foreign owned)
5 Barclays Bank of Kenya, Nairobi (listed on NSE)
6 CFC Stanbic Bank, Nairobi (listed on NSE)
7 Chase Bank Ltd, Nairobi
8 Citibank, Nairobi (foreign owned)
9 City Finance Bank, Nairobi
10 Co-operative Bank of Kenya, Nairobi
11 Commercial Bank of Africa, Nairobi
12 Consolidated Bank of Kenya Ltd, Nairobi
13 Credit Bank Ltd, Nairobi
14 Development Bank of Kenya, Nairobi
15 Diamond Trust Bank, Nairobi

16 Dubai Bank Kenya Ltd, Nairobi
17 Equatorial Commercial Bank Ltd, Nairobi
18 Equity Bank, Nairobi
19 Family Bank, Nairobi
20 Fidelity (Commercial) Bank Ltd, Nairobi
21 Fina Bank Ltd, Nairobi
22 First Community Bank Ltd, Nairobi
23 Giro Commercial Bank Ltd, Nairobi
24 Guardian Bank, Nairobi
25 Gulf African Bank Ltd, Nairobi
26 Habib Bank A.G. Zurich, Nairobi (foreign owned)
27 Habib Bank Ltd, Nairobi (foreign owned)
28 Housing Finance Co. Ltd, Nairobi (gov) (listed on NSE)
29 Imperial Bank, Nairobi
30 I&M Bank Ltd (former Investment & Mortgages Bank Ltd), Nairobi
31 K-Rep Bank Ltd, Nairobi
32 Kenya Commercial Bank Ltd, Nairobi (gov) (listed on NSE)
33 Middle East Bank, Nairobi

34 National Bank of Kenya, Nairobi (gov)
35 National Industrial Credit Bank Ltd (NIC Bank), Nairobi (listed on NSE)
36 Oriental Commercial Bank Ltd, Nairobi
37 Paramount Universal Bank Ltd, Nairobi
38 Prime Bank Ltd, Nairobi
39 Southern Credit Banking Corp. Ltd, Nairobi
40 Standard Chartered Bank , Nairobi (listed on NSE)
41 Trans-National Bank Ltd, Nairobi
42 UBA Kenya Bank Ltd., Nairobi
43 Victoria Commercial Bank Ltd, Nairobi
44 Jamii Bora Bank

Source: CBK, (2013)