THE EFFECT OF CREDIT INFORMATION SHARING ON THE FINANCIAL PERFORMANCE OF LISTED COMMERCIAL BANKS IN KENYA.

BY

STANCLAUS AGACHO OBINO

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN FINANCE, UNIVERSITY OF NAIROBI

2021

DECLARATION

I declare that this research proposal is my original work and has not been presented for any academic award in any university.

Signed..... Date 26/08/2021

Name: Stanclaus Agacho Obino

Reg no: D63/9695/2018

This research proposal has been submitted for examination with my approval as the University supervisor.

Sign..... Date 1/9/2021.....

Name: Mr. Odipo

University Supervisor

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

CIS – Credit information sharing

CRB – Credit reference Bureau

NIM – Net Interest Margin

NPL – Non performing loan

ROA – Return on Assets

ROE – Return on Equity

ABSTRACT

Credit information exchange is a platform that allows financial firms, such as banks, and credit information sources, such as credit reference bureaus, to share any information on borrowers' credit effectiveness. The survey delved in finding out how exchanging credit information influenced banks' cash flows. In this study, the observational research approach was applied. As of December 31, 2019, the research population included all 11 listed commercial banks in Kenya that were regulated under the Banking Act. A census method was utilized because there are relatively few listed banks. The primary source of information was secondary data. The data was acquired from the CBK's annual supervisory reports as well as individual audited accounts of the banks. The researcher used SPSS to build the model used in evaluating effects of CIS on bank financial performance. The study showed a non-significant negative association between credit data interchange system quality and bank economic viability. The findings demonstrated a strong negative association between capital adequacy and financial performance, as well as a minor positive link between liquidity and bank performance in terms of financial performance. Failure to disclose credit information, according to the report, increases credit risk, which affects a bank's financial performance. In order to reduce credit risk and increase financial performance, the study suggests that commercial bank management in Kenya establish suitable mechanisms for sharing credit information.

CHAPTER ONE
INTRODUCTION

1.1 Study Background

According to Ioannidou and Penas, (2010), the concept of CIS is moderately new in Kenya Commercial banks and can enhance their bank knowledge regarding new clients through credit reference bureaus. Kusa and Okoth, (2013) also suggested that the Central Bank of Kenya has expanded its assessment of the scope of its client information to be shared with the core mandate of the loan institutions. By exposing them to higher interest rates or denying them credit, this move could leave out thousands of prospective borrowers with low credit score cards. Since the first credit bureau was registered in 2010, the amount of information shared has expanded considerably. The level of support for information sharing among monetary institutions, as well as the level of interest in engaging in information sharing among SACCOs and microfinance institutions, is a notable achievement (Ndung'u & Ngugi, 2000).

CIS has been noted to influence the efficiency of listed commercial banks in Kenya in four areas: liquidity management, capital adequacy, asset quality, and returns on equity (Degryse and Ongena, 2010). In this regard, the study therefore addresses effects of credit sharing information on performance, managing liquidity, capital adequacy, asset quality, and returns on equity of Kenyan listed commercial banks. The study context, problem statement, study goals, research questions, and study significance are all covered in this chapter, as well as the study scope, limitations, delimitations, assumptions and conceptual structure.

1.1.1 Credit Information Sharing

Turan and Koskija (2014), states that competition between lenders reduces the sharing of information, but it seems that the impact of competition is only of secondary importance. Numerous number of empirical studies document various positive effects of loan sharing (CIS). The benefits of CIS are also outlined: going to increase major banks' transparency, helping banks to lend carefully, reducing bank risks, acting as the borrower's restraint against defaults, and reducing borrowing costs. Ahmad (2013) further finds out that sharing

of information is one of the causes of NPL growth or decrease. Therefore, as Gaitho, 2013 opines “the sharing of credit data is undeniably important in reducing the asymmetry of information amongst financial institutions and their clients”. Thus in order to promote credit information exchange, the idea of credit reference bureaus (CRBs) and credit reporting agencies (CRAs) was born (CIS).

According to Gaitho, (2013), credit information sharing is enabled by CRBs or CRAs in the financial sector. In Kenya, in July 2008, the Banking CRB Regulations were published to embolden the Central Bank to license and supervise CRBs collecting credit information from financial institutions. The CBK implemented the Credit Information Sharing (CIS) initiative in 2010, in collaboration with the Kenya Bankers Association (Central Bank of Kenya, 2010). Credit Reference Bureau Africa Limited was allowed to trade as Transunion at the end of the same year. The CBK has introduced the CRBs to mainly highlight information asymmetry, increase the information capital, lower search costs and build on monetary identity credit extension (Central Bank of Kenya, 2011). In early 2010, Kenya's commercial banks were forced to share only negative NPL credit information (CBK, 2010). By 2011 two CRBs were licensed and in 2012 credit information was also required for non-loans such as Sacco's and Microfinance institutions to be shared. Furthermore, the knowledge exchanged at this stage can contain both benefits and drawback aspects (Central Bank of Kenya, 2012). Because banks' credit reports have grown from 284,722 in 2010 to 1,306,439 in 2011, 1,015,327 in 2012 and 1,275,522 in 2013.

1.1.2 Financial Performance

Financial performance refers to a company's ability to produce resources over time from its regular operations. Warsame, 2016 said “financial performance is an institutional ability to make successful and productive use of its resources in order to meet its purpose and goals”. Financial efficiency, according to Kagoyire and Shukla (2016), is “a company's ability to function effectively, be more profitable, expand, and remain viable for a long time”. Most entities aim to effectively apply their resources in order to achieve high levels of success, especially in financial terms. As a result, financial success is achieved from a variety of activities carried out by an entity (Fujo & Ali, 2016). One of the most important roles performed by banks in any economy is the allocation of capital from depositors to

investors. The ability of banks to profitably fulfill this intermediation role has a significant impact on a country's economic development.

Abnormalities in this segment can spread to other players, resulting in a bank run, which, if not controlled, can lead to financial turmoil. Despite some Kenyan tier 1 banks' good results, some have reported losses, sending a wind of financial distress through the sector (Oloo, 2011). This drives the research, which aims to determine the value of credit information sharing to a bank's bottom line. Benefit maximization is one of the key targets of commercial banks. Profitability is measured using a variety of criteria.

1.1.3 Financial Performance and Credit Information Sharing

According to Alkhatib (2012), financial intermediation is the main function of commercial banks in the economy, even though bank size varies from nation to nation; most commercial banks are the largest single monetary arbitrator. The process includes the directing of additional cash from providers to families with deficit spending in funds usually known as lenders. Gregory (2010) defines credit risks as risks which counterparties may not be able to make payments or meet contractual duties. “Badly regulated credit risk leads to inefficient credits (NPLs) that undermine banking profitability” noted by Kimasar & Kwasira, 2014. This is well shown in 2007's global economic crisis, which led to the crumbling of renowned institutions like Lehman Brothers, Fannie Mae and Freddie Mac (Gregory, 2010). During 2008, increased losses and write-downs have been discussed by different financial enterprises and global losses by the end of October 2008 reached US$ 685 billion (Barth, 2009). In the United States, in the 1860s the concept of CRAs or CRBs involved the compilation of a list of client names. This allows traders to monitor their clients, particularly those with negative credit risks (Shisia, et al., 2014). Recently this concept has contributed to the growth of famous CRAs like Transunion, Experience, Credit Info, to name just a few, that are effective in different regions of the globe.

In Asian nations like Pakistan, the downward trend in exports occasioning from the downturn as well as the currency crisis on the international financial market have led to the elimination of foreign direct investment and local currency depreciation. Moreover, other financial forces, such as rising international oil prices, an energy crisis, high cost per unit, round debt among others, made households and companies unable to repay their debt

(Ahmad, 2013). As a result, the growth of non-performing loans (NPLs) has increased and bank liquidity and their earnings have been adversely affected when loans become non-performing (Kipyego & Wandera, 2013), leading ultimately to a banking crisis. An organization is needed to track the credit consumers' behavior to overcome the challenge of NPLs (Gaitho, 2013). Previous credit data on lending institutions may also help to reduce the occurrence of bad debt. This information, however, is not willingly obtainable; banks must therefore found established connections with their borrowers so as to assess their ability to repay. Borrowers' monitoring is an expensive process for the bank and the information collected from the longstanding borrower relationship provides the bank with a competitive advantage (Karapetyan & Stacescu, 2009).

The study by Gaitho (2013) indicated that where financial institutions compete for clients, multiple debt and borrowing will increase the credit default except if commercial banks have access to a database that capture appropriate customer lending issues. On the other hand, the monopoly of information also does more damage than good. Bad loan lenders who distinguish that banks function independently are using the asymmetry of information to generate numerous bad debts. Banks are thus invited for sharing credit information with each other (Kipyego & Wandera, 2013).

1.1.4 Listed Commercial Banks

The roots of commercial banking in Kenya can be traced back to East African business associations that existed towards the end of the nineteenth century (Sashoo, 2012). The changes in Kenyan banking have largely reflected the country's political and monetary transformation from a province to an independent country since colonial period (Heyer & King 2015). The Kenyan banking industry is presently the largest and fourth largest after South Africa, Nigeria, and Mauritius in Sub-Saharan Africa (Mulwa, 2018).

In Kenya currently there are 43 commercial Banks, one home loan bank organization, nine microfinance banks, seven agent's workplaces of outside banks ,94 remote trade departments, seven cash settlement suppliers and two credit reference authorities (KPMG ,2015). Out of the 44, 11 Commercial Banks are recorded at the Nairobi Securities Exchanges (NSE). They provide services to both retail and corporate customers by

providing liquidity, facilitating communal savings, ensuring smooth financial transactions, facilitating international payments, storing precious assets, and providing credit facilities.

1.2 Research Problem

Alkhatib, (2012) noted that in Kenya non-performing loans (NPLs) presented the financial system with a major challenge. In 2001 Kenya Commercial Bank and Kenya National Bank had NPLs of 51 percent and 56 percent of total loans, respectively with Delphis Bank Ltd and Daima Bank Limited having NPLs of 76% and 72% of total loans according to Central Bank of Kenya, (2001). Of worth noting, the primary cause of the huge proportion of bank failures seen in the last 20 years was poor credit risk management as noted by Central Bank of Kenya, (2001).

Between 1984 and 1990, 10 banks collapsed, and another fourteen banks collapsed between 1991 and 1994 (CBK, 1994). The banking law was amended in 2001 to enable Central bank of Kenya and financial institutions for sharing information to aid banks in the credit evaluation of their debtors in order to reduce the level of NPLs (Central Bank of Kenya, 2001). The changes in the NPLs between 1995 and 2013 demonstrated that over almost 20 years, the percentage of NPLs in total loans decreased from two-digit to one-digit values. The significant 10.7percent decrease in NPLs between 2006 was due to depreciation and recovery (CBK, 2007). The increase from 4.7percent in December 2012 to 5.2percent in December 2013 showed an increase in credit risks due largely to the lagging effects of high lending rates during the first half of 2012 and to economic downturns caused by the general election in March 2013 (Central Bank of Kenya, 2013).

Previous researches in Kenya, such as Gaitho (2013), Kipyego & Wandera (2013), and Shisia, et al. (2014), have been conducted in relation to the latest definition of credit reference bureaus in Kenya's banking industry, with the main emphasis on how credit reference bureaus and knowledge sharing have impacted NPLs. There is little data on how knowledge sharing has affected commercial bank success in Kenya. Because there are few studies on this subject, this survey aims to assess the effect of credit information sharing on the overall performance of Kenyan commercial banks.

1.3 Research Objectives

The main objective of this study is to determine the impact of credit information sharing on the performance of commercial banks in Kenya.

1.3.1 Specific Objectives

i. To establish the effect of credit information sharing on liquidity management of listed commercial banks in Kenya.
ii. To find out the effect of credit information sharing on capital adequacy of listed commercial banks in Kenya.
iii. To determine the effect of credit information sharing on asset quality of listed commercial banks in Kenya.
iv. To examine the effect of credit information sharing on returns on equity of listed commercial banks in Kenya.

1.5 Justification of the Study

This study contributes to the body knowledge about credit benchmarking offices and credit information sharing in Kenya. It should also provide knowledge into the sharing in the last five years of credit information and the effects of banks in Kenya. It can assess the advantages of credit sharing in the Banking sector system and the role of lending agencies in the financial industry. The study can also serve as an engineering tool for governments and policymakers in implementing new and better existing regulations. It could also serve as a means to start making more precise lending decisions for the banking industry. Finally, the study can be useful for future students wishing to base their research on the sharing of credit information or credit referrals. The study could be useful to the regulatory body who may need to develop regulations relating to credit information sharing, as well as when the country may accept credit information sharing as a viable choice. In terms of describing relevant causes, the analysis would have policy consequences. The results of the study will most likely be added to the existing policy tools that commercial banks can use to direct them on CIS and NPLs.

Many cases of loan defaults and the collapse of certain banks have plagued the Kenyan banking sector. As a consequence, Credit Reference Bureaus were set up in 2010 to enhance the sharing of credit information among financial players in Kenya. After the banking crisis of the last ten years, credit reference bureaus in the Kenya banking industry were launched to foster the development of CIS, imbalance and mitigation of credit risk. Various studies have concentrated in Kenya on how non-performing loans are influenced by credit reference offices and information sharing.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter examines the study on the effect of credit information sharing on Kenyan commercial banks' performance in various contexts. This provides the research with applicable literature focused on the sub thematic areas. It aims to provide a better understanding of credit data exchange and its effects on the success of Kenyan commercial banks.

2.2 Theoretical Framework

The research theoretical context is the connection between the theoretical and functional aspects of a study. It refers to the conceptual basis on which the study is conducted. The theoretical structure aids in comprehending the relationship between the variables and factors deemed critical to the issue. This section examines theoretical models such as adverse selection theory, information asymmetry theory, and moral hazard theory objectively.

2.2.1 The Theory of Asymmetric Information

According to Richard (2011), the asymmetric information theory suggests that it is impossible to distinguish between good and undesirable debtors, which could lead to unfavorable preference and considerations. According to the hypothesis, in this instance, the person focused more on one specific item to be exchanged on the market can negotiate the best payment terms with the lender. The party with less knowledge of the same element is in a better position to make informed decisions regarding the trade. Banks' NPLs have accumulated dramatically as a result of unfavorable selection and moral risks. (Bester, 1994; Bofondi &Gobbi, 2003).

Asymmetric information arises when one party is in possession of information that the counter party is not privy to. The theory of asymmetric information postulates that, if a participant who is advantaged capitalizes on the information, it can lead to market imperfection. This theory was championed by Akerlof (1970) in his paper named

“Lemons”: Quality uncertainty and the market mechanisms. He argues that buyers use statistical analysis of the market in measuring the value in various classes of goods. Through his in-depth analysis of the automobile industry, Akerlof found that while the sellers have intimate, specific knowledge of the items, the buyers generally rely on the average information of the whole market in assessment of product so as to make a buying decision.

Akerlof further claims that this gives sellers an opportunity to sell goods that are below the average market quality hence making buyers to adversely select. Several other researchers like Spencer (1973); Stiglitz (1976) have contributed to this theory. Pagano and Jappelli (1993) investigated the role CIS plays in limiting adverse selection in the credit market. Their study postulates that information asymmetry between lenders and borrowers breeds credit rationing. Each institution has information about their clients but has no any information about new applicants. If the credit providers share information about their client’s financial performance, only credit worthy customers will be admitted hence they will be able to drastically reduce defaults.

This information benefit leads to a negative option and a classic "lemons" problem that is first described by Akerlof (1970). A lemon problem arises on the indebtedness market as it is difficult for lenders to make decisions about whether an investor is a good risk (a high-risk investment opportunity) or a poor risk (a lower-risk investment project); and if a lender cannot distinguish between good and negligent lenders (lemon), then the lender will only lend at the interest rate. As low-quality lenders pay lower interest rates than they ought to pay, high-quality lenders pay higher interest rates than they already do need. One repercussion of this lemon problem is the possibility of certain high-quality lenders leaving the market so that profitable investment projects should not be carried out.

Stiglitz and Weiss (1981) indicated that information asymmetry can result to credit regulating in that some borrowers are randomly deprived of loans. A higher rate tends to lead to even more disadvantaged choices: now lenders with the riskiest investment projects will most likely simply borrow at such a high interest rate. If the creditor has been unable to segregate against borrowers by carrying out riskiest capital investments, it may wish to reduce the number of borrowings that it makes and not reduce the loan supply by the

higher interest rate. As a result, despite excessive lending, cost of borrowing will not bring the market back into balance, because future inflationary pressures will merely reduce the availability of loans and spike in over demand for loans. It is obvious from seminal publications by Akerlof (1970) and Stiglitz & Weiss (1981) that asymmetric information concerns can completely stymie effective credit allocation. More voluntary systems in which private credit bureaus act as information brokers have been developed by other nations.

As per He and Wang (2007) a reasonable bank would aim to reduce asymmetry by incurring search costs to gain reliable information on the borrower seeking a loan. In their thorough review of the loan agreements, Lummer and McConnell (1989) observed that both positive and negative signals were transmitted on the market by the loan revisions. They found that new agreements did not provide the market with any information as such. Revisions of the agreements already established have sent positive or negative signals depending on whether the revision can be regarded as good or bad news.

2.2.2 Adverse Selection Theory

The paper of adverse selection theory of credit markets was first published in 1981 by Stiglitz and Weiss. The hypothesis is founded on two basic hypotheses: borrowers are unable to differentiate between lenders of varying degrees of complexity, and lending linkages are limited (that is, if returns of the project are less than debt responsibilities, the lender bears no obligation to pay out of pocket). This study is limited to accidental delays, which means that borrowers will repay loans if they have the financial means to do so. Because of their limited liability, lenders are responsible for all adverse risks.

Alary and Goller (2001) states that any returns above the ability to support loans are therefore increasing interest rates that disproportionately affect the profitability of low-risk lenders, triggering them to withdraw from the pool of applications. This results to a negative compositional impact that rising interest rates raise the risk of the applicant pool's average risk. At very high interest rates, only lenders are capable of generating very high returns (but seemingly with small likelihood). Because lenders' preferred option over project risks is incompatible to lenders, they can keep interest rates lower than market clearers and borrowers, thus improving their portfolios and reducing their risk. Even with

competition and adaptable interest rates, credit market demand may continue. The amount of credit and the amount of motivation in general are generally lower than the first best. As a result, borrowers with better assets receive less expensive loans and enticements to work harder and earn more income. Within the borrowing class, the operation of the financial system, which may cause poverty to persist, is predicted and potentially magnified in the future by existing asset inequalities.

2.2.3 Moral Hazard Theory

The problem of moral hazard implies that a lender has the incentive to default unless his future credit applications have repercussions. This is because of the difficulties facing lenders in evaluating the level of wealth creditors accumulated by the time the debt was paid back, and not at the time of payment. If lenders cannot assess the lenders' wealth, they are tempted to default on the loan. Lenders will increase their rates and ultimately result to a market collapse, which will delay (Alary & Goller 2001).

Nayyarv (1990) explains moral danger as the difficulties linked to the failure of the buyer to observe the seller's actions. Furthermore, the service buyer cannot assess whether the motives of the seller were sufficient and correct because the quality of service is difficult to evaluate, it is irrevocable and the service result is uncertain due to exogenous factors. The distinction between adverse selection and moral risk is that the adverse choices are made before the payment as each party lacks information regarding the characteristics of the other party. The transaction, on the other hand, is morally endangered because the lender or buyer can engage in activities which the lender cannot accept and which are not identified (Mishkin, 1999).

Japelli and Pagano (2000) states that in their lending activities, banks face both adverse selection and moral hazard problems. Moral risk stems from the inability of the lender to observe the actions of the lender pointing to payment defaulting (Japelli & Pagano, 2000). Mishkin (1999) observes that borrowers are often restricted by lenders, so that lenders don't really engage in conduct that makes the loan likely to be repaid. However, such constraints are expensive to enforce and supervise and unavoidably limited in their scope. Borrowers have the incentive to default unless there are consequences of default on future credit applications, which is known as the moral hazard problem. Failure to access

borrowers' prior credit profiles fosters moral hazard, which may lead to lenders imposing punitive interest rates, eventually causing the credit market to collapse (Alary & Goller, 2001).

2.3 Empirical Review

2.3.1 CIS Impact on the Performance of Commercial Banks in Kenya.

According to Klein (2013), CIS is a channel by which lenders share credit performance data on borrowers and through which borrowers are able to see the previous credit history of a borrower in respect to how they have borrowed and repaid their loans in the past. Previous credit history constitutes things like: total amount of outstanding credit; period of repayment for each facility and the amount and number of installments; the types of credit facilities granted etc. In the absence of CIS in a banking environment, borrowers tend to leave a trail of non-performing loans with various Lenders through over exposures and a poor credit mix. This practice of serial defaults has contributed to a high level of NPLs in most of the collapsed banks being managed by the Deposit Protection Fund (CBK).

Ng'ang'a (2015) found that CIS reduces the incidences of information asymmetry and moral hazard when a lender is assessing the creditworthiness of a borrower CIS helps to correct information asymmetry between lenders and customers (borrowers) thereby allowing lenders to collect and share data of potential customers. It is expected that lenders will start using credit scores generated by Credit Bureaus to price loans based on the borrower's risk profile as measured by the score. CIS, on the other hand, has assisted lenders in recovering borrowings. When lenders are aware that their information is being shared, they are more likely to try to repay their loans so that they can benefit from a lower interest rate, as lenders prefer clients (borrowers) who have a solid loan payback history. This has enabled many previously unbanked people to borrow from banks very small amounts of loans particularly over the mobile phone platforms. The result has been that access to credit has drastically increased and according to the World Bank doing business report for 2015, Kenya has moved to position 28 from the earlier position of 128 on the global index of financial inclusion and to position 3 on the African continent.

Ng'ang'a (2015) investigated the effects of CIS on banks' NPLs in Kenya between 2010 and 2014 and revealed a negative relationship showing that sharing of the credit data improves credit risk exposure management. Muthoni (2014) established that CIS significantly reduces the default rates and hence enhancing the profitability of banking institutions. Djankov et al. (2007) revealed that CIS is directly correlated to the gross domestic product of an economy according to data from 129 countries was analyzed between 1978 and 2003 Kerage and Jagongo (2014) discovered that disclosing borrower statistics with the bureau improves the bank's business results significantly. It has been determined that volume of loans, degree of non-performing loans, interest rates charged, and overall operating costs account for 87 percent of differences in bank profitability. Munee (2013) discovered a critical association between CIS and bank profitability.

Coastro (2013), asserts that CIS reduces challenges of access to credit through determination of risk of borrower. They further postulate that bureaus enable borrowers to create credit profiles which lending institutions admitted to the CIS mechanism through CBK approval can access hence making lending market more competitive. Castro V, (2013), further concludes that sharing of borrowing information positively affects the economy. They also noted that the credit reference bureau regulation 2013 section 15(1), a, b & c defines the roles of the credit reference bureau as to receive customer data, store, manage, evaluate, update, disseminate, compile and generate reports. Behr and Sonnekalb (2012b), states that when working outside of the credit information mechanism, banks face "adverse selection" or "moral risks." Adverse selection is “Inefficient allocation of loans arising when particular information on the borrower is concealed from the lender”. On the other hand, the moral hazard results from the inability to view the borrower's actions which directly change the probability of payment and consequently the borrower takes the opportunistic steps to use a borrower because of information gaps resulting in sub-optimal lending resource allocation.

Chaibi, and Ftiti, (2015), assert that decrease in NPL is one of the major role of the banks management. Ndegwa (2014) revealed that while non-performing loans are affected negatively by the mobile money markets, it is the credit information sharing that moderates the relationship. Gettee (2012) looked into three years post CIS and established that CIS by

organizing the loans market and reducing nonperforming loans has significantly contributed to GDP growth. Ng'etich (2011) looked at the determinants of NPLs and suggested that apart from credit information sharing, interest rate spread is also important. He concluded that rate of interest spread negatively affect loan repayments in banks as it maximises cost of loans. The findings of this study also indicated that regulatory environment, including CIS, affects the interest on loans charged to customers based on their character and past payment behavior.

According to Kipyegon (2011), full borrowers' payment characteristics information helps banks to approximate their chances of loans recovery. According to the findings, if a bank has information on a borrower's payment history, that statistics can help in evaluating their chances of acquiring credit. As a result, the bank must have at least some information on the borrowers' previous borrowing and repayment practices. The study also discovered that when banks obtain high-quality information on borrowers' credit histories, it helps the bank analyze its risk in principle and reduces the otherwise high cost of searching for the borrower's credit history because it will be easily available from credit bureaus. The study further established that as banks share information about the loan applicants, they will be able to predict the chance of the borrower to repay the loans since the one who have good credit report will certainly continue to keep the good record and the one who have bad report might have the high chance of still defaulting on the payment. It also showed that good and timely report of the borrower will surely enable him or her to get loan at ease and at a lower rate of interest. This is because the bank is certain about the repayment of the borrower and therefore charges low rate due to the fact that the rate of default is minimal.

2.3.2 CIS and Liquidity Management of Listed Commercial Banks in Kenya.

According to Acharya, & Nada, (2013), liquidity refers to how much the assets or collateral of a bank may be sold or purchased on the market without influencing the price of the asset. It measures the amount of cash a banking company has, and how easily its debt can be paid. In each bank, the assets are divided in various categories of liquid assets, like cash, cash and liquid assets that are liquid assets. Liquid assets are a large part of a bank's total assets. Liquidity and credit risk are closely linked according to Imbierowicz, and Rauch (2014), who suggests that the credit risk and liquidity structure of a financial

institution are closely related, particularly with regard to default of borrowers and withdrawal of funds. The risk of liquidity is seen as a reduction in profit cost, and the default in a loan increases the risk of liquidity due to lower cash inflow (Owolabi, Obiakor, & Okwu, (2011).

At the very least, liquidity risk management is important in two ways: first, an insufficient liquidity level may necessitate attracting additional sources of revenue at higher costs, reducing bank profits and eventually leading to insolvency; second, an excessive liquidity level may result in a drop in asset return, and thus poor fines. The nature and complexity of liquidity management and liquidity risk are determined by the dimensions and characteristics of each bank. The management of bank liquidity policies must include a critical risk management structure, a pattern for approaching operations and financing, a set of liquidity risk exposure limits and a set of liquidity planning procedures following possible explanations including emergency situations (Myerson, 2011).

So as to preserve liquidity banks, which are only focused on wealth management, they focus on the price adjustment, the availability of credit and the level of liquid assets they hold. However, their number is rapidly decreasing due to the evolution of the commercial banks. Often the seasonal factors lead to a growing demand for lending from available resources, thereby allowing banks to meet their liquidity sources via debt on the financial markets. Therefore, through debt management, the bank can cover its liquidity needs, achieved by expanding debt and/or shorter deposits, increasing debt maturity and ultimately increasing capital. Where direct market lending for small banks is not possible or is under an emergent liquidity emergency contract, for the high prices, large banks, international banks and holding banks have as their main source, under favorable market conditions, liquidity lending, since liquid assets offer these banks a significant opportunity, and are controlled by the regulations of the treasury management (minimum book binding). Credit officers shall assess their customers' credit worth before issuing credit to reduce credit risk that may result in non-performing credit. It is essential that commercial banks have a clear comprehension of the common terms such as expected loss and unforeseen losses when measuring and administering credit risk. The credit risk is the potential for the

borrower or counterparty of a bank to fail in accordance with the agreed terms and conditions in their obligations (Ngugi, 2012).

Liquidity measured primarily by; assets classified as liquid in total assets and bank deposit advances have a positive link to the profitability of the bank (Myerson, 2011). Liquidity shows the position of the company to fulfill its obligations. This includes a situation in which a financial institution is enabled by raising short-term debt or turning current assets into cash to fulfill short-term responsibilities. Short-term financing guarantees that a bank retains a liquidity shock buffer. Banks are working to ensure that liabilities and assets match, as any malfunction can lead to bank running (Holmstrom, & Tirole, 2000). Myerson, (2011) says that insufficient liquidity can result in a loss of viable projects, adding that the liquidity crisis could force a bank to receive high-interest rate loans which will result in declines in profits. Sufficient cash helps investors to raise their lending in the event of attractive growth opportunities. Banks need to balance the liquidity and lending requirements, as large amounts of liquidity will result in fewer investment decisions and less returns. As per Myerson (2011), holding good profitability is beneficial for banks because it is useful when external financing is not available to support their activities.

Xiong (2012) on credit risk and banks liquidity internationally and locally noted that market liquidity affects credit risk via the rollover channel. The study results show that market liquidity actually impacts a transaction shock credit risk via roll-over. Ericsson and Renault (2006) discovered an inverse link between credit risk and liquidity risk. Other investigators: Imbierowicz and Rauch (2014) concluded that the association between credit risk and bank corporate liquidity was inverted. Gaitho (2010) demonstrated that by sharing credit information, credit risk management practices have had a positive impact on their organizations by ensuring efficiency in fulfilling their obligations and achieving their goals. The results also reveal that the most popular ways of supporting credit risk awareness among SACCO employees are through weekly meetings and monitoring on one basis. Muasya (2013) revealed that the association between credit risk management practices and loan losses at commercial banks in Kenya was significantly negative. Ngugi (2012) discovered that, although not statistically significant, credit information sharing has a positive impact on credit risk. Maintaining high liquidity levels allows the firm to fulfill

its financial obligations in the short term. In order to mitigate the risk of financial losses, high liquidity allowed the organization to invest easily in profitable ventures and to diversify its portfolios.

2.3.3 CIS Effects on Capital Adequacy of Listed Commercial Banks in Kenya.

Castro, (2013), defines capital adequacy as a capital estimate required to extract the maximum potential losses inherent in the enterprise, particularly in a bank (loosely shareholder funds plus subordinated debt). The adequacy of capital is adopted and evaluated as total equity split by total assets. The equity-to-asset ratio is a measure of how much of assets of the bank are funded by the capital of the owner and predicts a bank's ability to absorb credit losses. Following the hypothesis of moral hazard (thinly financial institutions usually take scope of accounting, which could potentially result to more credit risks; a negative relationship, therefore. Conversely, there might be a positive association according to the pecking order theory, as equity (capital) leads to high financing costs and therefore pressures management to perform to meet the essential return of equity holders. Increasing bank equity can therefore result in higher pressure on management of bank to take riskier decisions that can lead to good credit history. Consequently, credit data sharing enable investors to shield themselves against such losses.

Capital adequacy is a key determinant of financial performance. According to Muthuva (2009) Capital adequacy is positively related to ROA and ROE. Banks holding adequate Capital are perceived as safe by depositors hence attract large deposits. This means adequate resources to support operations hence increased returns. They also benefit from cheap loans because, because of the low perception of risk, their lenders can be convinced to lend at lower rates. This definitely leads to higher spread between advances rate and borrowing rate hence improved financial performance (Dagon, 2013). Banks with enough capital have the benefit of ensuring enormous high-yield risk investments that they couldn't if they were working with debt. This is due to debt agreements restricting the financing of high-risk projects for borrowers (Mostafa & Boregodwa, 2014). For banks to continue operations without interruptions they need adequate capital. Adequate capital is one of the parameters utilized by regulators and stakeholders to assess stability of the banks' (Olalekan & Adeyinka, 2013).

Odunga et al., (2013) discovered that credit risk ratios had a significant effect on bank performance while capital adequacy had no substantial effect on the bank's results suggesting that banks change their focus from increasing capital levels to credit risk management by using credit information sharing platforms. Commercial banks should improve their liquidity, profitability, operational effectiveness, and total assets turnover if they need to reach the capitalization threshold, according to Kivuvo & Olweny (2014). According to the findings, capital adequacy had an effect on the overall productivity of SACCOs in Kenya. The positive impact of credit information sharing revealed the degree to which capital adequacy influenced the financial performance of savings and credit societies. The efficiency of financial institutions in Kenya is influenced by capital adequacy, and a viable economic score can be maintained with the help of credit information sharing.

2.3.4 Listed Commercial Banks Asset Quality and CIS Effects

According to Prakash, & Poudel, (2012), sound credit policy of sharing loan information would assist in improving the prudential monitoring on asset quality and set minimum standards for non-performance asset measurement and reporting, classification and loan requirement of the same language and methodology (risk analysis, pricing, supporting documents, securities, authorizations and ethics). The lending philosophy of the bank and specific procedures and means of monitoring lending activities should be set out in the credit policy. The core philosophy in credit assessment is to make sure that credit can be accessed only by those borrowers who require credit and are able to fulfill repayment obligations. Even though borrowers are prepared to pay a higher interest rate or make loans, but limit loans to less than lenders want, lenders may not accept lending (Riach, 2010).

Vighneswara (2014) indicated that sound credit policy would contribute to improving prudential asset quality control, establishing a set of minimum standards and applying a common language and methodology (risk assessment, pricing, documentation, securities, authorization and ethics) for non-performing asset recording and monitoring, categorization of loans and provisioning. The lending philosophy of the bank and specific procedures and means of monitoring lending activities should be established in the credit

policy (Doblas-Madrid, Minetti, 2013). The quality of assets is a key determinant of future earnings and, therefore, the generation or erosion of capital. The assets of the bank are loans and they determine a higher percentage of the income of companies, so the quality of the loans is key. Banks risk profile can be seen through its asset quality. The level of non-performing loans as well provisions is key determinants of asset quality and they can be used to predict near- term losses which reduce creditor protection. Non-performing ratio is the proportion of loans classified as non-performing against the gross advances. High Non-performing loans lead to increase in allowance for impairment charges in banks profit and loss account hence reduce profitability.

Riach (2010) suggested that banks asset quality is a key determinant of banks financial performance. Before a bank is declared bankrupt a sizeable amount of its loans must be non- performing. Banks management has an obligation to evaluate the firm's portfolio with a goal of determining exposure to credit risk. The evaluation risk in the loan book of the firm enables the management to project the earnings. Asset quality is of main concern to regulatory authorities since poor asset quality mean troubled banking industry. Importance of asset quality is well outlined in Basel Committee on Banking Supervision in which out of 25 core principles on banking supervision 7 aim to address asset quality and credit risk management. Gross Loans, non- performing loans, loan loss provisions and determine asset quality of a bank and adverse movement in them will impact financial performance of the firm (Adeolu, 2014).

2.3.5 Credit Information Sharing Effects On Returns on Equity of Listed Commercial Banks

Following the introduction of CIS, Kenyan commercial banks were more profitable, with banks increasing their total assets and shareholder funds, indicating good performance. As per Gettee (2012), sometimes when banks select to interact (share data), they bring about an improvement in Pareto that increases the welfare of clients along with their own profits. Giannetti (2010) also identified that after the introduction of a credit register, there is an intensification of competition and that ROE and ROA are anticipated to drop, particularly in a concerted credit market. In addition, Mombo, (2013), adds that sharing of information increases banking competition that restrict the ability of financial institutions to extract

rents from their clients. It went on to say that the Kenyan credit market is reaping the early benefits of the CIS, but that rivalry is still a factor, given the presence of 43 banking institutions and nine commercial microfinance banks. In the long run, CIS could strengthen Kenya's banking industry by rising profitability rather than eroding it. His research showed downward trends in return on equity (ROE), return on assets (ROA), and net interest margin (NIM), all of which marked the linking of credit information prior to the credit reference offices' authorization (2005 to 2009).

According to a report by Myerson (2011), loan sharing has a positive impact on Kenyan banks' earnings before taxes. The fact that CIS accounts for the variability of the banks' profit before tax through the pulling of reports is highlighted. The model predicts that the increased use of credit reports by credit reporting bureaus would boost bank profits. The licensing of the two CRBs, which helped the Kenyan banking industry share credit details, significantly increased their focus and made it more profitable. Also according Kusi (2017), commercial banks' efficiency has improved significantly since the licensing of CRBs. As interest income rose, so did the number of NPLs, which decreased as a percentage of total loans. As a result, credit sharing would boost the Kenyan credit market and commercial bank efficiency.

2.4 Conceptual Framework

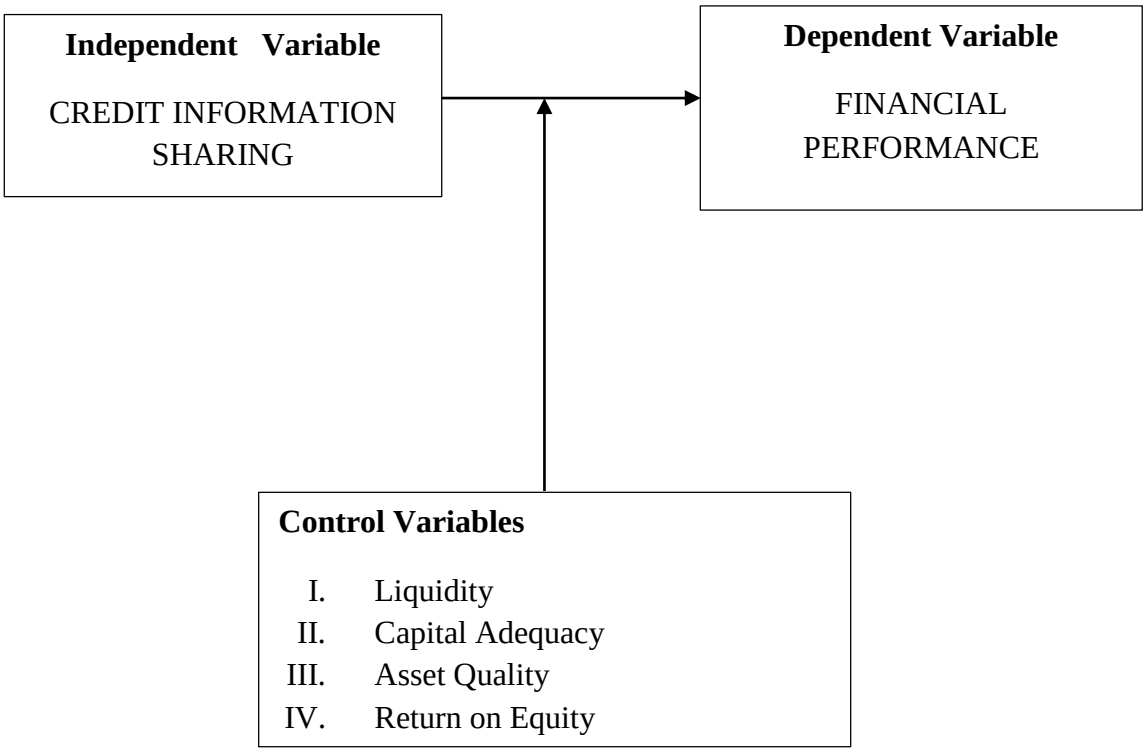

Figure 2. 1: Conceptual Framework

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

The research design used in the study, giving the target population to participate in the study, the sampling procedure that was adopted and the data collection techniques implemented, the data processing and analysis techniques and finally the legal and ethical considerations of the study are covered herein.

3.2 Research Design

Bryman & Bell (2003) define research design as "a framework that directs a researcher on how to structure the inquiry." As a result, it's the structure or plan of action for a research endeavor. For this investigation, an observational study design was adopted since it allowed the findings to be applied to the entire population/industry. Variable interpretation and relationship are also possible with descriptive study.

3.3 Study Population

"A collection of individuals or items with comparable features that a researcher seeks to evaluate and make quantitative inferences or judgments from," Gall et al. (2006) define population. All 11 registered banks at the NSE were included in the study's population. A census method was used due to the minimal number of banks mentioned.

3.4 Data Collection

Authorization letter from the Department of Business Studies at Nairobi University was obtained prior to data compilation. For three years, from 2017 to 2019, information was gathered from the Nairobi Securities Exchange and Capital Markets Authority library in reference to Central Bank Commercial Banks regulatory reports.

3.5 Data Processing and Analysis

Collected data was checked for completeness then coded into SPSS version 22 for the purposes of analysis. Descriptive statistics was analyzed as frequency of responses, percentages, mean and median as deemed appropriate by the researcher. Inferential statistics was used for the purposes of analysis and regression analysis applied to test for the liner relationship of the variables between dependent and independent variables.

The following analytical model adopted from Kocenda and Vojtek (2009) was used.

$Y = \beta_0 + \beta_1 (CIS) + \beta_2 (CA) + \beta_3 (LR) + \beta_4 (AQ) + €$

Implying that:

Y = Financial performance measured by ROA

$ß_1$- $ß_4$ = Regression coefficients

CIS = Credit Information Sharing

CA = Capital Adequacy as a ratio of Equity to Total Asset

LR =Liquidity as a ratio of Loans to Total Assets

AQ =Asset Quality as a ratio of NPLs to Total Assets

€ = standard error

3.5.1 Test of Significance

Significance was established by the analysis of variance, ANOVA, the F-test and t-test at 95% confidence level.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND INTERPRETATION

4.1 Introduction

This chapter presents an analysis and presentation of the study findings. The chapter details descriptive statistics, correlation analysis, regression analysis and the discussion of the study findings.

4.1.1 Response Rate

With the 11 listed commercial banks licensed under the banking Act as at31 December 2019 formed the target population, the study obtained credit information sharing data for only 11 banks that are listed and referenced with CRB Africa for a period of 3 years from 2017-2019 hence 60 data points which were adequate to run the regression model.

4.1.2 Observational Indicators

Table 4.1 Descriptive Summary Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ROA (Ratio)	60	-.019	.117	.02220	.019946
CIS (Ln)	60	2.303	12.927	6.77870	2.743673
CA (Ratio)	60	.004	.256	.06240	.061347
LR (Ratio)	60	.364	.699	.59356	.079368
AQ (Ratio)	60	.005	.397	.07294	.074963

The mean ROA for the sample banks was 0.220, with least and upper limit at -0.019 and 0.117, respectively, as shown in the table above. The average number of credit reports pulled was 6.78, with minimal and highest values of 2.30 and 12.93, respectively, and the average capital adequacy (CA) ratio was 0.6240, with minimal level and maximal values of 0.04 and 0.256, respectively, according to the study. The average liquidity (LR) ratio at 0.59, with lower and upper values of 0.364 and 0.699, respectively, indicating that the sampled institutions had adequate liquidity levels above the recommended 20%. The findings also indicate that the average asset quality value (AQ) for the sampled banks was 0.073 which is low hence an indication that the sample banks have low credit risk levels.

4.2 Correlation Analysis

Table 4.2 Correlation Matrix

	ROA	**CIS**	**CA**	**LR**	**AQ**
ROA	1				
CIS	-.238	1			
CA	-.344**	.035	1		
LR	-.027	-.081	.203	1	
AQ	-.152	-.071	.192	-.059	1

**. Correlation significance at 0.01 level (2-tailed).

The relationship between the factors, as shown in Table 4.2, exhibit a negative similarity between the dependent variable (FP) proxied using (ROA) and credit information sharing (CIS), capital adequacy (CA), liquidity (LR) and assets quality (AQ). Credit reporting allows banks to employ artificial intelligence to appraise individual applicant's risk level, allowing them to determine the likelihood of a borrower defaulting on a loan repayment. The findings are in line with those of Sahin (2017), who investigated how disparities in business enterprises data sharing in different nations influenced the frequency of NPLs. They discovered that having credit information from utilities and retail companies in a credit reporting organization, in addition to financial sources, lowers bank NPL rates. Moreover, the findings agree with those of Otete, Muturi, and Mogwambo (2016), who explored the effects of credit data sharing on commercial bank cashflow and deduced that the overall amount of lending by many banks has increased as a result of the collection of customer data from credit referencing firms.

4.3 Regression Analysis

4.3.1 Model Summary

Table 4.3 shows the summary of a regression model, which comprises of the R-value, the R-square value, the adjusted R-square and the std. error of estimate.

Table 4.3: Summary of Regression Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.425[a]	.181	.121	.0364236

a. Predictors: (Constant), AQ, LR, CIS, CA

The R square level of 0.181 signifies independent variables at 18.1 percent of the variation in dependent variables, as shown in table 4.3. As a result, characteristics not included in the framework account for 81.9 percent of the variation.

4.3.2 Variance Analysis

Table 4.4 Analysis of Variance (ANOVA) results

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.016	4	.004	3.037	.025[b]
	Residual	.073	55	.001		
		.089	59			

a. ROA as Dependent Variable b. Constant: AQ, LR, CIS, CA

The significance value of 0.025<0.05 is a good pointer to the relation existing between credit information exchange and bank financial success.

4.3.3 Regression Coefficients

Table 4.5 Regression of Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant) CIS CA LR AQ	.096	.037		2.564	.013
		-.003	.002	-.234	-1.901	.063
		-.201	.081	-.318	-2.485	.016
		.004	.040	.012	.095	.925
		-.055	.065	-.107	-.852	.398

a. ROA as independent Variable

The regression equation can be fitted as follows based on the outcome in table 4.5.

$$Y = 0.096 - 0.003X_1 - 0.201X_2 + 0.004X_3 - 0.055X_4 + \varepsilon$$

In terms of financial performance, the regression equation above indicates an inconsequential inverse correlation between CIS, asset quality (AQ), and bank performance (ROA). The findings also reveal a considerable adverse effect on capital adequacy (CA) and financial performance of banks (ROA). Furthermore, the analysis portrayed a minimal positive association between liquidity and financial performance of banks (ROA).

4.4 Findings Interpretation

As per the test results of this research, credit data sharing, asset quality, and bank financial performance have an insignificant negative association (ROA). This shows that CIS, asset quality, and bank financial performance are all related in an exponential way; hence, failing to exchange credit information raises credit risk, which lowers bank financial position.

The study's investigation revealed that capital sufficiency and bank financial performance had a substantial inverse link. This shows that a bank's financial efficiency is improved by having a significant quantity of capital. The study's findings also demonstrated a small but significant link between liquidity and bank financial success. This means that liquidity and bank financial performance are inextricably linked, and that boosting liquidity levels improves bank financial performance.

Nganga (2015) discovered a significant connection between credit information sharing and financial efficiency, showing that sharing credit information improves credit risk exposure control. Credit information sharing, according to Jappelli and Pagano (1999), reduces credit access challenges by assessing the borrower's danger. Bennardo, Pagano, and Piccolo (2009) found that exchanging credit information means a reduction in the borrower's over-indebtedness, which is one of the factors that contributes to default.

The results showed that during the study period, the ROE, ROA, and net interest margin all increased. This meant that Kenyan commercial banks became more successful after credit information sharing was implemented. The overall assets of the bank and the funds held by shareholders also increased, suggesting good results. Furthermore, according to Jappelli & Pagano (1999), knowledge sharing increases banking competition, limiting banks' ability to collect rentals from customers.

As an outcome of the report's results, it can be inferred that Kenya's credit market is reaping the early benefits of CIS, and considering that it currently has 44 commercial banks and 9 microfinance banks, competition is already there. CIS, considering previous research results, has the potential to boost the Kenyan banking sector in the long run by rising profitability rather than eroding it. CIS, on the other hand, is a comparatively new notion in Kenyan credit, having only been operational for four years, and its entire influence has yet to be determined.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

A breakdown of observations, conclusions and suggestions based on study findings, gaps of the analysis, and suggestions of areas that may need further investigation in future research are the main contents of chapter five.

5.2 Summary

The study's sought to understand the role of CIS on the capital structure of Kenya's publicly traded commercial banks. Financial performance and CIS being the dependent and independent variable respectively. Control variables were liquidity management, capital sufficiency, asset quality, and return on equity. The study carried out a census of the 44 registered banks managing to obtained credit information sharing data for only 11 banks, which referenced with CRB Africa for a period of 3 years from 2017-2019 hence 60 data points, which were adequate to run a regression model.

The results found the average ROA for the sample banks was 0.220 and the average number of credit reports obtained was 6.78 while the average capital adequacy ratio value was 0.6240. The average liquidity ratio was 0.59, and the average asset quality was 0.073, according to the data. Financial performance as measured by ROA, credit information sharing, capital sufficiency, liquidity, and asset quality all had an inverse relation, according to correlation study.

Independent and control variables constitute 18.1 percent of the variance in dependent variables, according to regression analysis (financial performance). The statistical test is a significant and crucial measure of the association between financial information exchange and bank financial efficiency, according to the ANOVA results. The model coefficients revealed a minimal inverse interaction between CIS assets' quality and the profitability of listed banks in Kenya.

According to the results of the report, commercial bank output has improved dramatically since the CRBs were licensed. Non-performing loans decreased as interest revenue

increased, resulting in a lower percentage of total loans with NPLs and a larger percentage of total loans with interest income. Banks made higher income before tax in this favorable environment created by CRB licensing, as evidenced by more consistent values of ROE and ROA, and NIM reported in the same period was higher. Furthermore, the regression model revealed that credit information sharing had a substantial impact on banks' profit before taxes and improved profitability.

5.3 Recommendations

According to the findings, CIS improves the financial efficiency of banks. As a result, the study suggests that Kenyan bank management develop effective mechanisms for sharing credit information and reference in order to minimize credit risk and improve financial efficiency.

According to the results, banks' financial efficiency is improved by liquidity and capital adequacy. As a result, the study recommends banks to set high liquidity and capital levels, as these factors have an effect on bank profitability.

Finally, the study recommends that the CBK develop additional prudential guidance on credit information sharing by financial institutions to supplement the current legal structure, as credit information sharing improves commercial bank efficiency.

5.4 Suggestion for Further Research

From a financial standpoint, this study looked at the correlation between CIS and bank performance. Because commercial banks are among Kenya's credit institutions, the study recommends investigating the impact of CIS on other lenders such as microfinance banks and credit-only microfinances.

REFERENCES

Auronen, L. (2003). *Asymmetric Information: Theory and Applications (Seminar in Strategy and International Business).* Helsinki University of Technology.

Austin, Z., & Sutton, J. (2014). Qualitative Research: Getting Started. *The Canadian Journal of Hospital Pharmacy, 67(6), 436–440.*

Bennardo, A. Pagano, M. & Piccolo, K. (2009), Multiple Bank Lending, Creditor Rights and Information Sharing, Working Paper, CEPR.

Blume, M. E., & Stambaugh, R. F. (1983). Biases in Computed Returns: An Application to the Size Effect. *Journal of Financial Economics, 9, 3-18.*

CBK (2015). *The Role of Central Bank in Government Securities*. 2nd ed. Nairobi: CBK.

Clarkson, G., Jacobsen, T. & Hatcheller, A. (2007). Information *asymmetry and information sharing.* Government Information Quarterly, 24(4), pp.827-839.

Dankwah, C. (2012). *Emerging issues on microfinance,* a *paper presented at Asia regional conference jointly organized* by Asia, New Delhi publishers. Device", *European Economic Review*, 44(10), p. 1951-1980. *Finance*, 1993: 1693-1718.

Heale, R., & Twycross, A. (2015). *Validity and reliability in quantitative studies*. Evidence Based Nursing, 18(3), 66-67. doi: 10.1136/eb-2015-102129

Nganga, M. K. (2015). The Effect of Credit Reference Bureaus Information Sharing on Non-Performing Loans in Commercial Banks. Unpublished MBA Project. University of Nairobi.

Ngugi, B. (2016). *Sacco's cut interest rates to retain edge over Kenyan banks*. Retrieved fromhttps://www.businessdailyafrica.com/markets/Saccos-cut-interest-rates-to-retain-edge-over-banks/539552-3424386-pd3n4m/index.html

Ogol, G.O. (2011). *Liquidity Risk Management practices in Microfinance Institutions in Kenya.* Unpublished research paper.

Okumu, O. (2015). *Impact of Credit Information Sharing On Commercial Banks' Loan Portfolio: The Case of Equity Bank (Masters of Business Administration (MBA).* United States International University.

Olando, C., Jagongo, A., & Mbewa, M. (2013) Influence of Investment Decisions on the Financial Performance of SACCOS: A Survey of Registered SACCOS in Baringo County. International Journal of Science and Research (IJSR), 3(17), 112-137.

Osoro, E., & Muturi, D. (2018). Effects of Liquidity-Risk Management Practices on The Financial Performance of Savings and Credit Co-Operative Societies in Kisii County, Kenya. *International Academic Journal of Information Sciences and Project management, 1(4).*

Padilla J.A. & Pagano M. (2000). Sharing Default Information as a Borrower Discipline

Padilla, A. J. & Pagano, M. (1997). Endogenous communication among lenders and entrepreneurial incentives. *The Review of Financial Studies*, 1997: 205-236.

Pagano, M. & Jappelli, T. (1993). Information Sharing in Credit Markets. *Journal of*

Pedo, M. (2015). Influencing Factors on Credit Information Sharing in Kenya. *The Strategic Journal of Business Change and Management, 2(65), pp.559-570.*

Raymond, S. (2014). *Credit unions and capital adequacy: Managing growth and risk. International journal of business and social research, 2(6), 241-254*

Rowell, D., & Connelly, L. (2012). A History of the Term "Moral Hazard". *Journal of Risk and Insurance, 79(4), 1051-1075. doi: 10.1111/j.1539-6975.2011.01448.*

Were, M., & Wambua, J. (2014). What factors drive interest rate spread of commercial banks? Empirical evidence from Kenya. *Review of Development Finance*, 4(2), 73-82. Doi: 10.1016/j.rdf.2014.05.005

APPENDICES

Appendix I: List of Listed Commercial Banks

1. Barclays Bank of Kenya Ltd
2. CFC Stanbic Holdings
3. Co-operative Bank of Kenya Ltd
4. Diamond Trust Bank
5. Equity Bank Ltd
6. Housing Finance Group
7. I&M Holdings
8. Kenya commercial bank
9. National Bank of Kenya(NBK)
10. NIC
11. Standard Chartered

Appendix II: Data Collection

Bank	Year	ROA	CIS	CIS (Ln)	CA	LR	AQ
Bank 1	2019	0.0404	411239	12.927	0.0044	0.6305	0.0212
	2018	0.0498	69670	11.152	0.0054	0.6216	0.0271
	2017	0.0478	36835	10.514	0.0067	0.6170	0.0333
Bank 2	2019	0.0271	29183	10.281	0.0078	0.4921	0.0628
	2018	0.0469	5646	8.639	0.0082	0.5517	0.0483
	2017	0.0044	3323	8.109	0.0083	0.5884	0.0156
Bank 3	2019	0.0167	694	6.542	0.0267	0.5237	0.0353
	2018	0.0176	29	3.367	0.0268	0.5048	0.0323
	2017	0.0256	174	5.159	0.0337	0.4847	0.0121
Bank 4	2019	0.0072	3282	8.096	0.0561	0.6682	0.0195
	2018	0.0067	351	5.861	0.0545	0.6721	0.0236
	2017	0.0063	469	6.151	0.0546	0.6637	0.0476
Bank 5	2019	0.0061	108	4.682	0.0893	0.6572	0.1314
	2018	0.0116	24	3.178	0.0854	0.5838	0.1168
	2017	0.0731	36	3.584	0.0717	0.4614	0.0923
Bank 6	2019	0.0166	24	3.178	0.0293	0.6258	0.0521
	2018	0.0179	7	1.946	0.0309	0.6474	0.0540
	2017	0.0215	15	2.708	0.0351	0.6503	0.0359
Bank 7	2019	0.0271	10843	9.291	0.0193	0.6916	0.0709
	2018	0.0282	1603	7.380	0.0219	0.6899	0.0496
	2017	0.0267	1807	7.499	0.0224	0.6897	0.0545
Bank 8	2019	0.0081	834	6.726	0.0464	0.6761	0.1191
	2018	0.0066	206	5.328	0.0476	0.6198	0.0408
	2017	0.0225	211	5.352	0.0535	0.5851	0.0350
Bank 9	2019	0.0243	19631	9.885	0.0036	0.0369	0.0181
	2018	0.0270	3100	8.039	0.0046	0.0648	0.0085
	2017	0.0286	2804	7.939	0.1258	0.6663	0.0053
Bank 10	2019	0.0352	151303	11.927	0.0054	0.6199	0.0421
	2018	0.0344	4936	8.504	0.0062	0.5786	0.0375
	2017	0.0367	12608	9.442	0.0076	0.5826	0.0605
Bank 11	2019	0.0050	174	5.159	0.2416	0.6173	0.0341
	2018	0.0092	11	2.398	0.2094	0.5889	0.0312
	2017	0.0200	44	3.784	0.2349	0.5759	0.0374