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

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DECLARATION

This research project is my original work and has not been submitted to any other

University or institution of higher learning for any academic award.

Signed.......... ~~DoBoow~~ .... Date H.11.2012

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

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DEDICATION

This project is dedicated to my grandmother Wato Adano, my father Bonaya Adano, my mother Gonche Bonaya, dad Katello, my brother Adan Katello, my friend Mamo Lysimgalgorow and finally my lovely fiancee Bokayo. I love you all and may God's blessings be showered upon you all.

ABSTRACT

Non-Performing loan rate is one the most important factor to consider when analyzing banks' performance. There are lots of factors responsible for this ratio. Some of them belong to firm level issues and some are from macroeconomic measures. The objective of this study was to investigate the effect of credit information sharing on loan performance as one these factors in the blend. Theory predicts that information sharing among lenders attenuates adverse selection and moral hazard, and can therefore increase lending and reduce default rates. The demand for information by financial institutions on one hand and the pressure from the regulator to improve risk management and the government objective of financial deepening on the other has led to emergence of credit reference bureau to collate information from lenders. Credit reference bureaus are information brokers operating on the principle of reciprocity, collecting, filing and distributing the information supplied voluntarily by their members. They allow its members easy access and ready use of such data for credit appraisals purposes.

The researcher used econometric analysis system (E-views, Version 7.0) to analyse time series empirical data to examine the relationship between credit information sharing and loan performance by establishing correlation coefficients between the aggregate number of credit reports requested by forty two commercial banks and their aggregate loan performance as measured by level of non-performing loans. The study employed descriptive as well as correlation research designs and August 2008 to June 2012 constituted the study period.

The findings were that loan performance as measured by loan default rate is negatively related to credit information sharing, lending rate and total loans. The negative relationship between default rate and total loans is in tandem with Ndungu (2002), Brown (2007) and Mwangi and Sichei (2009) findings and government objective of launching credit referencing while the negative relationship between default rate and credit information is consistent with Pagano (2000) and Mwangi and Sichei (2009). Therefore, use of credit information sharing in credit appraisal process was found to be value additive.

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ABBREVIATIONS

AECT - Association for Educational Communications and Technology

ANOVA - Analysis of Variance

BIS - Bank for International Settlement

BSD - Bank Supervision Department

CBK - Central Bank of Kenya

CIS - Credit Information Sharing

CRB - Credit Reference bureaus

DIMs - Deposit Taking Microfinance institutions

FIs - Financial Institutions

GDP - Gross Domestic Product

KCISI Kenya Credit Information Sharing Initiative

MPT - Modern Portfolio Theory

NPL - Non-Performing Loan

PCR - Public Credit Reference

PG - Prudential Guideline

ROTA - Return on Total Assets

TL - Total Loans

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The very endurance of a commercial bank in credit market depends on its ability to collect and process information professionally in screening credit applicants and in monitoring their performance (Brown, Jappelli and Pagano, 2006). Lack of accurate information on the credit history and current financial ability of prospective borrowers makes it extremely difficult for lenders to assess their credit worthiness and likelihood to repay the loan.

Asymmetric information between borrowers and lenders can prevent the efficient allocation of credit (Jappelli and Pagano, 1999). Lenders are often unable to observe the characteristics of borrowers, including the riskiness of their investment projects, and this induces adverse selection problems leading to high restrictions in the award of credit. Lenders may also be unable to control the actions that borrowers take after receiving a loan by relaxing their effort to prevent default or hide the proceeds of their investment to keep from having to repay their debts. This information gap on borrowers can be addressed through sharing information via credit reference bureaus.

The timeliness and truthfulness of the data reported by lenders to credit bureaus is enforced invariably by threatening deviants that they will be excluded from access to the common data base (Padilla and Pagano, 2000).

1.1.1 Credit Risks

Credit creation is the main income generating activity of banks (Kargi, 2011). However, it exposes the banks to credit risk (Kolapo, Ayeni and Oke, 2012). The Basel Committee on Banking Supervision (2001) defined credit risk as the possibility of losing the outstanding loan partially or totally, due to credit events (default risk).

Credit risk can also be defined as the possibility that the actual return on an investment or loan extended will deviate from that, which was expected (Conford, 2000). Coyle (2000) defines credit risk as losses from the refusal or inability of credit customers to pay what is owed in full and on time.

Among other risks faced by banks, credit risk plays an important role on banks' profitability since a large chunk of banks' revenue accrues from loans from which interest is derived. However, interest rate risk is directly linked to credit risk implying that high or increment in interest rate increases the chances of loan default. Credit risk and interest rate risk are intrinsically related to each other and not separable (Drehman, Sorensen, and Stringa, 2008). Increasing amount of non-performing loans in the credit portfolio is inimical to banks in achieving their objectives. Non-performing loan is the percentage of loan values that are not serviced for three months and above (Ahmad and Ariff, 2007).

1.1.2 Credit Information Sharing

Due to the increasing spate of non-performing loans, the Basel II Accord emphasized on credit risk management practices. Compliance with the Accord means a sound approach

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to tackling credit risk has been taken and this ultimately improves bank performance. Through the effective management of credit risk exposure, banks not only support the viability and profitability of their own business, they also contribute to systemic stability and to an efficient allocation of capital in the economy (Psillaki, Tsolas, and Margaritis, 2010). Credit information sharing is one way to screen loan applicants in order to mitigate defaults on loan advances.

Credit Information Sharing (CIS) is 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 (KCISI, 2008). It enables the banks to know how borrowers repay their loans. This is also known as Credit Reporting. Globally, the biggest problem commercial banks are facing is the non-repayment of loans. Thus, the idea of establishing Credit Reference Bureau (CRB) was conceived in order to enable banks in first sharing information on default among banks (Pagano, 2000), 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. Services of Credit Reference Bureaus (CRBs) were first introduced in London and have now spread to other countries worldwide (Sacerdoti, 2005).

CRBs thrive in a good legal environment where there is data protection law, a fair credit reporting law, a data retention law, consumer protection and admissibility of electronic evidence and certification of electronic signatures; without which credit reporting become a shenanigan (Sacerdoti, 2005).

1.1.3 Loan Performance

Loan performance refers to the financial soundness of a bank that depends on the performance of their disbursed loan to various sectors. Loan performance means how the loans were scheduled to act and how they are actually acting in terms of the scheduled payments compared to the actual payments. It is closely associated with timely and steady repayment of interest and principal of a loan (Rosenberg, 2009).

Section 3.2 of the prudential guideline for institutions licensed under the Banking Act (2006) states that in the determination of the classification for loans and advances, performance will be the primary consideration. The performance will generally show the repayment capability of the borrower. All loans shall be classified into the five categories using the criteria provided in to either normal, watch, sub-standard, doubtful and loss (CBK/PG, 2006).

1.1.4 Relationship between Loan Performance and Information Sharing

In lending, the problem of asymmetric information stems from the fact that a lender's knowledge of a borrower's likelihood to repay (their "risk profile") is imprecise and must be inferred based upon available information. The lender cannot solely rely on information provided by the applicant but must verify the information. Pagano and Jappelli (1993) show that information sharing reduces adverse selection by improving bank's information on credit applicants.

Information sharing can also create incentives for borrowers to perform in line with banks' interests. Klein (1982) shows that information sharing can motivate borrowers to

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repay loans, when the legal environment makes it difficult for banks to enforce credit contracts. In this model borrowers repay their loans because they know that defaulters will be blacklisted, reducing external finance in future. Vercammen (1995) and Padilla and Pagano (2000) show that, exchange of information on defaults by banks motivate borrowers to exert more effort in their projects.

Padilla and Pagano (1997) show that information sharing can also mitigate hold-up problems in lending relationships, by eliciting more competition for borrowers and thereby reducing the informational rents that banks can extract. The reduced hold-up problems can elicit higher effort by borrowers and thereby make banks willing to lower lending rates and extend more credit.

1.1.5 Banking Sector and Credit Information Sharing in Kenya

As at 31st December 2011, there were two credit reference bureaus while the banking sector comprised of the Central Bank of Kenya, as the regulatory authority, 44 banking institutions (43 commercial banks and 1 mortgage finance company) and 4 representative offices of foreign banks. Out of the 44 banking institutions, 31 locally owned banks comprise 3 with public shareholding and 28 privately owned while 13 are foreign owned. The foreign owned financial institutions comprise of 9 locally incorporated foreign banks and 4 branches of foreign incorporated banks (BSD, 2011).

The liberalization of the Kenya banking industry in 1992 marked the beginning of intense competition among the commercial banks, which saw banks extend huge amounts of credit with the main objective of increasing profitability. Some of the loans were "political loans" granted with little or no credit assessment; other loans were made to

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insiders, all of which subsequently became non-performing. The low quality loans led to high levels of non-performing loans and subsequently eroded profits of banks through loan provisioning some of which appeared outrightly political (Kithinji, 2010). Further, prior to amendment of the banking act banks were barred from sharing their customer information with any person. This was enforced through clients' secrecy provision in the act. This facilitated credit hoping where a borrower goes defaulting from one institution to another.

To mitigate the afro mentioned anomaly The Banking (Credit Reference Bureau) Regulations 2008 were published in July 2008. The Regulations paved the way for the licensing and surveillance of Credit Reference Bureaus (CRB) by the Central Bank of Kenya. These Bureaus were to collate credit information from institutions licensed under the Banking Act. The overarching objective of the project was to co-ordinate the efforts of all players so as to build a sustainable and holistic information sharing mechanism.

1.2 Statement of the Problem

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. Higher interest rates exacerbate another informational problem, adverse selection, because only higher risk borrowers are willing to accept loans at high interest rates (Stiglitz and Wies, 1981).

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Additionally, precisely 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.

Coordination among lenders to share information about their clients' past behavior alleviates asymmetric information problems. Pagano and Jappelli (1993) show that information sharing mechanisms reduce adverse selection by improving the pool of borrowers, the knowledge of applicants' characteristics and therefore improve bank efficiency in the allocation of credit. Based on some case studies, Miller (2003) points out that credit information sharing plays a key role in improving the efficiency of financial institutions by reducing loan defaults. Padilla and Pagano (1997) show that information sharing institutions, through their incentive effects on curtailing imprudent behavior of borrowers are also valuable in addressing moral hazard problems. Kallberg and Udell (2003) show that credit registries help reduce the selection costs of lenders by allowing them to more accurately predict individual loan defaults.

Moreover, information sharing can overcome moral hazard on the part of borrowers, motivating them to exert greater effort in projects (Vercammen, 1995; Padilla and Pagano, 2000), and repay loans (Klein, 1992).

Several studies have demonstrated that information sharing is beneficial to credit market performance. Information sharing helps lenders to select good borrowers (Pagano and Jappelli, 1993), overcome moral hazard of borrowers (Padilla and Pagano, 2000), reduce non-performing loans and the costs of firm financing (Brown, Jappelli and Pagano,

2009), reduce corruption in bank lending (Barth, Lin, Lin and Song, 2007), decrease bank risk-taking and lead to higher economic growth (Houston, Lin, Lin and Ma, 2010).

Credit scoring models based on credit bureau data suggests that the use of credit reports allows lenders to more accurately predict loan defaults (Kallberg and Udell, 2003; Barron and Staten, 2003; Luoto et al., 2007; Powell et al., 2004). Information sharing disciplines borrowers to repay loans (Brown and Zehnder, 2008) and aggregate credit market volume is higher in countries where information sharing is more developed (Jappelli and Pagano, 2002; Djankov et al., 2007). Analyses of firm-level data (Galindo and Miller, 2001; Love and Mylenko, 2003; Brown et al., 2007) show that access to bank credit is easier in countries where credit bureaus or registries exist. Furthermore, institutions facilitating information sharing may be a substitute for stronger creditor protection in fostering credit market development as the former plays a relatively more important role in less developed countries with weaker legal systems (Bennardo, Pagano and Piccolo, 2009). Barron and Staten (2003), Kalberg and Udell (2003) and Cowan and de Gregorio (2003) all suggest there is value in the sharing of credit information.

The systematic use of credit reports in assessing loan applications is one of the most remarkable developments in retail banking (Brown and Zehnder, 2007). Beyond Kenya, the credit reporting industry has seen substantial developments. Examining data for 129 countries, Djankov et al (2007) shows that the number of countries with a public credit registry increased from 21% in 1978 to 53% in 2003, while the number of countries with at least one private credit bureau increased from 16% to 41% over the same period.

In its quest to increase accessibility to loans, the Government of Kenya, through Section 55(1) of the Banking Act, created credit reference bureaus (CRBs). The initiative by the government through establishment of CRBs will go a long way in lowering credit risks through improved sharing of borrower information in Kenya (Mwangi and Sichei, 2009). The creation of credit worthiness record will enable borrowers with no physical collateral to use their repayment history as collateral thus making credit markets more competitive and in the long run, more affordable and functional (KCISI, 2008).

Ndung'u (2002) sates that one of the key hindrances to access to financial services and products by the vast majority of the Kenyan populace engaged in the informal/small and medium enterprise sectors has been the lack of a "credit track history". He adds that this information asymmetry problem has been a contributory factor to the high levels of non-performing loans in the Kenyan Banking Sector which facilitated CBK to develop a credit information sharing mechanism. Kabiru (2002) did a study on the relationship between credit risk assessment practice and the level of nonperforming loans of Kenyan banks. Kabiru found that credit risk assessment affected the level of non-performing loans of Kenyan banks.

While existing evidence confirms that information sharing between lenders is beneficial for credit market performance in countries where it exist and great importance of the issue to policy makers in Kenya, there is a lack of studies on the effect of credit information sharing on loan performance in Kenya. Mumi (2011) studied the impact of credit referencing on financial performance of financial institutions in Kenya and found a positive relationship. However, he recommended that future researchers assess the effect of credit referencing on non-performing loans in Kenyan commercial banks. Therefore, this leads to the research

question: what is the effect of credit information sharing on loan performance of commercial banks in Kenya?

1.3 Research Objective

To investigate the effect of credit information sharing on loan performance of commercial banks in Kenya.

1.4 Value of the Study

This study will be important to different stakeholders including:

For the Managers of commercial banks, the findings of this study will help them in making decisions on loan applicant evaluation and assess the influence of credit referencing on the overall level of the nonperforming loans in the banks' books.

For the Central bank and other policy make in Kenya, the findings of this study will provide information which may be used to improve the policy formulation and amendments on CRB and their operations. In addition, The CBK can use the findings of this study to develop policies necessary in enabling a conducive environment for the banks and loan applicants to promote economic growth in Kenya.

The findings of this study would also be of value to future researchers and academicians as it will enrich the literature available on CRBs and their influence on loan performance.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section draws on literature in the area of credit information sharing on loan performance in commercial banks. The chapter reviews literature from other scholars to build the foundation of this study. The material is of importance to this study as it forms a basis for observations which was made during the study in line with the study objective.

2.2 Theoretical Framework

2.2.1 Information Asymmetry Theory

In economics and contract theory, information asymmetry deals with the study of decisions in transactions where one party has more or better information than the other. This creates an imbalance of power in transactions which can sometimes cause the transactions to go awry, a kind of market failure in the worst case (Yun, 2009). Finance theory postulates that information asymmetry can constrain all types of external financing by either limiting availability or increasing costs. Consequently, information asymmetry should affect the acquisition and use of bank lines since short-term bank credit is a primary external source of firm liquidity. Other studies argue that the use of short-term bank credit mitigates capital market frictions through increased monitoring and reduced information asymmetry (Faulkender and Petersen, 2006). If line acquisition and use mitigate information asymmetry, then firms with line access should have reduced information asymmetry relative to firms without line access and more transparent firms would be expected to more actively use lines of credit for liquidity management Existing

empirical research suggests that information asymmetry can have an important impact on bank lending and that limitations exist for certain firms in using bank lines as liquidity substitutes (Hardin and Hill, 2010).

On a direct basis, information asymmetry impacts a lender's willingness to lend. Additional risk comes with uncertainty in firm level performance and greater variability in investment opportunities. 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 some borrowers to reduce their use of bank lines of credit. Moreover, if monitoring is imperfect and the lenders cannot eliminate information asymmetry, bank credit may be rationed for opaque firms. On an indirect basis, information asymmetry may also influence line of credit availability and use since some sources of repayment are based on access to public capital markets (Hardin and Hill, 2010). While banks typically use measures of operating cash flow to evaluate debt service and repayment capacity, in many cases access to public debt and equity markets is the primary repayment source for borrowings from bank lines of credit (Faulkender and Petersen, 2006). Firms facing greater information asymmetry are more likely to be constrained in the public capital markets and may have less ability to reduce or pay off their lines of credit drawn as expected. Since information asymmetry problems increase the monitoring costs and risks for lenders, less transparent firms are less likely to obtain and then use lines of credit as an alternative source of liquidity.

2.2.2 Portfolio Theory

Modern Portfolio Theory (MPT) proposes how rational investors should use diversification in order to optimize their portfolios. It also discusses how a risky asset should be priced. This does not mean that the early economists ignored financial markets. Fisher (1930a) had already outlined the basic functions of credit markets for economic activity, specifically as a way of allocating resources over time and had recognized the importance of risk in the process. In developing their theories of money, Keynes (1936), Hicks (1962) and Kaldor (1939) had already conceived of portfolio selection theory in which uncertainty played an important role.

However, for many economists during this early period, financial markets were still regarded as mere casinos rather than markets properly speaking. In their view, asset prices were determined largely by expectations and counter-expectations of capital gains and thus they were held up by their own bootstraps as it were. Keynes's beauty contest analogy is representative of this attitude. As such, a good amount of ink was spent on the topic of speculative activity (i.e. the purchase temporary sale of goods or assets for later resale). For instance, in their pioneering work on futures markets, Keynes (1936) and Hicks (1962) argued that the price of a futures contract for delivery of a commodity will be generally below the expected spot price of that commodity (what Keynes called normal backwardation). This, Keynes and Hicks argued, was largely because hedgers shifted their price risk onto speculators in return for a risk premium. Kaldor (1939) went on to analyze the question of whether speculation was successful in stabilizing prices and, in so doing, expanded Keynes's theory of liquidity preference considerably.

Markowitz (1952) realized that as the fundamentalist notion relied on expectations of the future, then the element of risk must come into play and thus profitable use could be made of the newly developed expected utility theory of John von Neumann and Morgenstern (1944). Markowitz formulated the theory of optimal portfolio selection in the context of trade-offs between risk and return, focusing on the idea of portfolio diversification as a method of reducing risk and thus began what has become known as Modern Portfolio Theory or simply MPT.

As noted, the idea of an optimal portfolio allocation had already been considered by Keynes, Hicks and Kaldor in their theories of money, and thus it was a logical step for Tobin (1958) to add money to Markowitz's story and thus obtain the famous two-fund separation theorem. Effectively, Tobin argued that agents would diversify their savings between a risk-free asset (money) and a single portfolio of risky assets (which would be the same for everyone). Different attitudes towards risk, Tobin contended, would merely result in different combinations of money and that unique portfolio of risky assets.

In case of commercial banks stakeholders like depositors, investors and other creditors all use the quality of the bank's loan portfolio as the primary indicator of creditworthiness. If there are doubts about the quality of the portfolio, it will be hard to mobilize or retain deposits or to qualify for a funding facility with a bank (Bessis, 2002). This is a very important linkage between credit risk and liquidity risk which yield to market confidence.

Commercial banks therefore have to combine portfolio of risky and risk free assets in a well balanced manner. Risk free assets can comprise treasury bonds and treasury bills while risky assets may range from advancing long term loans to blue chips companies to

an overdraft facility extended to an individual or start up business. To cost loan products banks have to assess the inherent risk of lending to their clients. Estimation of the risk premium is done by obtaining information about the client for example through analysis of audited accounts or credit history of the loan applicant

2.2.3 Value-Based Portfolio Model

This model analyzes optimal portfolio choice and consumption with values management in the organization-supplier-customer triadic relationship. The value concept in the above relationship governs the customer portfolio decision in terms of formulation of recursive utility over time. It shows that the optimal portfolio demand for products under competition varies strongly with the values associated with the brand, industry attractiveness, knowledge management and ethical issues of the organization (Bodie and Rosansky, 1980). The extent of business values determines the relative risk aversion in terms of functional and logistical efficiency between the organization and supplier while the switching attitude may influence the customers if the organizational values are not strong and sustainable in the given competitive environment. The model assumes that a high functional value integrated with the triadic entities would raise the market power of the organization, sustain decisions of customer portfolios and develop long-run relationships thereof. The customer value concept is utilized to assess product performance and eventually to determine the competitive market structure and the product-market boundaries (Campbell and Viceira, 2002).

The value based portfolio model explains that the value based customer portfolios would enhance the customer value as the product efficiency viewed from the customers' perspective, i.e. as a ratio of outputs (like resale value, reliability, safety, comfort) that

customers obtain from a product relative to inputs (price, running costs) that customers have to deliver in exchange. The derived efficiency value can be understood as the return on the customer's investment. Products offering a maximum customer value relative to all other alternatives in the market are characterized as efficient. Market partitioning is achieved endogenously by clustering products in one segment that are benchmarked by the same efficient peer(s) Turnbull and Zolkiewski (1997). This ensures that only products with a similar output-input structure are partitioned into the same sub-market. As a result, a sub-market consists of highly substitutable products.

In this regard commercial banks as customers of credit reference bureaus are expected to comfortably and reliably use the credit information reports to maximize their return on their loans and advances. This will further help banks portion credit market for instance into market for high risk client (serial defaulters) and discipline investors or market for borrowers with long credit history and those with short or no credit history.

2.3 Empirical Literature

2.3.1 Impact of Credit Information Sharing on Non-Performing Loans

A key policy concern in Kenya is that financial institutions are not providing enough credit to new economic activities, and in particular, the expansion of small and micro enterprises (SMEs). Financial access surveys show that access to credit is a major problem especially in the rural areas (FSD 2006 and FSD and Central Bank, 2009). Specifically, the 2009 survey shows that 50 percent of the rural individuals had never used any credit service compared to 61.7 percent in 2006.

According to Sacerdoti (2005), among the reasons for lack of access to credit from banks in Sub-Saharan Africa are inability of borrowers to provide accurate information on their financial status, absence of reliable and updated company and land registries, weak claim recovery and collateral realisation process such as malfunctioning courts and cumbersome legal and judicial procedures. Other reasons include, long physical distance to the nearest financial services provider, high cost of the credit, socio-economic and demographic characteristics that make them less creditworthy.

Although theory is ambiguous on the impact that information sharing will have on the credit market and the level of nonperforming loans, empirical evidence has provided plenty of evidence supporting the claim that credit sharing institutions have a positive effect on lending to the private sector. For instance, Jappelli and Pagano (2002) show that strong credit-sharing institutions are positively related to the size of the credit market. Other empirical studies, including Love and Mylenko (2003) and Galindo and Miller (2001) and have shown that credit is more abundant when borrowers and lenders benefit from credit-sharing institutions. Brown, Jappelli and Pagano (2002) find that credit sharing between lenders is associated with increased and cheaper credit in transition countries in Eastern Europe.

In a theoretical model of information sharing, Jappelli and Pagano (1993) show that exchange of 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. Empirically testing these predictions Jappelli and Pagano (2001) find that credit information sharing

is associated with higher lending, measured by private credit to GNP ratio, and lower defaults.

Evidence also supports the theory that information sharing reduces moral hazard. Doblas-Madrid and Minetti (2010) find that if lenders enter credit information sharing institution, their borrowers improve their repayment performance delinquent payments on leases and loans decrease. Brown, Jappelli and Pagano (2006) find empirical evidence that the lending market would collapse in the absence of information sharing institution and reputational banking. However, their study also showed that establishing a credit registry encouraged borrowers to repay their loans by allowing lenders to identify borrowers with a good payment history. The study showed that an information sharing institution positively impacted the credit market.

Pagano and Jappelli (1993) show that information sharing reduces adverse selection by improving the pool of borrowers. In their model, each bank has private information about local credit applicants but has no information about non-local credit applicants. The latter therefore face adverse selection. However, if banks exchange their information about their clients' quality, they can assess also the quality of non-local credit seekers, and lend to them as safely as they do with local clients. As a result, the default rate decreases. In contrast, the effect on lending is ambiguous, because when banks exchange information about borrowers' types, the implied increase in lending to safe borrowers may fail to compensate for the reduction in lending to risky types. Banking competition strengthens the positive effect of information sharing on lending: when credit markets are contestable, information sharing reduces informational rents and increases banking competition, which in turn leads to greater lending.

Miller (2003) presents a comprehensive study of credit reporting systems in nearly 80 countries around the world. She discusses credit registries in both public and private credit sectors, investigates the view of credit reporting by borrowers and derives international trends in development of credit registries. Galindo and Miller (2001), using firm-level data from Worldscope, study how the quality of information in the registry affects financing constraints for firms in Latin America. They find that index of the information coverage in the credit registry is associated with reduction in the sensitivity of investment to availability of internal funding, indicating lower financing constraints Unlike Galindo and Miller (2001) they use self-reported degree of financing constraints by firms rather than relying on the investment-cash flow sensitivity model, which has been questioned recently by numerous authors. In addition, they distinguish between public and private registries and investigate the differential effect of credit registries on small and medium firms and young and old firms.

The exchange of information between banks may also reduce the informational rents that banks can extract from their clients within lending relationships, as shown by Padilla and Pagano (1997) in the context of a two-period model where banks have private information about their borrowers. This informational advantage confers to banks some market power over their customers, and generates a hold-up problem: anticipating that banks will charge predatory rates in the future, borrowers exert low effort to perform, resulting in high default and interest rates, and possibly market collapse. If they commit themselves to exchange information about borrowers' types, however, banks restrain their own future ability to extract informational rents, leaving a larger portion of the surplus to entrepreneurs. As a result, the borrowers will invest greater effort in their

project, resulting in a lower default probability, lower interest rates and greater lending relative to the regime without information sharing.

Information sharing arrangements are often created spontaneously by groups of lenders or individual entrepreneurs, in the form of credit bureaus or of rating agencies. The design of a public credit registry cannot disregard how much information sharing the private sector is already exchanging spontaneously (Padilla and Pagano, 1997). Clearly, the case for the introduction of a PCR is comparatively stronger in countries where private information sharing arrangements among lenders do not exist, or are primitive and limited in coverage and scope. Empirically the probability that a public credit reference is introduced is lower in countries with pre-existing private information-sharing arrangements. Private and public arrangements are substitutes in this area.

Kithinji (2010) studied the relationship between the credit risk management and profitability of commercial banks in Kenya. She identified credit risk management policies for commercial banks as conservative, stringent, lenient and customized and globally standardized credit risk management policies. Data on the amount of credit, level of nonperforming loans and profits were collected for the period 2004 to 2008. Amount of credit was measured by loan and advances to customers divided by total assets, nonperforming loans was measured using nonperforming loans/ total loans, and profits were measured using ROTA (Return on Total assets). The trend of level of credit, nonperforming loans and profits were established during the period 2004 to 2008. Her findings reveal that the level of credit was high in the early years of the implementation of Basle II but decreased significantly in 2007 and 2008, probably when the Basle II was implemented by commercial banks. Notably, the level of nonperforming loans given by

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nonperforming loans to total loans decreased during the period 2004 to 2008. The requirement by the Basle II might have enabled commercial banks to control their level of nonperforming loans thus reducing banks credit risk. Thus on average the profits of the banking industry increased during the period 2004 to 2008. However profitability of the commercial banks fluctuated during the period but on average increased marginally during the period 2004 to 2008. The profits were generally low during the period of study. The amount of credit extended to customers was relatively high but assumed a downward trend during the period. Whereas the level of credit and profits were relatively low and stable, the amount of credit was high and relatively volatile.

Munu (2011) studied the impact of credit referencing on financial performance of financial institutions in Kenya. He used credit referencing management practice, credit derivatives and portfolio credit risk management to analyze the changes in return on asset (ROA) of commercial banks in Kenya. He found that credit referencing had a positive impact on financial performance of commercial banks and recommended that bank manager embrace credit information system.

2.3.2 Other Factors that Influence Non-Performing Loans

There is no global standard to define non-performing loans at the practical level. A non-performing loan (NPL) may be defined as a sum of borrowed money upon which the debtor has not made his or her scheduled payments for at least 90 days. A nonperforming loan is either in default or close to being in default. Once a loan is nonperforming, the odds that it will be repaid in full are considered to be substantially lower. If the debtor starts making payments again on a nonperforming loan, it becomes a re-performing loan.

even if the debtor has not caught up on all the missed payments (Irum, Rehana and Muhammad, 2012).

According to BIS, the standard loan classifications are defined first as Passed for Loans paid back. Secondly, special mentions for loans to incorporations, which may get some trouble in the repayment due to business cycle losses. Thirdly, Loans whose interest or principal payments are longer than three months in arrears of lending shall be classified substandard. BIS requires that banks make 10% provision for the unsecured portion of the loans classified as substandard. Fourthly, where full liquidation of outstanding debts appears doubtful and the accounts suggest that there will be a loss, the exact amount of which cannot be determined as yet then the loan will be classified as doubtful. BIS require Banks to make 50% provision for doubtful loans; fifthly where outstanding debts are regarded as not collectable, usually loans to firms which applied for legal resolution and protection under bankruptcy laws then the loan will be classified as Virtual Loss and Loss (Unrecoverable). Banks should make 100% provision for loss loans. Non-performing loans comprise the loans in the latter three categories, and are further differentiated according to the degree of collection difficulties.

While talking about the determinants of NPLs specifically, different categories are involved. At first step there are bank specific determinants, then macroeconomic variables, and at last the regulatory framework. In bank specific factors, total loans, and credit policy are important. In the class of macroeconomic determinants, real GDP, GDP per capita, Interest rate are all well known (Irum, Rehana and Muhammad, 2012).

One of the early and important studies on the subject of loan losses includes Keeton & Morris (1987). It used NPLs net of charge offs rate as the proxy for loan losses. The study regarded the macroeconomic conditions as the reason of low payback. It also concluded that too much loaning in a sector is the major cause of high bad debts, upon the bad performance in that sector. Study also highlighted that risk taking behavior of banks also lead to the greater loan losses ratios.

Another research which focused the loan loss ratio of commercial banks in US is Sinkey & Greewalt (1991). They used the loan loss ratio by the proxy constituting charge offs plus NPLs divided by total loans. Study resulted in both external and internal determinants of the NPLs. Excessive financing and interest rate (high) is regarded main reason for high rate of NPLs in US banking sector.

Study of Salas & Saurina (2002) conducted the analysis for NPLs by combining the macroeconomic and firm specific factors by employing the Spanish commercial banks' data. It covered the period of 1985 to 1997 It concluded that there is the problem of management inefficiency that leads to greater NPLs rate. The study found that bank size in not related to the NPLs rate, rather these are firm specific factors that generate more loan losses and raise the NPLs rate.

Study of Rajan & Dhal (2003) employed the regression analysis for Indian banks. It established that macroeconomic factors and financial factors both have significant impact over the NPLs rate. Reported macroeconomic factors include the GDP growth, among financial factors; maturity, bank size, credit orientation, and credit terms were included.

Some studies also considered the impact of ownership structure on the NPLs rate. One of those is Hu et al (2006) which studied Taiwan's banking sector. It covered the study period of 1996 to 1999. It claimed that government owned banks have fewer NPLs rate. It also found negative relationship between the bank size and NPLs rate. The impact of diversification is not proven significant.

2.4 Chapter Summary

This chapter covered literature on information sharing and loan performance. It first started by reviewing the theories on which the study was built including the information asymmetry theory which argues that not all the stakeholders have the same information about the market which may lead to different banks charging different interest rates and still get customers. The study also looked at portfolio theory which looks at both risk and return. It further reviewed the value based portfolio model to bring into focus the importance of building a value adding portfolio in minimizing risks and maximizing returns.

The study further reviewed the empirical studies: for instance, Jappelli and Pagano (2002) show that strong credit-sharing institutions are positively related to the size of the credit market. Other empirical studies, including Love and Mylenko (2003) and Galindo and Miller (2001) and have shown that credit is more abundant when borrowers and lenders benefit from credit-sharing institutions. Brown, Jappelli and Pagano (2002) find that credit sharing between lenders is associated with increased and cheaper credit in transition countries in Eastern Europe. Doblas-Madrid and Minetti (2010) find that if lenders enter credit information sharing institution, their borrowers improve their

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repayment performance – delinquent payments on leases and loans decrease. Pagano and Jappelli (1993) show that information sharing reduces adverse selection by improving the pool of borrowers. In their model, each bank has private information about local credit applicants but has no information about non-local credit applicants. Miller (2003) presents a comprehensive study of credit reporting systems in nearly 80 countries around the world. She discusses credit registries in both public and private credit sectors, investigates the view of credit reporting by borrowers and derives international trends in development of credit registries. Kithinji (2010) studied the relationship between the credit risk management and profitability of commercial banks in Kenya. She identified credit risk management policies for commercial banks as conservative, stringent, lenient and customized and globally standardized credit risk management policies.

The literature suggests a strapping association between NPLs and several factors. These are annual growth in *GDP*, credit growth, real interest rates, the annual inflation rate, real effective exchange rate, annual unemployment rate, broad money supply (*M2*), GDP per capita, maturity, bank size, credit orientation, credit terms, management inefficiency and credit information sharing. This study only considered the credit information sharing and Total Outstanding Loans including NPLs Rate.

From the above discussion, it is evident that further research on the impact of information sharing on loan performance in Kenya would add value by providing Kenyan market specific information and suggesting areas for further studies.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter sets out various stages and phases that were followed in completing the study. In this stage, most decisions was about how research was executed and how respondents if any were approached, as well as when, where and how the research was completed.

The following subsections are included; research design, target population, data collection and data analysis.

3.2 Research Design

The study employed descriptive as well as correlation research designs. Descriptive research involves use of numbers, tables, charts, and graphs to describe, organize, summarize, and present raw data (Glass & Hopkins, 1984).

AECT (2001) state that descriptive studies report summary data such as measures of central tendency including the mean, median, mode, deviance from the mean, variation, percentage, and correlation between variables. The combination of its characteristic summary and correlation statistics, along with its focus on specific types of research questions, methods, and outcomes is what distinguishes descriptive research from other research types. A descriptive study can therefore help establish associations between variables. The design was therefore preferred because it allowed for collection of quantitative data from a large sample from which data analysis was carried out to derive

percentages, central tendencies, mean, variations and relationships (Churchill and Iacobucci, 2002).

The researcher used time series empirical data on the variables to examine the relationship between credit information sharing and loan performance by establishing correlation coefficients between the credit reports requested by the commercial banks and loan performance as measured by level of non-performing loans.

3.3 Population

A population also known as a "universe" refers to all the items in the field of inquiry (Singh and Kumar, 2009). The population of the study included all the 43 commercial banks (appendix 1) and two credit reference bureaus licensed as at 31st December 2011.

3.4 Sample

The study included all the 42 commercial banks licensed as at 31st December 2011 excluding Charter House Bank Ltd for being under statutory management.

3.5 Data collection

Monthly Data on Total Loans, NPL and Commercial bank Lending rate were obtained from the Monthly economic review issued by Kenya National Bureau of Statistics and also verified from data at the Central Bank of Kenya. The number of credit reports requested by the commercial banks in Kenya was obtained from the two credit reference bureaus licensed by the Central Bank of Kenya as at 31st December 2011. The sources are chosen because of credibility as the data on loan default and credit information requests have been verified by the central bank's on-site and off-site inspections. The

study period covered August 2008 — June 2012. This period was chosen because the credit information sharing was introduced in 2008.

3.6 Data Analysis

The main data variable for this study was the changes in the levels of classified loans and total loans issued. The researcher used an econometric analysis system (Eviews, Version 7.0) in the analysis to establish the relationship between credit information sharing and loan performance in commercial banks in Kenya.

In order to determine the the relationship between impact of credit information sharing on loan performance in commercial banks in Kenya, the researcher conducted a regression analysis using the following multiple regression model as used by Irum, Rehana and Muhammad (2012) but adjusted to include credit information sharing with other variables left unchanged.

$$Y = \alpha + \beta_0 X_0 + \beta_1 X_1 + \beta_2 X_2 + \mu$$

Where:

Y — Loan Performance is computed as:

$$\frac{Aggregate\ Total\ Non-performing\ Loans}{Aggregate\ Total\ Loans\ and\ Advances}$$

X_0 — Aggregate number of credit reports requested by commercial banks in Kenya

X_1 — Aggregate Total Loans and advances by commercial banks

X_2 — Commercial banks' monthly weighted average lending rate

α — Constant parameter/Intercept

$\beta_0 - \beta_2$ — Coefficient of independent variables

μ — Error term

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The 'a priori expectation' in the model was that the credit information sharing was expected to have a negative relationship on loan performance as measured by Non-performing loans. The mathematical expression is represented as; $\beta_a < 0$ implying that a unit increase in the credit independent variable (X_a) will lead to decrease in NTL/TL by a unit.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter presents the results and findings of the study based on the research objectives. The results are presented in the form of summary tables. Regression and correlations analysis are used to answer the research objective.

4.2 Results

The regression analysis was conducted using measures of loan performance and control variables. Test of significance was carried out for all variables studied using t-test at 95% level of significance. From the observation any p-value that is less 0.1 was deemed to have significant relationship with the dependent variable, else the relationship was considered insignificant. The adjusted R-square was used to measure the degree of variability of the dependent variable due to the changes in the independent variables. The results are indicated in sections 4.3 and 4.4 while source data is presented in a tabular format in appendices 3 and 4.

It is worth noting that even though credit referencing regulations were first launched in the year 2008 sharing of information on loan defaulters via credit reference bureaus started in August 2010. Further, the researcher used aggregate monthly data for number of credit reports requested, aggregate total loans and weighted average lending rate for all forty commercial banks.

4.3 Descriptive Analysis

The summary of statistics of variables included in the regression model is presented in table 1 below.

Table 1: Summary Statistics

	Aggregate Number of Credit Reports Requested by Commercial Banks	Monthly weighted average lending rate in %	Aggregate Loan Default Rate	Aggregate Total Loans and advances in billions of Kshs.
Mean	77,138.48	16.09696	0.054098	1,091.722
Median	79,445.00	14.18000	0.051507	1,118.300
Maximum	102.200.0	20.34000	0.070437	1,291.400
Minimum	46,780.00	13.20000	0.043457	864.6000
Std. Dev.	14,100.49	2.896881	0.009000	144.3544
Skewness	-0.570914	0.632724	0.413957	-0.190749
Kurtosis	2.927951	1.506738	1.872435	1.548764
Jarque-Bera	1.254423	3.671557	1.875310	2.157809
Probability	0.534079	0.159489	0.391545	0.339968
Sum	1774185.	370.2300	1.244256	25109.60
Sum Sq. Dev.	4.37E+09	184.6223	0.001782	458,440.1

Table 1 presents the descriptive statistics of the data series. From the table, all series show features of non-normality which is common in financial time series data. All the series have a coefficient of kurtosis of less than 3 against the standard value of 3 for a normal distribution and a non-zero coefficient of excess kurtosis. The Jarque-Bera statistic is also significant for all the data series and therefore the time series data can be

concluded to have a non-normal distribution. Jarque-Bera statistic tests whether the coefficient of skewness and the coefficient of kurtosis are jointly zero and that Jarque-Bera would not be significant for a normal distribution.

4.4 Quantitative Analysis and Relationship between Variables

Study used two methods for quantitative analysis. First correlation was used to measure the degree of association between variables under consideration. Therefore Pearson and Spearman's correlation were calculated for all variables. Secondly, regression analysis was similarly used.

4.4.1 Pearson and Spearman's Correlations

Table 2 below shows the Pearson and Spearman's correlation coefficient generated from the data. Pearson's correlation analysis is used to investigate the relationship between variables in the study.

Table 2: Pearson and Spearman's Correlation Coefficient

	Credit Report	Lending Rate	Loan Performance	Total Loans
Credit Report Pearson Correlation	1.000000	0.073142	-0.576692	0.541795
Lending Rate Pearson Correlation	0.073142	1.000000	-0.796381	0.811160
Loan Performance Pearson Correlation	-0.576692	-0.796381	1.000000	-0.971977
Total Loans Pearson Correlation	0.541795	0.811160	-0.971977	1.000000

Source: researcher's computations

The result shows that there is a negative relationship between the number of credit reports requested by commercial bank and loan default rate. This is because credit referencing reduces information asymmetry hence better decision making. Therefore, credit referencing will deter advance of loan facility to an applicant with negative credit history hence will help in reducing loan defaults as credit will only be disbursed to applicants with positive credit history. The finding is consistent with Pagano (2000) and Mwangi and Sichei (2009).

Loan performance as measured by loan default rate is negatively related to lending rate showing that an increase in bank lending rate will result in lower default rate. This may be attributed to stringent credit appraisal during high interest rate regimes.

It was further observed that total loan and advances is negatively related to loan default rate. This is in tandem with Ndungu (2002), Brown (2007) and Mwangi and Sichei (2009). The objective of credit information sharing was to enable borrowers with no collateral to use their credit history in accessing credits from lenders. Therefore the result show that credit information sharing has added value in enabling increased access to financial services and decreased loan default rate

4.4.2 Regression Analysis

The determinants of loan performance as measured by loan default rate were investigated. From table 3 below the established multiple linear regression equation becomes:

$$Y = 0.1214 - 1.19 \times 10^{3} X_{1} - 0.000693 X_{2} - 4.3 \times 10^{-5} X_{3}$$

Table 3: Result of General Least Square

Dependent Variable: Loan Performance
Method: Least Squares
Date: 10/01/12   Time: 18:20
Sample: 2010M08 2012M06
Included observations: 23

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Credit Report	1.19E-07	5.49E-08	-2.169240	0.0430
Lending Rate	-0.000693	0.000384	-1.804773	0.0870
Total Loans	-4.30E-05	9.14E-06	-4.703786	0.0002
C	0.121400	0.003386	35.84877	0.0000

R-squared	0.955856	Mean dependent var	0.054098
Adjusted R-squared	0.948886	S.D. dependent var	0.009000
S.E. of regression	0.002035	Akaike info criterion	-9.400137
Sum squared resid	7.87E-05	Schwarz criterion	-9.202660
Log likelihood	112.1016	Hannan-Quinn criter.	-9.350472
F-statistic	137.1368	Durbin-Watson stat	1.697454
Prob(F-statistic)	0.000000		

Source: Study data on appendices 3 and 4

The coefficients of the intercept and independent variables all have p-values less than 0.1 hence significant.

The results show that the dependent variable is negatively related to all independent variables as already depicted by the analysis of correlation coefficient.

The C in table 3 above is constant representing where the regression line intercepts the y-axis. It represents the loan default rate when all other variable are at zero. It has a p-value of zero hence very significant.

4.5 Robustness Check

This refers to how well the study model explains the changes in the dependent variable. This is measured by adjusted R-square.

Table 4: Model Summary

Model	R	R-square	Adusted R-square	Std error of estimate	F-statistics
1	0.978	0.956	0.949	0.002	137.137

Source: Study data on appendices 3 and 4

The adjusted R-square also called the coefficient of multiple determinations is the percentage of the variance in the dependent variable explained uniquely or jointly by the independent variables and is 94.9%. This means that 94.9% changes in loan performance as measured by loan default rate will be explained by the changes in independent variables while remaining 5.1% will be explained by other factors not in the model

From graph 1 below where LPF and LP both standing for loan performance, the model could also be concluded as robust and adequate since it produced an accurate forecast with a bias proportion of 0.00000 and a small variance proportion of 0.011286. The standard deviation of ±2 was within the recommended standard deviation of an accurate forecast and thus adequate model.

Graph 1: Determining the forecasting accuracy of the model

Forecast LPF	
Actual LP	
Forecast sample 1 54	
Adjusted sample 32 54	
Included observations 23	
Root Mean Squared Error	0 001849
Mean Absolute Error	0 001488
Mean Abs Percent Error	2 835714
Theil Inequality Coefficient	0 016676
Bias Proportion	0 000000
Variance Proportion	0 011286
Covariance Proportion	0 988714
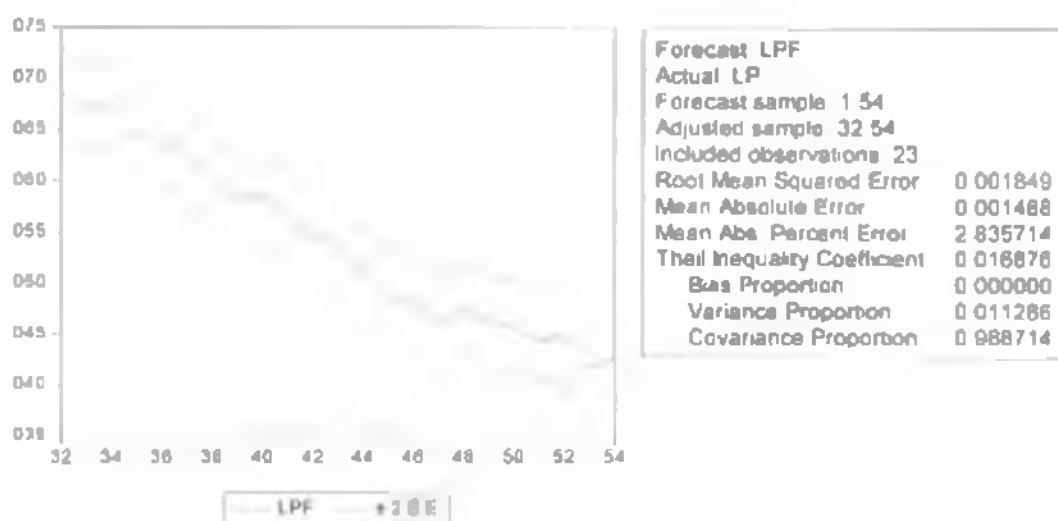
Source: Study data on appendices 3 and 4

4.6 Credit Reports Requests and Loan Default Rate

The trend in credit report requests by commercial banks in Kenya and credit reports requested by customers due to an adverse action by banks are graphically illustrated below. Graph 3 shows Loan default rate has drastically reduced from 10.4% in January 2008 to 4.5% in June 2012. The decline is attributed to credit information sharing mechanism launched in 2008. Therefore CIS has helped reduce information asymmetry leading to accurate analysis of borrower's ability and willingness to the loan. The result also show that existing borrower honor their loan repayment obligation

Additionally, graph 2 below show those borrowers that have defaulted with a particular lender and are again looking for alternative credit sources this is in tandem with Akerlof (1970). The graph illustrate adverse action by the bank which is a decision by the bank not to advance loans to a new applicant as result of the applicants' existing non-

performing loan with other bank(s). Banks can now obtain such information from credit reference bureaus. However, it was noted that some of the loan defaulters were not aware of the existence of credit information sharing framework and hence were making inquiries from the credit reference bureaus due to an adverse action by the banks.

Graph 2: Credit Report Requests - Banks

Month of Submission
Source: Study data on appendix 4
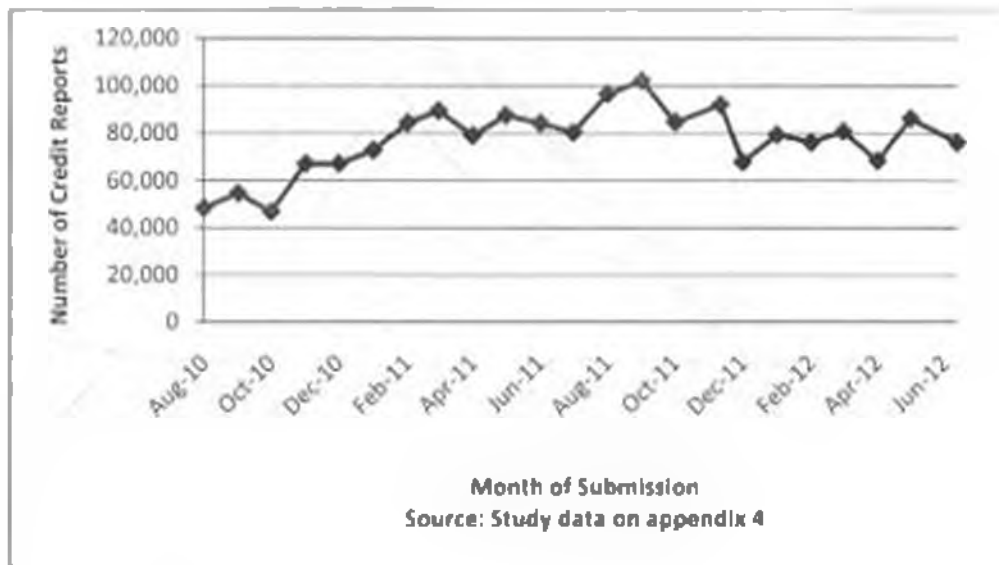
Graph 3: Customer Inquiries Due to Adverse Actions by Institutions

Month of Submission
Source: Study data on appendix 4
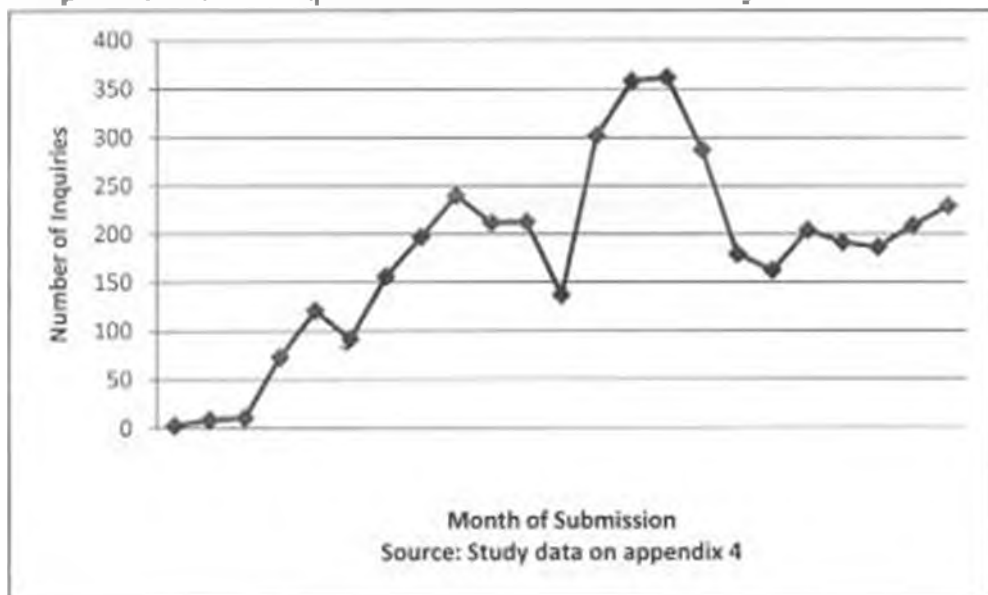
Graph 4: Default Rate against Time (months) since launching of credit information sharing

time(moths) since launching of credit reporting in January 2008

Source: Study data on appendix 3
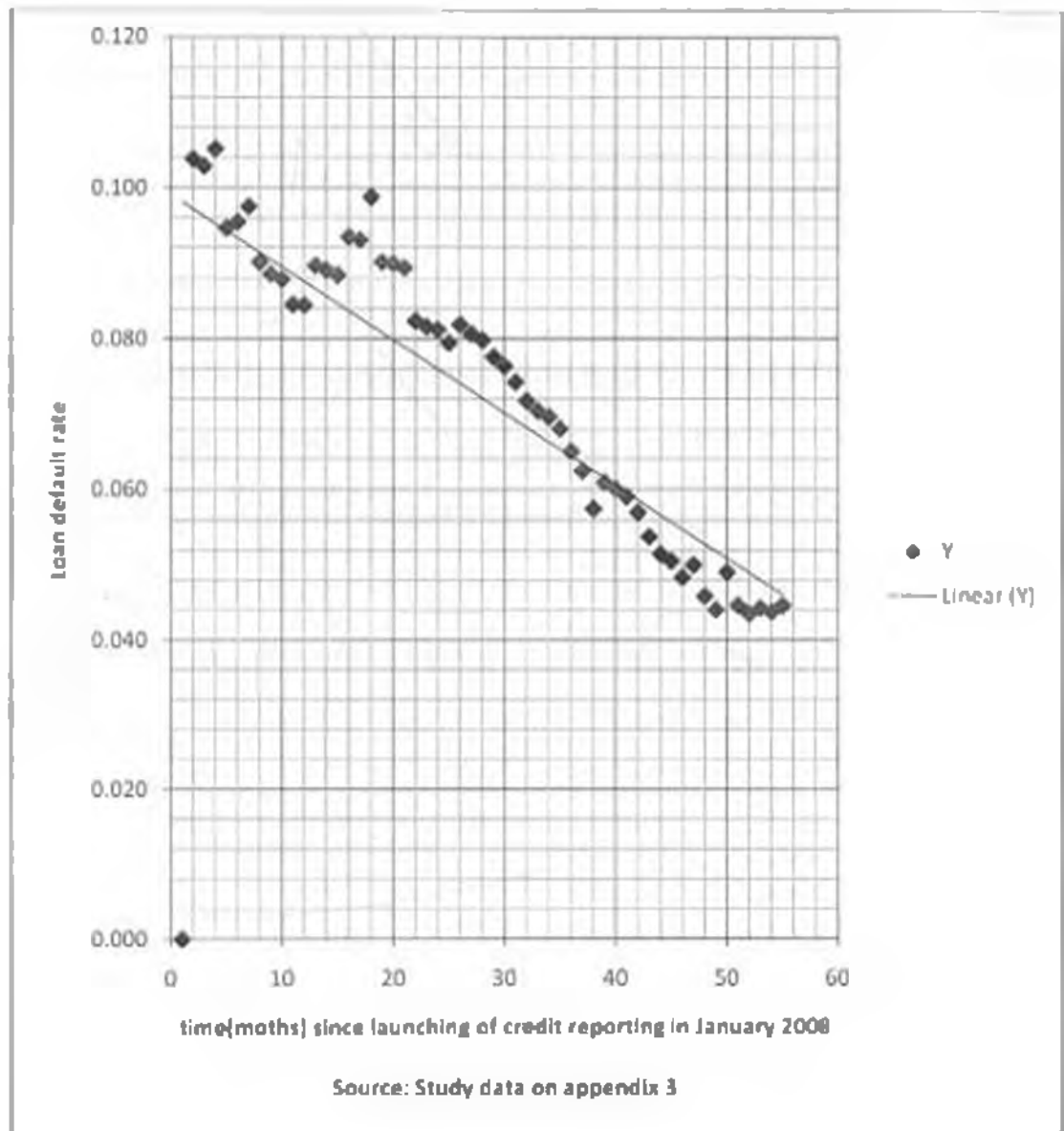
4.7 Discussion of Findings

Credit information sharing is one of the important factors considered by both managers of commercial banks, the regulator and the government to improve credit risk management practice and increase access to finance. Therefore banks consider credit referencing very instrumental in credit appraisal process especially for new clients. Credit information reduces adverse selection and moral hazard problem by reducing information asymmetry.

The findings were that loan performance as measured by loan default rate is negatively related to credit information sharing, lending rate and total loans. The negative relationship between default rate and total loans is in tandem with Ndungu (2002), Brown (2007) and Mwangi and Sichei (2009) findings and government objective of launching credit referencing while the negative relationship between default rate and credit information is consistent with Pagano (2000) and Mwangi and Sichei (2009).

CHAPTER FIVE

SUMMARY, CONCLUSION, RECOMMENDATION, LIMITATIONS AND SUGGESTION FOR FUTURE RESEARCH

5.1 Introduction

This chapter presents summary of key findings of the study as well as conclusions, limitations of the study and recommendations for future research.

5.2 Summary

Data on aggregate 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 June 2012. The population of the study comprised of 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 variable while the number of credit reports requested by commercial banks, lending rates and total loans were the independent variables. The t-statistics and R-squared were used to determine the magnitude of relationship between the dependent variable and independent variables. In general, the results of general least squares method indicates that credit information sharing affects loan performance and if banks undertakes credit referencing during credit appraisal process then loan default rate will decrease.

The study concludes that credit information sharing has a negative correlation with loan default rate. Thus suggesting credit information sharing will lead to decrease in loan

defaults. All independent variables had a significant relationship with the Loan performance.

5.3 Conclusion

The study found negative correlation between dependent variable and independent variable. The result indicate that managers can create value for their principles by making use of credit referencing during credit appraisal process to screen credit applicants and reduce adverse selection problem.

5.4 Recommendations

The study recommends that commercial banks and other lenders should adopt adequate credit information sharing systems. Information is deemed crucial to improve credit market performance. Through exchanging information about their customers financial lenders can improve their knowledge of the applicants' characteristics, past behavior and current debt exposure. The reduction of information asymmetries reduces adverse selection problem. It further motivates borrowers to honor their obligation and further enhances competitiveness of credit markets.

The researcher recommends full file reporting by participating institutions. Full file reporting, that is, sharing of both negative and positive information on customers is important as it enables risk based pricing through credit scoring. It is important to have full file reporting to facilitate credit scoring mechanism and enhance the information capital. Further, full file comprehensive credit reporting systems are more successful at expanding access to credit, improving loan performance and preventing over

indebtedness. The researcher therefore recommends that credit providers to consider sharing full file information, in order to enjoy the full benefits of the CIS mechanism.

There is also a need to ensure that both lenders and borrowers are sufficiently sensitised on the merits of a robust credit information sharing mechanism and are able to use it to their advantage. This calls for well thought out awareness campaigns and capacity building programs. It is particularly important that lenders develop skills that enable them apply credit management tools as effectively as possible so that low-risk customers are rewarded appropriately.

The researcher recommends that credit managers undertake credit referencing of loans applicants during client appraisal process. Credit reports may help credit manager obtain information initially concealed by the loan applicant and can therefore help reduce information asymmetry.

The success of credit information hinges on a robust legal framework that supports a full-file comprehensive data sharing mechanism. The researcher therefore recommends that CBK enforce laws and regulations on reporting loan defaulters. The errant commercial banks that fail to report loan defaulters to credit reference bureau should be sanctioned and punished. This will ensure that all loan defaulters are reported to a central place and will be on common database.

The researcher established that current system of credit information sharing is limited to commercial banks. If this is allowed to continue, various credit providers may create "silo" databases, often referred to as "segmented" information sharing. Credit reports generated by such systems give an incomplete and often misleading picture.

Comprehensive systems, by contrast, allow a more complete credit profile of a consumer to be drawn. For small businesses, it also includes trade credit data and leasing arrangements. These non-financial services, such as utility and telephone services, are usually more common than are financial payment data, particularly in less developed markets, where, for example, the number of cell phone users may far outstrip the number of credit card users. The use of non-financial data in credit files offers the promise of a diversified information capital that will facilitate extension of reasonably-priced credit to those who have not previously accessed formal credit. Policy makers should therefore develop laws and regulations for "Comprehensive" systems of reporting of defaulters by various parties such as beneficiaries of higher education loans, defaulters of electricity bill, rent and land rate defaulters and defaulters on sacco's and micro-finance loans.

5.5 Limitations of the Study

The credit referencing in Kenya is relatively young and hence people and lenders may not have fully embraced the use of credit information sharing system.

Even though the credit referencing regulations were first launched in 2008, the names of loan defaulters were first submitted to CRBs in October 2010 and credit referencing of loan applicants started the same time. Therefore, this shortened the regression data period contrary to the one proposed in research methodology.

Credit information sharing is currently limited to commercial banks and therefore the findings of this study may not benefit other lenders such as micro-finance institutions

Credit reporting is currently limited to negative information only. The regulations only provide for mandatory reporting of negative information such as loan defaults, bouncing

cheques and bankruptcy. Therefore the findings of this study have been limited to the effect of negative information sharing as opposed to full file reporting.

The study reflects Kenyan commercial banks perspective and only impact of sharing negative credit information has been discussed in the study.

5.6 Suggestion for Future Research

The researcher recommends the following areas for future research This study focused on the effect of credit information sharing on loan performance. However, the study period of four year since the launching of credit information sharing regulations in 2008 may not be long enough. Therefore, the researcher recommends that a similar study be repeated after five years.

This study used aggregate industry figures, the researcher therefore recommends that future researchers use firm (bank) specific figures to investigate the effect of credit information sharing on loan performance and assess whether the results will be different from the finding of this study.

This study was limited to use of only three variables namely lending interest rate, total loans and credit information sharing as factors that influences non-performing loans Therefore, the researcher recommends that future researchers consider adding other variables such as GDP, Inflation and Management expertise to the model to assess their joint impact on non-performing loans.

The researcher also recommends that future researcher investigate the impact of credit information sharing on lending interest rate.

Future researcher can also investigate the impact of credit information on customer loyalty. Further, the researcher recommends that futures researchers investigate the effect of credit information sharing on financial deepening and access to financial services by the rural populace in Kenya

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Appendix 1: Licensed Commercial Banks In Kenya

1. African Banking Corporation Ltd
2. Bank of Africa Kenya Ltd.
3. Bank of Baroda (K) Ltd.
4. Bank of India
5. Barclays Bank
6. CFC Stanbic Bank
7. Chase Bank (Kenya)
8. Charter House Bank (under statutory management)
9. Citibank N. A Kenya
10. Commercial Bank of Africa
11. Consolidated Bank of Kenya
12. Cooperative Bank of Kenya
13. Credit Bank Ltd
14. Development Bank of Kenya
15. Diamond Trust Bank Kenya Ltd
16. Dubai Bank Kenya Ltd
17. Ecobank Kenya Ltd
18. Equatonal Commercial Bank
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 Ltd
28. Habib Bank AG Zurich
29. I&M Bank Ltd
30. Imperial Bank Ltd

31. Jamii Bora Bank Ltd

32. Kenya Commercial Bank Ltd

33. K-Rep Bank Ltd

34. Middle East Bank Kenya Ltd

35. National Bank of Kenya Ltd

36. NIC Bank Ltd

37. Oriental Commercial Bank

38. Paramount Universal Bank

39. Prime Bank (Kenya)

40. Standard Chartered Kenya

41. Trans National Bank Kenya

42. United Bank for Africa

43. Victoria Commercial Bank

Appendix 2: Representative Offices of Foreign Banks

1. HDFC Bank Limited
2. Nedbank
3. Hong Kong and Shanghai Banking Corporation
4. FirstRand Bank
5. Bank of China

Appendix 3: Default Rate, Total loans, NPL and Lending Rate

Year	Months	Default Rate(Y)	Total loans and advances in billions(X1)	Non performing loan in billions	Lending rate % (X2)
2008	January	0.104	551.30	57.30	13.78
	February	0.103	557.40	57.10	13.84
	March	0.105	554.20	58.10	16.02
	April	0.095	616.00	58.10	13.91
	May	0.095	610.70	58.10	14.01
	June	0.098	597.70	58.10	14.06
	July	0.090	624.80	56.10	13.90
	August	0.085	621.90	54.30	13.66
	September	0.081	620.10	57.10	13.66
	October	0.085	679.00	57.40	14.12
	November	0.084	675.80	57.40	14.52
	December	0.090	685.90	61.50	14.47
2009	January	0.089	690.70	61.50	14.78
	February	0.088	673.90	61.50	14.67
	March	0.089	694.40	64.10	14.17
	April	0.093	698.70	45.00	14.71
	May	0.099	707.50	69.70	14.55
	June	0.092	713.60	64.70	15.02
	July	0.090	711.90	64.10	14.57
	August	0.089	729.70	65.20	14.76
	September	0.082	736.00	60.60	14.74
	October	0.082	745.00	61.60	14.78
	November	0.081	752.50	61.50	14.85
	December	0.079	771.70	61.80	14.76
2010	January	0.082	774.50	63.60	14.98
	February	0.085	781.90	63.70	14.98
	March	0.080	789.50	63.00	14.90
	April	0.078	799.50	62.00	14.54
	May	0.076	816.70	61.80	14.44
	June	0.074	828.90	61.30	14.14
	July	0.072	849.00	60.90	14.28
	August	0.073	864.60	60.90	14.16
	September	0.073	878.80	62.20	13.98
	October	0.068	900.00	61.30	13.85
	November	0.065	911.60	59.80	13.82
	December	0.062	925.60	57.80	13.87
2011	January	0.057	944.40	54.30	14.01
	February	0.061	962.90	59.10	13.75
	March	0.060	998.80	59.80	13.95
	April	0.059	1,019.70	60.00	
	May	0.057	1,044.90	59.70	13.55
	June	0.054	1,063.10	58.10	13.81
	July	0.052	1,118.10	57.60	14.13
	August	0.051	1,117.80	57.50	14.12
	September	0.048	1,192.50	57.70	14.78
	October	0.050	1,218.50	60.70	15.21
	November	0.044	1,221.40	55.10	18.48
	December	0.044	1,207.40	54.10	20.04
2012	January	0.044	1,206.60	59.20	19.54
	February	0.045	1,221.00	54.50	20.28
	March	0.041	1,235.70	51.70	20.14
	April	0.044	1,241.90	54.80	20.23
	May	0.044	1,291.60	56.50	20.12
	June	0.045	1,289.90	57.50	20.23

Appendix 4: Number of Credit Reports Requested

1. CRB Africa

Month of Data Submission	Credit reports requested by Banks	Month of Data Submission	Credit reports requested by Customers	No. of Customer Inquiries Due to Adverse Actions By Institutions
Aug-10	45,558	Aug-10	62	3
Sep-10		Sep-10	55	8
Oct-10	46,780	Oct-10	37	11
Nov-10	47,409	Nov-10	118	71
Dec-10	47,101	Dec-10	184	171
Jan-11	72,950	Jan-11	134	97
Feb-11	94,456	Feb-11	297	156
Mar-11	89,463	Mar-11	362	197
Apr-11	73,009	Apr-11	401	243
May-11	87,634	May-11	623	312
Jun-11	84,519	Jun-11	377	113
Jul-11	86,159	Jul-11	363	136
Aug-11	96,015	Aug-11	587	302
Sep-11	101,438	Sep-11	648	357
Oct-11	84,514	Oct-11	711	352
Nov-11	91,315	Nov-11	653	247
Dec-11	68,036	Dec-11	479	176
Jan-12	78,712	Jan-12	552	162
Feb-12	84,100	Feb-12	505	204
Mar-12	80,438	Mar-12	480	186
Apr-12	87,966	Apr-12	462	185
May-12	85,170	May-12	567	204
Jun-12	75,199	Jun-12	567	272
Jul-12	42,717	Jul-12	554	259
TOTAL	1,882,441		9,854	4,173

2. Metropol CRB

Month of Data Submission	Credit reports requested by Banks	Month of Data Submission	Credit reports requested by Customers	No. of Customer Inquiries Due to Adverse Actions By Institutions
Jul-11	3	Jul-11	3	1
Aug-11	571	Aug-11	8	0
Sep-11	763	Sep-11	8	1
Oct-11	162	Oct-11	27	0
Nov-11	123	Nov-11	83	0
Dec-11	50	Dec-11	74	0
Jan-12	113	Jan-12	9	0
Feb-12	168	Feb-12	3	0
Mar-12	408	Mar-12	75	5
Apr-12	609	Apr-12	20	1
May-12	919	May-12	407	4
Jun-12	1105	Jun-12	426	7
Jul-12	2058	Jul-12	423	20
TOTAL	6,519		1,459	39

| TOTAL CRBs | 1,888,960 | | 11,313 | 4,412 |