EFFECT OF CREDIT REFERENCE BUREAUS FUNCTIONS ON FINANCIAL PERFORMANCE OF SAVINGS AND CREDIT CO-OPERATIVE SOCIETIES IN KENYA

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DECLARATION

This thesis is my original work and it has not been presented for a degree in any other university.

Signature... Date..

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DEDICATION

This thesis is dedicated to my dear wife Janet and my children Jane, Judith, Josephine, Justine, Juliet and Jacob for they sacrificed and ensured that I had ample time throughout the research period.

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ABBREVIATIONS AND ACRONYMS

ANOVA: Analysis of Variance

CAMEL: Capital Adequacy, Quality Management, Earnings and Liquidity

CBK: Central Bank of Kenya

CESEE: Central, Eastern and South-Eastern Europe

CIS: Credit Information Sharing

CRBs: Credit Reference Bureaus

GDP: Gross Domestic Product

DTSs: Deposit Taking SACCOs

EBITDA: Earnings Before Interest Taxes Depreciation and Amortisation

ICA: International Co-operative Alliance

IMF: International Monetary Fund

KCIS: Kenya Credit Information Sharing

KMO: Kaiser Mayer Oklin

KUSCCO: Kenya Union of Savings and Credit Co-operatives

LLC: Levin Lin Chu

MFIs: Micro-financial Institutions

NCLR: National Commission on Law Reforms

NPLs: Non-Performing Loans

OLS: Ordinary Least Square

PEARLS: Protection, Effective financial structure, Asset quality, Rates of returns and cost of Liquidity and Signs of growth

PAR: Portfolio at Risk

PCRs: Public Credit Registries

ROSCA: Rotating Savings and Credit Associations

SACCOs: Savings and Credit Co-operative societies

SASRA: SACCO Societies Regulatory Authority

SPSS: Statistical Package for Social Sciences

VAR: Value at Risk

VIF: Variance Inflation Factor

WOCCU: World Council of Credit Unions

OPERATIONAL DEFINITION OF TERMS

Adverse selection: A situation where the party that knows less about the same specific item to be transacted is therefore in a position of making either right or wrong decision concerning the transaction (Mabvure, Gwangwava, Faitira, Mutibvu, & Kamoyo, 2012).

Clean borrowers: These are borrowers who have clean credit records because they repay their loans promptly (McIntosh & Wydick, 2007).

Credit Reference Bureaus: Institutions that document the personal and financial histories of all individuals and business entities that have applied for or received credit and compute credit scores to determine the desirability of the borrower (Lauer, 2010).

Credit scoring: Refers to methods are used to estimate the likelihood of default based on historical data on loan performance and characteristics of the borrower (Velmurugan, 2014).

Credit: This is the ability of a customer to obtain goods or services before payment, based on the trust that payment will be made in the future. In the context of this study it is the ability of a business to obtain a loan from a financial institution on basis of trust to pay later (Ameyaw-Amankwah, 2011).

Default rate: Is the ratio measured as value of non-performing loans divided by the total value of the loan portfolio (including non-performing loans before the deduction of specific loan-loss provisions (Kouser & Azeem, 2012).

Default: A risk threshold that describes the point in the borrower's repayment history where he or she missed at least three installments within a 24-month period (Pearson & Greeff, 2006).

Exposed borrowers: These are borrowers who have been screened from multiple-loan contracts to establish whether they have been given loans elsewhere so that they are denied further credits (McIntosh & Wydick, 2007).

Full-file information: This is a situation where the borrowers' positive and negative credit information is shared by CRBs (KCIS, 2012).

Inflation: Is generally the persistent increase of price level of goods and services in an economy over a period of time (Demirhan & Anwar, 2014)

Information Sharing: Availing detailed credit information (positive and negative) to lenders and creditors on individual's credit history, including information on their identity, credit accounts and loans, bankruptcies and repayment history (Banking Act, 2009).

Interest rate: Is the rate at which interest is paid by borrowers for the use of money that they borrow from a lender (Sinaida, 2017).

Loan delinquency: Refers to an occurrence in a loan portfolio where payments are in arrears (Warue, 2012).

Loan volume: Refers to sum of money loaned to a customer that must be repaid with interest at some point in the future (Beck & Honohan, 2007).

Moral Hazard: A situation where two parties enter into an agreement and each of the two parties has the opportunity to gain from acting contrary to the principles laid out by the agreement. It may occur when one party is insulated from risk and has more information about its actions and intentions than the party paying for the negative consequences of the risk (Einav & Finkelstein, 2011).

Non-performing Loans: Loans that are ninety or more days' delinquent in payment of interest and or principal (Guy, 2011).

Portfolio at Risk: Is a standard international measure of portfolio quality that measures the portion of a portfolio which is deemed at risk because payments are overdue (Brown, 2006).

Problem loans: These are non-performing loans which the repayments are long overdue but have not been repaid (Bexley & Nenninger, 2012).

Risk identification: Is the process of determining risks that could potentially prevent the program, enterprise, or investment from achieving its objectives (Tracey, 2011)

Risk mitigation: Refers to a systematic reduction in the extent of exposure to a risk and or the likelihood of its occurrence (Al-Tamimi & Al-Mazrooei, 2007).

Risk monitoring: Refers to the keeping of track of the identified risks, residual risks, and new risks. It also refers to monitoring the execution of planned strategies for the identified risks and evaluates their effectiveness (Cielens, 2010).

Rotating Savings and Credit Associations: ROSCAs are Savings and credit groups in informal credit markets especially in poor and developing parts of the world who do not have access to financial services due to lack of collateral. ROSCAs are mutual aid associations where trust is viewed as a prerequisite for their sustainability (Ntamazeze, 2014).

Score: A score is a numerical expression based on a statistical analysis of a person`s credit files which represent the creditworthiness of that person. It is therefore, a number that reflects a person's creditworthiness at any given point in time (Hendricky, 2011).

Timeliness and accuracy: In loan processing this refers to accuracy, usefulness and predictability when lending out loans (Beatty & Liao, 2014).

Turnover: Refers to inventory or accounts receivable thus a quick turnover is desired because it means that inventory is not sitting on the shelves for too long. In a portfolio, a small turnover may be desired because it would mean that the investor is paying less on commission to the broker (Mutua, 2014).

ABSTRACT

The main objective of the study was to establish effect of credit reference bureaus functions on financial performance of SACCOs in Kenya. Specifically, the study sought to establish the effect of credit cost function, information sharing function, moral hazard function, risk assessment function and intervening inflation effect on financial performance of deposit taking SACCOs in Kenya. SACCOs enable members to access loans in which the youth have been employed directly or indirectly to earn a living. The existence of information asymmetry has led to the need for credit reference bureaus to check on loan defaults. SACCOs in Kenya are facing an imminent crash due to high default rates thus affecting their financial performance; a situation that prompted to this study. Theories used were information sharing, adverse selection, moral hazard and micro-loan borrowing rates and default. The study adopted a descriptive research design. Descriptive statistics was chosen since it utilizes data collection and analysis techniques that yield reports concerning the measures of central tendency, variation, and correlation. The target population of the study was 181 SACCOs registered by 2014. Stratified random sampling technique was used to select a sample of 135 licensed deposit taking SACCOs as at 31st December 2014. Secondary data from publications, CRBs, journals and financial records was used. Primary data was collected using structured questionnaires which had both close ended and open ended questionnaires. The study conducted various tests including normality test, multicollinearity, stationarity, heteroscedasticity and autocorrelation tests. Additionally, mediation test was conducted and it satisfied all the three conditions thus the hypothesis that inflation has an intervening effect on the relationship between credit reference bureaus functions and financial performance was supported. The study found out that CRBs functions (credit cost function, information sharing function, moral hazard function and risk assessment function) and financial performance were positively related and significant. The findings showed that moral hazard function had the largest influence of .326 on financial performance followed by risk assessment (.271); credit cost (.269) and information sharing (.253). The study concluded that CRBs functions have a positive and significant effect on financial performance of SACCOs in Kenya. The study recommended that SACCOs should subject their clients to credit reference bureaus before granting a loan. Further it recommended the introduction of public credit registries as the current ones are only private which could restrict access to credit information. Also the regulating authorities should be given more powers and resources to carry out effectively their regulating and supervisory credit reports. This study was carried out to contribute to the growing knowledge in the field of finance especially the area of CRB functions towards improving financial performance of deposit-taking SACCOs. Future researchers could also consider expanding the scope of the period to ten years or when the CRBs increase from the current three. Researches could also be done on effect of credit reference bureaus functions on mortgage finance institutions.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The existence of information asymmetry between lenders and borrowers calls for the need for the establishment of Credit Reference Bureau services in the financial institutions. Credit is more abundant when borrowers and lenders benefit from credit information institutions (Lin, Ma & Song, 2012). In the absence of credit information registries, it may be difficult to have accurate information on the financial ability of prospective borrowers and even more difficult to have accurate information on their credit history. Information asymmetry makes it extremely difficult for lenders to assess the borrowers` credit worthiness and their ability to repay the loans with attached interest.

In most developed economies, credit reporting is a critical part of the financial system but in developing countries credit reporting is generally weak or even absent resulting to non-performing loans. Saba, Kouser and Azeem (2012) observed that once a loan is non-performing, the chances that it will be paid in full are considered to be substantially lower. In recent years, lenders derive valuable information from credit information registries, commonly known as credit reference bureaus. In open market economies, credit providers can undertake enquiries on the potential and existing customers for the purpose of offering product and service before the customer makes actual application for that product or service, a process called pre-scoring (IMF, 2011).

Credit bureaus help create an open environment of credit information which allow lenders to identify good clients by providing information on the borrowers' repayment histories and levels of indebtedness (McIntosh & Wydick, 2007). Most financial institutions are facing an enormous risk of non-performing loans (NPLs) especially for the larger loans which have greater risk exposure. Savings and Credit Cooperatives (SACCOs) mainly, carter for the credit needs of smallholders who cannot afford the collateral required by either commercial banks or other lending agents.

According to World Bank survey (2009), data collected reveals that almost sixty countries have Public Credit Registries (PCRs). PCRs contain information on the performance of borrowers in a financial system and are administered and maintained by the Central Bank as bank supervisor. The region with the highest coverage of public Credit Registries is Latin America, where seventeen countries have established PCRs, including all the largest economies of Argentina, Brazil, Chile, Colombia and Mexico.

The world cooperative monitor report in the 2014 International Cooperative Alliance (ICA) indicated that the turnover to the largest three hundred cooperatives in the world grew by 11.6 percent (2.2 trillion) in 2013 equivalent to the gross domestic product (GDP) of Brazil. The use of credit reference bureaus is beneficial to SACCOs because they encourage data sharing within and across industry alongside implementation of global best practices. They also foster mechanisms to be employed in reducing bad debts and identify potential fraud. According to the

Developments in the Kenyan Banking Sector for the Quarter Ended 30th June 2014, Credit Reference Bureaus in Kenya act as a typical response to information asymmetry problems between lenders and borrowers (CBK, 2014). Sacco's have also created employment for Kenyans thus immensely contributing to the government efforts of achieving the economic goals in the vision 2030.

1.1.1 Credit Reference Bureaus in Developed Economies

In developed countries, credit reporting started a bit early as in Europe 1960`s, in United State 1970`s, and Hong Kong and Australia 1980`s and 1990`s respectively. In USA, the Fair Credit Reporting Act was enacted to regulate the credit information sharing mechanism. Studies conducted in various countries have shown that large portion of loan losses recorded by financial institutions ascribe to adverse local economic conditions along with the poor performance of certain sectors and credit information asymmetry. However, some customers do not disclose all the credit information about themselves for fear of being denied credit (Kimasar & Kwasira, 2014).

1.1.2 Credit Reference Bureaus in Developing Economies

Generally, in developing and underdeveloped countries, the reasons for default have a multidimensional aspect. Theoretically there are so many reasons as to why loans granting business fail to perform and more so, poor services to client which result in defaults (Velmurugan, 2014). In developing economies, political factor is a hindrance to loan repayment where those in political power default and resist the disclosure of their creditworthiness since they may have political influence to the

government of the day and so loans are openly viewed as disguised grants in the exchange for political support.

However, Rajan and Dhal (2013) found that favorable macroeconomic conditions (measured by GDP growth) are among the factors that have significant impact on the NPLs of commercial banks in India. Some of these include depressed economic conditions, high real interest rate, inflation, lenient terms of credit, credit orientation, high credit growth and risk appetite, and poor monitoring among others. Bercoff, Giovanni and Grimard (2012) categorize causes of credit default to both Bank specific and Macroeconomic conditions. Throughout the developing world, the growing availability of consumer credit and the growing competition between financial institutions have made the necessity of credit information sharing to be more apparent. Marcucci and Quagliariello (2011) found that the business cycle largely affects the NPL ratio due to intermittent economic booms and depressions.

Africa remains the region of the world with the least developed credit information systems thus the rapid setting off financial sectors in many African countries have immensely gained interest in the feasibility of the creation of credit bureaus to help them manage borrower risk under heightened competition. However, the existence of inherently weak credit culture amongst African nations has resulted to large numbers of unpaid loans.

1.1.3 Credit Reference Bureaus in Kenya

In Kenya the operations, establishment, licensing, governance and management of CRBs is done through the Central Bank of Kenya under Banking Act, 2008. Currently, there are three credit reference bureaus: Transunion Credit Reference Bureau Ltd, Metropol Credit Reference Bureau Ltd and Info Credit Reference Bureau Ltd which are registered by the Central Bank of Kenya (CBK, 2013) to access credit data. Currently, aspirants seeking political office or any public post in Kenya are expected to obtain certificates that confirm their creditworthiness under the requirements of the Leadership and Integrity Act, 2012 on financial obligations.

Credit granting on the basis of personal contacts and social pressure leads to inefficiency with regards to risk management resulting to non-performing loans (Louzis, Vouldis & Metaxas, 2010). Consumer credit reporting has evidently become the most extensively used instrument employed by lenders to underwrite decisions on borrowing regarding to evaluation of a consumer`s credit application and his or her credit worthiness; on the understanding that the best predictor of future behavior is past behavior (Siwela, 2011).

However, Laeven and Levine (2011) stated that information sharing contributes importantly to real economic growth, but only if information bureaus are privately organized or owned. Information sharing helps lenders assess credit worthiness, the ability to pay back a loan, and can affect the interest rate and other terms of a loan. In most cases prospective lenders access the information only when they have

permissible reason as defined in law, to determine the borrower's creditworthiness to ensure borrowers` right are not infringed.

The Kenya Credit Information Sharing report (2012) specified the roles played by CRBs: first, sharing of credit information to establish credit worth of any borrowers at a given time; second, they enhance risk assessment by enabling lenders lend to more and better risk clients thereby avoiding dead beats as well as determine better and lower the bad loan spread that they need to cover expected losses of credit to good payers. Third, credit bureaus reduce the credit cost or borrowing cost by forcing creditors to be more competitive for good borrowers. Those lower costs for good credit risks motivate those borrowers to be more careful with their loan repayment. Fourth, credit bureaus reduce moral hazard by developing a credit culture where they operate and so borrowers become aware that credit market is fully informed of their credit history and that would rewards or punishes them accordingly. However, Shisia, Marangu and Omwario (2014) argue that CRB firms in Kenya should link with other regional CRB firms in other countries in order to monitor loan defaulters who move from one region to another.

1.1.4 Deposit-taking Sacco's in Kenya

SACCO Societies means a saving and credit co-operative Society registered under the cooperative Act, 1997, (CAP. 490B of the Laws of Kenya). In Kenya, SACCOs are one of the leading sources of rural finance and in many rural areas the local SACCO is the only provider of financial services. Kenyan SACCO sub-sector remains the largest and most vibrant cooperative financial institutions in Africa,

while registering an improvement in the global ranking to eleventh position from thirteenth position recorded in the previous year (WOCCU, 2014).

There were 181 SACCOs offering front office savings activities (FOSA) registered as deposit-taking SACCOs by December 2014 (SASRA, 2014). With more than twenty-five percent of the world population being referred to as unbanked, there is need for SACCOs to mobilize more members to access finance especially the unemployed and underemployed youth in Africa (KUSCCO, 2014). In Kenya co-operative values and principles have substantially grown and offer the best model for fighting poverty and economic inequality in society. SACCOs are therefore the best vehicle for driving socio-economic development in Kenya. Lending is the main business of SACCOs with loans forming the main source of revenue (Kwambai & Wandera, 2013).With savings of Kshs. 380 billion and asset base of Kshs. 493 billion, SACCOs control 39 percent of total loan accounts in Kenya (SASRA, 2012).

1.1.5 Performance of SACCOs

Financial performance of SACCOs as defined under the World Council of Credit Unions (WOCCU) can be viewed in two ways: First as Protection (safe deposit), effective financial structure (profitability), asset quality, rates of return and costs liquidity and signs of growth (PEARLS); and secondly as Capital adequacy, quality management, earnings and liquidity (CAMEL). This study measured SACCOs` financial performance through their level of profitability, return on assets and asset quality. Guy (2011) argue that NPL is widely used as a measure of asset quality among leading institutions and are often associated with failures and financial crisis

in both developed and developing world thus high delinquency makes financial sustainable impossible for SACCOs.

A firm`s profits are measured by the earnings the firm gets from its operations which is evidenced by payouts and dividends to members. Financial performance can be measured by asset quality which is the percentage of good loans to total assets. If loans increase they signal of good performance (Kioko, 2014). Return on assets (ROA) can be defined as a ratio of income to its total assets (Khrawish, 2011).When the incomes are high then the firm can grant more loans. High ROA shows the effectiveness of the firm in making use of its resources endowments. Low ROA means inefficient use of resources or capital underutilization (Wen, 2010). Liquidity refers to investment in current assets and current liabilities which are liquidated within one year or less and is therefore crucial for firm's day to day operations (Kesimli & Gunay, 2011). Liquidity is very closely related to working capital which is the money needed to finance the daily revenue generating activities of the firm.

1.2 Statement of the Problem

Due to the existence of information asymmetry, the need for CRBs continues to gain interest in SACCOs. SACCOs have improved lives of many by grating loans and offering direct and indirect employment opportunities; a move to realization of Vision 2030. Notably, the DTSs reported an improved financial performance with growth experienced in the key financial performance indicators namely: loans and advances grew from Ksh.197,409 million in 2013 to Ksh.228,524 million in 2014 (15.5%); membership grew from 2,609,300 in 2013 to 3,008,497 million in 2014

(15.3%); savings deposits grew from Ksh.182,683 in 2013 to 205,974 million in 2014 (12.7%) and capital reserve grew from in 2013 Ksh.32,991 million to Ksh.43,086 million in 2014 (SASRA, 2014).

However, the DTSs in Kenya are facing an imminent cash crash because of high default rates contributed by information asymmetry between lenders and borrowers thus affecting the financial performance of DTSs; a situation that prompted to this study. According to the 2016 Sacco Annual Supervision Report, the DTSs loan portfolio risk increased to 5.23 per cent up from 5.12 in 2015, with the value of non-performing loan increasing from Sh13.21 billion to Sh15.57 billion. The loan portfolio risk of 5.23 per cent was higher than five per cent recommended maximum by the World council of Credit Unions and three per cent recommended by the local Sacco regulator (SASRA, 2016).

Locally, Segita, Limo, Kibati and Muhanji (2014) reviewed the asymmetry information on CRBs for banks in Kenya; Gitahi (2013) studied the effect of CRBs on NPLs in commercial banks in Kenya while Gaitho (2013) reviewed the role of credit reference bureau on credit access, a survey of commercial banks in Kenya. There seems to be a continuous lack of definite answers on how best financial performance can be improved in DTSs thus KCIS report (2012) identified CRBs functions as credit cost, information sharing, moral hazard and risk assessment. Therefore, the effect of CRBs functions on financial performance of deposit-taking SACCOs in Kenya would fill the gap.

1.3 Objective of the Study

The study was guided by both the general objective and specific objectives.

1.3.1 General Objective

The general objective of the study was to establish effect of credit reference bureaus functions on financial performance of SACCOs in Kenya.

1.3.2 Specific Objectives

This study was guided by the following specific objectives:

i) To establish effect of credit cost function on financial performance of SACCOs in Kenya.

ii) To assess effect of information sharing function on financial performance of SACCOs in Kenya.

iii) To determine effect of moral hazard function on financial performance of SACCOs in Kenya.

iv) To examine effect of risk assessment function on financial performance of SACCOs in Kenya.

v) To establish intervening effect of inflation on the relationship between credit reference bureaus functions and financial performance of SACCOs in Kenya.

1.4 Research Hypotheses

The study was guided by the following research hypotheses:

H_{o1}:   Credit cost function has no significant effect on financial performance of SACCOs in Kenya.

H_{o2}:   Information sharing function has no significant effect on financial performance of SACCOs in Kenya.

H_{o3}:   Moral hazard function has no significant effect on financial performance of SACCOs in Kenya.

H_{o4}:   Risk assessment function has no significant effect on financial performance of SACCOs in Kenya.

H_{o5}:   Inflation has no significant intervening effect on the relationship between credit reference bureaus functions and financial performance of SACCOs in Kenya.

1.5 Significance of the Study

The financial stability of SACCOs depend on the rate of default on loan repayments which poses the greatest risk to the multi-billion shillings in savings and credit co-operative Societies (SACCOs). A joint report released by Kenya's five financial sector regulators said the risk of defaults on personal loans granted by SACCOs was high, as the debts were secured only by member guarantees. Savings and Credit Co-operative Organizations in Kenya are facing an imminent crash due to high loan appetite, default and low deposits by members. This study will be of value to the

following groups: financial institutions (SACCOs), borrowers (SACCO members), academicians and the government.

1.5.1 SACCOs

This study may assist SACCOs and other financial institutions to have an in-depth understanding on the functions played by the credit reference bureaus on financial performance. This study may also assist deposit-taking SACCOs to formulate internal lending policies and controls that may help reduce the credit default rates.

1.5.2 Borrowers

The study may also benefit borrowers in that they may gain useful information that will help them to obtain credit through more objective assessment criteria that will not be unduly discriminatory.

1.5.3 Government

The government through authorized bodies can also use the study to formulate credit policies favorable to the citizens.

1.5.4 Scholars

This study may also navigate further study on CRBs functions on financial performance of deposit-taking SACCOs by forming a reference point for future scholars.

1.6 Scope of the Study

This study was limited to establishing effect of credit reference bureaus functions on financial performance of SACCOs in Kenya. Specifically, the study sought to establish effect of credit cost function, information sharing function, moral hazard function, risk assessment function and intervening inflation on financial performance of deposit taking SACCOs in Kenya. The study covered a sample of 135 licensed deposit-taking SACCOs selected from a pool of 181 deposit-taking SACCOs registered in Kenya by December 2014. The study also selected three licensed CRBs. This study covered a period of six years from 2010 to 2015.

1.7 Limitations of the Study

The study findings are limited to SACCO's and may not be generalizable to other players in the financial sector. Also, there was difficulty in gaining access to the sampled respondents because they were busy and also suspicious of the intention of information to be given. Further, there was difficulty in gauging the objectivity of the respondents in responding to the research instruments especially owing to the information sought by the study because some of the top managers delegated their juniors as respondents. These limitations were overcome by obtaining official consent to carry out this study among the sampled SACCOs and assuring the respondents that confidentiality would be maintained and the information used for academic purposes only.

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CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviewed scholarly literature related to this study. The chapter included theoretical and empirical literature in different areas covered in support of the study as well as highlighting the conceptual framework for the study; critique of literature and the research gap.

2.2 Theoretical Literature Review

The theoretical framework of a research project relates to the philosophical basis on which the research takes place, and forms the link between the theoretical aspects and the practical components of the investigation undertaken. The theoretical framework therefore has implication for every decision made in the research and it helps to make logical sense of relationship of the variables and factors that have been deemed important to the problem of the study. It also provides definitions of the relationships between all the variables so that the theorized relationship between them can be understood. For the purpose of this study, the study will review, information sharing theory, adverse selection model, moral hazard theory and theory of micro-loan borrowing rates and defaults.

2.2.1 Information Sharing Theory

Asymmetry information theory was introduced by Akerlof in 1970 in his paper entitled "Lemon", Quality Uncertainty and the Market Mechanism. He argued that information asymmetry gives the seller an incentive to sell goods of less than average market quality. Due to the information asymmetry, lenders neither know the past behaviour and the characteristics nor the intention of credit applicant (Jagongo & Kerage, 2015). Factual information on the borrowers` score needs to be available to lenders to minimize credit risk and write-offs.

Information sharing reduces banks screening intensity and it softens competition between banks because they no longer fear to get a negative selection of applicants since their competitor has already picked all cherries (Boyd & Hakenes, 2013). Studies on information sharing are relatively recent and growing thus the effect of information sharing in a market with asymmetric information is either moral hazard or adverse selection (Gehrig & Stenbacka, 2007). The existence of asymmetric information between lenders and borrowers creates uncertainty on credit lending for the players. Availability of credit information is essential to both lenders and borrowers so as to make informed decisions on how much and to whom a loan should be issued.

Where lenders share information on the creditworthiness of their clients, they can easily identify genuine customers thus reducing defaults rates. The credit history is utilized by lenders to judge the creditworthiness of borrowers (Chakazamba, Matanda, & Dube, 2013). When the borrower is granted a loan he enters into a

contract with a promise to pay. Information exchange among lenders and borrowers is essential in any credit process because it assists in credit analysis, execution, administration and review. The background information on history and reputation of the borrower is therefore vital for credit evaluation. Hence the moral character of the borrower is the most important single issue in credit evaluation (Mwiya, 2010).

However, in most cases the information data needed by lenders to screen credit applications and to monitor borrowers character are not readily available leading to `adverse selection` and `moral hazard`. Adverse selection arises when there is hidden information about the borrower leading to inefficient allocation of credit by the credit provider. Moral hazard arises when the lender is unable to observe the borrower`s actions that affect the probability of repayment. This happens when the borrower provides misleading information to convince the lender to grant a loan. Information sharing can help both lenders and Borrowers perform because lenders no longer fear being held up by the lender monopolist while borrowers do not want to default because this will be publicly known.

Lenders need to have adequate positive and negative information about the customers score while borrowers need to know their capacities to avoid financial stress in loan repayment. Positive and negative information sharing creates three types of borrowers. Firstly, exposed borrowers are those who are screened from multiple loan contracting and as a result are inferior to their perfect-information contract. Secondly, defaulting borrowers who have defaulted on previous loan and thirdly, clean borrowers who have clean credit records (McIntosh & Wydick, 2007).

Information sharing theory distinguishes between information that can be shared (hard) and information that cannot (soft), relationship specific information.

Information sharing theory assumes that all credit information is available and shared to all players. This is only possible with the advancement in technology but illiteracy and ignorance amongst players may hinder effective credit information sharing. This theory is relevant to this study in that it unearths the hidden actions of borrowers including complete, recent, accurate and timely information about the financial capacity of potential borrowers. The theory anchors objective two, to assess the effect of information sharing function on financial performance of SACCOs in Kenya.

2.2.2 Adverse Selection Model

Adverse selection model was introduced by Rothscild and Stiglitz in 1976 who revealed that the buyer knows the possibility of the accidents exposed while the seller does not. It is a situation where there is a tendency to take undue risks because the costs are borne by the party taking the risk. The model is mainly used in economics and it refers to a process in which undesired results occur when buyers and sellers have access to different or imperfect information, also known as asymmetric information. The party that knows less about the same specific item to be transacted is therefore in a position of making either right or wrong decision concerning the transaction (Mabvure, Gwangwava, Faitira, Mutibvu & Kamoyo, 2012). In this case the sellers are the lenders or the SACCOs while the buyers are the borrowers.

Adverse selection arises when some information about borrowers' characteristics remain hidden to the lender and can lead to an inefficient allocation of credit. The imbalance of power or information in transactions sometimes causes credit transactions to go awry (Jagongo & Kerage, 2015). This uneven knowledge causes defaults and bad debts. Credit reference bureaus are essential for sharing credit information to mitigate defaults. Deposit-taking SACCOs operate like banks in providing credits to their customers who in return repay with interest and so lenders are concerned with the borrower's creditworthiness.

The credit reference bureau regulation, 2013 permits commercial banks and micro-finance banks to share both positive and negative credit information with the credit reference bureaus (CBK, 2014). Financial institutions may have information about local credit applicants but may have no information about foreign applicants so as to lend fairly as they would do to local customers. In such a situation one party in a transaction has more information than the other, especially in insurance and finance related activity (Hackmann, Kolstand & Kowalski, 2013).

Since information is power, the party with more information can influence the decision of the other party who may be participating in good faith without knowing the other party has hidden personal interest. For example, the borrower may have hidden information about his credit worthiness but the lender grants the loan just on trust only to find later that the borrower defaults. If the lender would have prior information this would assist in the decision to lend. Therefore, a lack of equal

information causes economic imbalances that result in adverse selection and moral hazards.

The presence of all these economic weaknesses has the potential to lead to market failure. Any loan repayment attracts an additional amount of interest which forms part of the borrowers' obligations. While lenders make profits from high interest rates, their profits may be affected by the high interest rates since borrowers may not afford repayment. Although for any investment the higher the risk the higher the returns but the low risk-takers borrowers would always shy away from high interest rates.

Many bad debts are attributed to the adverse selection incentives on bank owners to adopt imprudent lending strategies in lending at high interest rates to borrowers in the riskiest segments of the credit market (Koo, 2011). In any financial institution the interest charged on the loan or members' contributions are the main sources of revenue to be lent to other borrowers which are a limited resource. This forces lenders to grant loans to those with adequate collateral thus resulting to uneven distribution of credit to needy clients. Therefore (Nguyen, 2008) argued credit provision is critical and should be handled with great care for better performance of every financial institution. With CRBs a culture of financial discipline would be installed since customers know that they would be monitored (Anderson, 2007).

This model assumes that one party has more information than the other and takes advantage to benefit from the contract. It may not be practicable because in a prosperous business both parties have to benefit for the contract to survive in the near

future otherwise the affected party may look for other alternatives detrimental to the other party. This model is relevant as a controlling risk for lenders in selecting whom to give more money depending on the borrower's ability to repay promptly. The study informs objective one, to establish the effect of credit cost function on financial performance of SACCOs in Kenya.

2.2.3 Moral Hazard Theory

Moral hazard refers to the risk that a party to a transaction does not enter into the contract in good faith or has provided misleading information about his or her creditworthiness for his or her personal gains (Mirrlees, 1999). Moral hazard can be present when two parties enter into agreement with each other. In relation to asymmetric information, moral hazard may occur if one party is insulated from risk and has more information about its actions and intentions than the party paying for the negative consequences of the risk (Einav & finkelstein, 2011).

In such a situation each party may have the opportunity to gain from acting contrary to the principles laid out by the agreement. For instance, lenders may be shielded by borrowers from the consequences of poor decision-making in lending. Borrower may not act prudently in the view of the lender. This includes investing funds in projects different from the intended or spends funds recklessly leading to default. According to Koo (2011b) some borrowers tend to divert the funds to risky investments once they are granted the loans. People are apt to take undue risk if they don't have to bear the consequences (Shaila, 2012).

Problems of moral hazard in financial institutions were evident at many stages of recent financial crisis (Myerson, 2011). Economists argue that this inefficiency results from information asymmetry. In this asymmetric information the party with more information about its action or intentions has a tendency or incentives to behave inappropriately thus rapid growth can be enhanced by active participation from lenders and borrowers (Yang, 2015). Efficient moral hazard can occur when loans granted by SACCOs do not produce a welfare loss to society by burdening the borrower in repayment; but rather, borrowers attain better financial demands thus raising their standards of living.

Moral hazard theory assumes that one party in a contract does not enter in good faith. In my opinion a party can enter into a contract with goals and objectives which may be different from the other but cannot disadvantage the other because each of them enter into contract freely without undue influence. This theory is relevant since a good credit culture is developed especially to borrowers in ensuring that they invest their loans in the intended projects without partial diversion of the loan from productive investment to consumption; and lenders should also scrutinise borrower's credit ability before granting a loan. The theory informs objective three, to determine effect of moral hazard function on financial performance of SACCOs in Kenya.

2.2.4 Theory of Micro-Loan Borrowing Rates and Default

Micro-Loan Borrowing Rates and Default is an informal lending and borrowing where the lender has no access to collateral and the borrower is severely credit constrained (Cheung & Sundaresan, 2007). In informal lending, the amount of loan

granted is generally low but the borrowing rates are usually high since there are no alternative sources of credit. Default probabilities may depend on the maturity period of the loan. Monitoring by lenders is critical for lending especially where the maturity period of the loan is long. With short maturity loans, monitoring is known to be uncomplicated. Loan rates are charged depending on the market structure, monitoring costs, joint-liability provisions.

Moreover, punishment systems may be put when the borrowing group deliberately chooses to default the loan. So it is important to design the loan contract so that borrowers make higher payments in good states and lower payments in bad states. Micro-finance has existed in various forms for many years as informal lending and borrowing. In the World Bank report (2015) micro-finance institutions charge an interest in order to move away from the traditional aid towards a sustainable and viable industry. The interest rate must be able to cover administrative costs and risk of borrowers' default after which the surplus as profits for further development projects.

Micro-loan finance is potentially viable since the poor can access credit without meaningful collateral. However, in 1970`s there was the birth of 'modern' micro-finance developed in Bangladesh by a professor of economics at the university of Chittagong, Muhammad Yusuf. Informal lending prompted Muhammad Yusuf who saw the borrowing needs and assisted forty women who had a project of making bamboo stools. He was then joined by Grameen bank, popularly known as `village bank`, which extended the lending to millions of people. There are very large groups

of society who entirely depend on informal credits especially in poor and developing parts of the world because they do not have access to rudimentary financial services such as bank savings accounts but entirely depend on informal credit facilities.

Limited access to finance in Africa is particularly acute (Beck, Demirguc-Kunt, Laeven & Maksimovic, 2006) due to lack of security for the loans. Households in these sections of the society are typically poor and access credit in informal credit markets. Such informal credit markets include: local money-lenders, cal shop-keepers, who provide trade credit, pawn-brokers, payday lenders, Rotating Savings and Credit Associations (ROSCAS). The introduction of SACCOs has changed lives of many poor and young people in their entrepreneurship endeavors thus resulting to high economic growth.

A number of economists have examined these informal credit markets, and their potential linkages to more formal credit markets. According to Kohansal and Mansoori (2009) monopoly power in credit markets often exercised by informal lenders, large transaction costs incurred by borrowers in applying for loans and moral hazard problems are the main causes of defaults. It is well understood that the interest rates in such informal markets tend to be much higher than the borrowing rates that prevail in formal credit markets.

The theory assumes informal borrowing and lending without proper written rules and regulations. This may not be true because the low income earners are known to be socially cooperative groups that have faith and trust amongst their informal groups. This theory is relevant in that it ensures existence of good lending environment

including democracy, civil discipline, and powerful supervision of financial systems. The theory informs objective four, to examine effect of risk assessment function on financial performance of SACCOs in Kenya.

2.3 Conceptual Framework

A conceptual framework is hypothesized model identifying the model under study and the relationship between the dependent and independent variables. It is a study tool intended to assist a study to develop awareness and understanding of the variables under scrutiny as illustrated in the figure 2.1 below.

Credit cost functions
- Volume of loans
- Timeliness and accuracy
- Interest rates

Information Sharing Function
- Default rate
- Lenders and bureaus response rate
- Credit scoring

Moral hazard function
- Loan delinquency (PAR)
- Turnover for loan application
- Liability status

Risk Assessment function
- Risk identification
- Risk control
- Risk monitoring

Inflation
-Inflation rate

Financial Performance
- Profitability
- Return on Assets
- Asset Quality

Independent Variables   **Intervening Variable**   **Dependent Variable**

Figure 2.1 Conceptual Framework

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Since the main business of SACCOs is lending, then a reduction in non-performing loans would result to an improvement in financial performance of these SACCOs. CRBs functions may be essential in checking and minimizing non-performing loans hence increasing financial performance of SACCOs. The credit reference bureaus functions include credit cost, information sharing, moral hazard and risk assessment. With the presence of these proper functioning roles of CRBs non-performing loans would be mitigated resulting to improved financial performance would.

2.3.1 Credit Cost Function

Credit costs are interest and other costs incurred by an enterprise in connection with the borrowing of funds. When lenders no longer incur much cost to approve loan applicants then screening of borrowers become more effective and efficient; thus low price loans attract many borrowers leading to high performance. Borrowing cost reduces when client selection improves by avoiding high risk clients and select acceptable clients thus forcing creditors to become more competitive for good borrowers (Button, Pezzini & Rossiter, 2010). The attainment of the desire of a fully functioning credit reference system would effectively result in a low cost of credit (Siwela, 2011).

Those lower costs for good credit-risks motivate borrowers who would be careful with repayment; thereby increasing the volume of loans to be granted, ensures timeliness and accuracy; and enhances interest rates thus improving financial performance. Loan volume granted by SACCOs refers to sum of money loaned to a customer that must be repaid with interest at some point in the future, (Beck &

Honohan, 2007). SACCO Loans to members increased by 23% from 179.9 billion to 221 billion in 2012 (SASRA, 2012). The types of loans offered by SACCOs are mainly short-term and long-term loans. Jagongo and Kerage (2015) found out that volume of loans significantly affect ROA.

When the cost of loan to be borrowed is low more members are likely to take up the loans thus increasing loan volume. The more members take loans, the better the financial performance will be and vice versa. Financial performances of SACCOs are largely determined by the volume of loans issued at a given time. The presence of public credit registers is associated with high access to finance for countries with public credit bureaus (Triki & Gajigo, 2012).

Timeliness and accuracy is essential since borrowers would require loans in good time thus lowering credit cost since lenders take little time in screening borrowers as full-file credit information is available. This was evident when total membership of SACCOs increased by 18.4% in 2011 from 179.7 billion to 213 billion in 2012 (SASRA, 2012). Beatty and Liao (2014) argue that timeliness in loan processing in terms of the accuracy, usefulness and predictability influence financial performance of a micro financial institution. Ryan (2007) argues that the market reaction to loan loss provisions depends on the provisioning timeliness with more timely losses being perceived by the market as bad news about impending loan defaults.

CRBs would enhance timeliness and accuracy in lending thereby guarantee fairness on credit transactions which is in agreement with Boyd and Hakenes (2013). This timeliness and accuracy in granting loans result to reduction in credit or borrowing

costs. This could imply that when CRBs are properly utilized by both parties they would enhance transparency and efficiency in credit transactions thus improving financial performance.

Interest rate is the rate at which interest is paid by borrowers for the use of money that they borrow from a lender thereby affecting credit cost. Specifically, the interest (1/m) is the percent of principal (P) paid for a certain amount of times (m) per period (usually quoted per annum). According to Sinaida (2017), interest rate is the link between income and capital. It is the per cent of premium paid on money at one date in terms of money to be in hand one year later. The DTSs lending rates were 14.4 percent in 2012, 15.3 percent in 2013 and 14.5 percent in 2014 (SASRA, 2014).

SACCOs may charge different interest rates according to market conditions, degree of risks, and institution's objectives. This means that when there is a favourable market conditions, interest rates may be low; less risk borrowers may also be charged low interest rate. The objective may be just giving loans to as many borrowers as possible with low interest. The increased interest rates may therefore influence the borrowing patterns for SACCOs which is directly related to financial performance.

2.3.2 Information Sharing Function

Information sharing is the availability of full-file credit information (positive or negative) to lenders and creditors on individual`s credit history including information on identity, credit accounts and loans, bankruptcies and repayment history (Banking Act, 2009). Customer-deposits of SACCOs increased by 5.3% from Ksh.2.49 trillion in December 2015 to Ksh.2.62 trillion in December 2016 (SASRA, 2015). When

credit information is shared, the default rate may reduce for fear of being denied credit; the response rate of lenders and credit bureaus would also increase since lenders are assured of good and screened borrowers with increased demand for credit data from credit bureaus and enabling proper credit scoring consequently improving financial performance of SACCOs.

Default rate is the ratio measured as value of non-performing loans divided by the total value of the loan portfolio (including non-performing loans before the deduction of specific loan-loss provisions). Non-performing loans of SACCOs reduced from Ksh.12.2 billion in 2011 to Ksh.11.5 billion in 2012 (SASRA, 2012). When borrowers default the lending capacity and ability to raise additional capital reduces and financial performance is negatively affected. The issue of loan default cases (non-performing loans) is an increasing problem that threatens the sustainability of SACCOs but this can be checked by shared credit reports. Access of credit in developing countries is inadequate and accompanied by frequent defaults since screening mechanisms are absent or do not meet the standards. Demetriades and Fielding (2011) found that financial sector underdevelopment and excess liquidity observed in African banking systems are driven by the lack of developed infrastructure that would allow proper screening of borrowers.

Default rates are always a source of misery for lenders because if a SACCO has too much of it on its balance sheet, it can adversely affect its operations in terms of liquidity, profitability, debt- servicing capacity. The default rate undermines financial performance of the SACCOs. Saba, Kouser and Azeem (2012) observed that once a

loan is non-performing, the odds that it will be paid in full are considered to be substantially lower.

The increased response rate in the use of credit bureaus by SACCOs caused by shared credit information may improve financial performance since the credit worthiness of the borrowers is not doubtful. Recently, the demand for credit data for borrowers has increased with many SACCOs subjecting their borrowers to CRBs. SACCOs total loans to deposit increased from 102.28% in 2011 to 106.23% in 2012 (SASRA, 2012) meaning that Credit Reference Bureaus can assist in availing and documenting the personal and financial histories of all individuals and business entities that have applied for or received credit; and compute credit scores to determine the desirability of the borrower (Lauer, 2010). The increase in response rate to lenders and bureaus activities would improve financial performance of SACCOs because uncertainty of loan repayment is minimized.

Credit scoring methods are used to estimate the likelihood of default based on historical data on loan performance and characteristics of the borrower. With credit scoring deposit-taking SACCOs can manage default rates thereby increasing performance. In any emerging countries information about a business or individuals credit track record is simply unavailable and as a result borrowing money becomes difficult (Haynes, 2012). In the small business environment, if the customer statistics produce a score above the cut-off score, the application is considered for further assessment by specialized small business units and then later progresses to the small business credit department for approval or otherwise (Velmurugan, 2014). Credit

rating reduces losses due to defaults, monitoring cost, administration costs with debt collection thus assuring SACCs of profitability.

With available credit information, most SACCOs use credit scoring model to evaluate the loan applicants by developing their own interest credit scoring models against which loan requests can be assessed within the shortest time possible (Louzis, Vouldis & Metaxas, 2010). Usually the credit scoring systems are based on discriminant model in which variables are used jointly to establish a numerical score of ranking for each credit applicant. If the applicant's score exceeds the prescribed and defined cut off level, the loan application is likely to be denied. Secondly, regulations influence how financial systems evolve structurally, thereby creating indirect effect. SACCOs are however, not very different from banks and MFIs and so they should operate under some relevant legal framework (Ndung'u, 2013).

2.3.3 Moral Hazard Function

CRBs reduce moral hazard by developing a credit culture where they operate because borrowers know that credit market becomes aware of their credit history and consequently rewards or punishes them accordingly. Generally, moral hazard involves the culture of willingness to promptly repay loan granted for better financial performance. To minimize such delinquency SACCOs can use the following delinquency management methods institutional culture: A critical delinquency management method involves cultivating an institutional culture that embraces zero tolerance of arrears and immediate follow up on all late payments.

Financial performance may increase when loan delinquency reduces as this would ensure existence of good loans. The international standard for measuring bank loan delinquency is portfolio at risk (PAR). Loan delinquency in microfinance refers to an occurrence in a loan portfolio where payments are in arrears. There was a reduction in non-performing loans of SACCOs from 5.736% in 2014 to 5.12% in 2015 (SASRA, 2015). Delinquency management is an important function in every because the repayment amounts is required by the SACCOs for further loaning of new loan applicants and hence improvement in financial performance. Higher delinquency ratios means that an organization is not recovering the loans given out as expected hence negatively impacting of financial performance of the Sacco.

When lending, the credit provider does it on trust that the borrower has the ability to repay the loan in a foreseeable future (Akhtar, 2015). SACCOs can also remind clients who have had recent delinquency problems that their repayment day is approaching (Warue, 2012). However other causes of loan delinquency can be analyzed as follows: Institution related, credit staff related, client related, group related and externally driven causes. According to Cheruiyot (2015), there are a number of reasons that have been cited as the causes of loan delinquency. These include lack of willingness to repay loans, diversion of funds by borrowers to other functions, willful negligence, and improper appraisal by credit officers.

When there is an increase in the loan applications, this signifies that there exists a good credit culture resulting to an improvement in financial performance. The loans and advances of SACCOs grew by 13% to Kshs.258.4 billion in December 2015

compared to the previous year (SASRA, 2015). As more people demand for money, the overall turnover on loan application increases thus boosting business turnover and enhancing financial performance. Turnover is measured by the income the Sacco has made before expenses. The total assets of SACCOs grew from 257 billion to 301.5 billion while total deposits increasing from 182.7 billion to 205.9 billion from December 2013 to December 2014 financial years (SASRA, 2014).

According to Mutua (2014) turnover often refers to inventory or accounts receivable; a quick turnover is desired because it means that inventory is not sitting on the shelves for too long. In a portfolio a small turnover is desired because it means the investor is paying less on commission to the broker. Analyst use metrics like cash conversion cycle, the return on assets ratio and fixed asset turnover ratio to compare and assess a company annual asset performance. An improvement in asset performance means that accompany can either earn a higher return using the same amount of assets or is efficient enough to create same amount of return using less assets (Keitany, 2013; David, 2011).

Liability status is essential in that with high liabilities a SACCO is likely to go under liquidation because it cannot settle her debts as and when they fall due thereby affecting financial performance. With the introduction of CRBs SACCOs could show gradual reduction in liquidity problems because a good credit culture emerges. Liquidity of SACCOs increased from 47.32% in 2014 to 55.99% in 2015 (SASRA, 2015) which is a good indication for performance improvement.

2.3.4 Risk Assessment Function

Risk assessment is one of the principles of risk management and it encompasses risk identification, risk quantifying and priotization of exposures to risks. CRBs enable lenders to lend to more and better risk clients Credit reference bureaus are essential in risk identification since the credit defaulters are listed. With the help of CRBs SACCOs can assess the creditworthiness of an applicant before granting a loan in order to identify, control and monitor credit risks; and this can improve their financial performance since credit default would be minimized. SACCOs can methodically address the credit risks attaching to their activities with the goal of achieving sustained benefits within each activity and across the portfolio of all activities (Amoah-Binfoh, Ricky-Okine, Bennet, Obenewaa & Nusenu, 2012).

There is need to ensure that risks are identified, controlled, monitored and where possible avoided. Gaitho (2013) found that CRBs enhance effective risk identification. The regulatory authority would improve transparency, efficiency and accountability on SACCO operations. With CRBs it is possible to identify those SACCOs that have minimum requirement as the period came to an end on 18th June 2014 out of 80 DTSs which were expected to be licensed under this window, only 49 of them managed to achieve the minimum licensing requirements, and were subsequently licensed (SASRA, 2014). Regulatory institutions determine to a large extent, the risk attitude of the SACCOs (Louzis, Vouldis & Metaxas, 2010). Most financial institutions operate within a tight band of risk aversion and in effect will add to the

suit of predictive indicators available to regulators that is used to ascertain when coming closer to turmoil and crisis (Tracey, 2011).

SACCOs should have effective means of obtaining pertinent information to identify and measure their exposure to risks inherent in their core activities. Where a risk is not readily quantifiable, for instance some operational risks, SACCOs should undertake a qualitative assessment that is appropriate to the risk and sufficiently detailed so that they can be useful for risk management (Cielens, 2010). The SACCOs should identify and measure the potential risk arising from defaults. An effective risk identification strategy is necessary for stable performance of SACCOs.

Control measures are necessary to be implemented by SACCOs in order to mitigate the identified risks to ensure that past mistakes are not repeated. Risk mitigation measures include setting appropriate standards and limits that are clearly documented and assigning limits to relevant staff that are commensurate with the experience and competence of the respective individual (Troan, 2015). For better performance SACCOs must verify that the proposed product is consistent with the SACCOs` risk strategy and policies by scrutinizing assumptions made in product proposals about likely consumer behaviour and market reactions and verify these assumptions where appropriate. A total of 17 on-site inspections of DTSs were conducted and appropriate corrective supervisory administrative enforcement actions and directives were issued (SASRA, 2014). In addition, all the DTSs were able to submit the prescribed statutory returns which are the core instruments for off-site surveillance.

An effective monitoring system improves performance by tracking any risk generated indicators, and ensures that risk standards and limits are complied with as intended and any deviation is duly approved and documented. Effective monitoring has made Kenyan Sacco sub-sector remain the largest and most vibrant Cooperative Financial Institution in Africa registering an improvement in the global rankings from 11th in 2013 position to 13th position in 2014 (WOCCU, 2014). A good monitoring and evaluating system must be in place to make sure that all risk management procedures are carried out in time to locate deviations earlier and corrective actions done (Al-Tamimi & Al-Mazrooei, 2007).

This is done by establishing clear procedures to investigate non-compliances with the intent of preventing such incidents from recurring. The consequences for non-compliance with established limits should be clear and pre-determined. The Sacco should regularly reviews whether it has correctly assessed the impact and probability of default risks and effectively treated or mitigated the risks, including identification of lessons that could be learned for future assessment and management of risks.

2.3.5 Inflation

Inflation is generally the persistent increase of price level of goods and services in an economy over a period of time. Inflation results into a reduction in the purchasing power per unit of money, a loss of real value in the medium of exchange and unit of account within the economy thus reducing propensity to consume and therefore reducing financial performance. Inflation or deflation affects performance of SACCOs since this affects the money supply in an economy. High inflation ate into

the savings (deposits) portfolio of many DTSs during the year 2015; impacting negatively on the performance of loans.

Due to inflation SACCOs` financial performance in Kenya reduced from Ksh. 48,219,882,695 in 2014 to Ksh.46,00,492,985 in the year 2015. Inflation as one of macroeconomic conditions is caused by rapid increase in the supply of money thus prices of commodities generally go up. NPLs can be attributed by both macroeconomic conditions and bank specific factors (Ekanayake & Azeez, 2015). Inflation is a key determinant of lending rates globally. It depreciates the value of money such that a percentage increase in inflation results into a similar percentage fall in value of the country's currency.

Chowdhury (2012) confirms this assertion and states that lenders are very aware that inflations erodes the value of their money over the time period of a loan, so they increase the interest rates to compensate for the loss. The increased interest rates due to inflation may therefore influence the borrowing patterns for SACCOs. Inflation is measured by average annual rate of inflation which is the arithmetic mean for of the month by month inflation normally reported by the Kenya National Bureau of Statistics for each of the twelve months forming one year. However, inflation rate, real GDP and real interest rates as macroeconomic factors though have positive relationship but may have insignificant effect on profits (Nadeem, 2013).

2.3.6 Financial Performance

A good financial performance would be measured by the key financial performance indicators namely: profit levels, returns on assets and asset quality; an increase in

profit levels, higher returns on assets and desired asset quality. Generally, for better performance of a SACCO it must be able to attain adequate loaning and pay the minimum liquidity requirement set by the regulatory regulator (Kioko, 2014). Financial performance can be measured by monitoring the company's profitability levels. Owolabi and Obida (2012) defined profitability as the ability to make profit from all the business activities of an organization, company, firm, or an enterprise.

Profitability is a relative term measurable in terms of profit and its relation with other elements that can directly influence the profit like debts levels, capital base and liquid cash. High profits signifies better performance and it measures management efficiency in the use of organizational resources in adding value to the business. The net profits net surplus before tax of Deposit-taking SACCOs increased from Ksh.3357 billion in 2011 to Ksh,3808 billion in 2012 (SASRA, 2012). Pre-tax profits in increased by 10.91 percent in December 2016 compared to the previous year.

Return On Assets is computed by dividing net income plus interest expense by the company's average investment in asset during the year. Return on Assets expresses the net income earned by a company as a percentage of the total assets available for use by that company (Owulabi & Obida, 2012). Return on assets of SACCOs increased from 1.98 percent in 2011 to 2.02 percent in 2012 (SASRA, 2012). ROA suggests that companies with higher amounts of assets should be able to earn higher levels of income. ROA measures management's ability to earn a return on the firm's resources (assets). Jagongo and Kerage (2015) found out that volume of loans significantly affect ROA. Higher return on assets indicates better financial

performance and vice versa. SACCOs would thus struggle to ensure that they increase their return on assets by using all the available resources at their exposure. Thus the ultimate results for increased return on assets is an increase in better financial performance desirable for the financial stability of a SACCO.

Asset Quality is the percentage of good loans to total assets and this has an influence in financial performance since the higher the percentage of good loans the better financial performance. Growe, DeBruine, Lee and Tudón Maldonado (2014) argued that ratio of loan loss provision to total loans is a measure of firm's asset quality that indicates how much of the total portfolio has been provided for but not charged off. The higher the ratio of loan loss to total loans, higher the quality and hence the higher the liquidity risk of the loan portfolio will be.

Asset quality can also be referred to as the proportion of gross non-performing loans to gross loans. Non-performing loans to total gross loans of SACCOs reduced from 9.6 percent in December 2011 to 7.34 percent in December 2012 (SASRA, 2012). The quality of loan portfolio determines the bank's liquidity, with increase in delinquent loans negatively impacting liquidity. According to Vahid, Elham, Mohsen, and Mohammadreza (2012) Working Capital Management plays a significant role in determining success or failure of firm in business performance due to its effect on firm's profitability.

Business success depends heavily on the ability of financial managers to effectively manage the components of working capital (Sen & Oruc, 2009). McIntosh and Wydick (2007) conclude that credit information systems first create a screening

effect that improves risk assessment of loan applicants, thereby raising portfolio quality, which in turn reduces rates of arrears. Generally, for better performance of a SACCO it must be able to attain adequate loaning and pay the minimum liquidity requirement set by the regulatory regulator (Kioko, 2014).

2.4 Empirical Review

This section reviews literature from prior scholars who have done some research on topical issues with clear objectives. This would also include but not limited to the research methodology used which involves research design, target population and sampling techniques; research findings and discussions, conclusions made and policy recommendations that should be put into consideration regarding effect of credit reference bureaus functions on financial performance of SACOs in Kenya.

2.4.1 Credit Cost Function

Gaitho (2013) explored the effect of credit reference bureaus on credit access in Kenya. The variables used in the study were credit cost function, risk identification, loan delinquency and micro credit extension. The study employed descriptive research design. The sample of 96 respondents was drawn from the employees working in the headquarters of these banks targeting managers within the finance, strategy and business development portfolios or dockets in the 42 commercial banks in Kenya. The study found out that CRB reduces borrowing cost and loan delinquencies to a moderate extent.

It further established that CRB has enhanced effective risk identification or monitoring and microcredit extension in Kenya. The study concluded that CRBs

have helped reduce credit cost to a moderate extent largely because SACCOs are aware of a customer's good payment history, consumer benefits from lower interest rate, easier terms and or less collateral. The study therefore recommended that lenders and CRB should work closely to ensure that there is no information asymmetry and therefore ensure that credit flows to deserving borrowers. However, study made on Australian banks by Kent and D'Arcy (2010) suggests that, risks peaked at the top of business cycle.

Dukuy (2012) conducted a study focusing on credit market participation; credit constraint and credit default in order to facilitate holistic integration of small enterprises in credit programs of Liberia. The variables used in the study were credit market participation, access to credit, credit constraint and default. The study employed descriptive survey design. The key findings indicate that credit market participation, access to credit, credit constraint and default are influenced by a diversity of factors such as credit market variables, skill or experience of managers, firm size, firm performance indicators and market environment that defines firm operations. The study concluded that easing restrictive credit requirements, strengthening prudential guidelines in regulatory systems, sensitizing borrowers, supporting a knowledgeable and growing entrepreneurial culture are critical in developing credit markets, thus relaxing financial constraints and reducing default.

Keitany (2013) sought to review the relationship between loan default and the financial performance of Savings and Credit Cooperative Societies (SACCOs) in Kenya. The variables used in the study were borrowing cost, access to credit, credit

constraint and default. The research design used in this study was descriptive design. The design was appropriate because the study involved in-depth information on the relationship between loan default and the financial performance of SACCOs. The study findings indicated that there is strong negative relationship between the loan default and the profitability of these SACCOS.

The study also found that borrowing cost influences financial performance of Savings and Credit Cooperative Societies (SACCOs) in Kenya. The study concluded that borrowing cost and default rate influences financial performance of Savings and Credit Cooperative Societies (SACCOs). The study recommends that SACCO should; continuously review credit policies, establish irrecoverable loan provision policies, and character of loan applicants. All these policies would ensure good access of credit resulting to high performance of the SACCOs.

Bichanga and Aseyo (2013) carried out a study to find out the causes of loan default within Micro Finance Institutions (MFIs) in Trans-Nzoia County. Specific objectives were to investigate how non- Supervision of borrowers influences the loan repayment financed by MFIs in Trans-Nzoia county; to find out the effects of shrinking economic growth experienced by borrowers on loan repayment and to establish how diversion of loan funds by borrowers leads to default in loan repayment. The target population comprised a total of 400 loan borrowers and 200 MFIs out of which a sample of 150 was picked using simple random sampling for each stratum.

This was to enable every member of the population to have an equal and independent chance of being selected as respondents which was also simplest, most convenient and bias free selection method. The data was collected by use of structured and semi-structured questionnaire. The data was analyzed from questionnaires using both quantitative and qualitative techniques and tabulated by use of frequency tables. The study found out that loan repayment default was as result of non-supervision of borrowers by the MFIs, and also as a result of inadequate training of borrowers on utilization of loan funds before they received loans. The findings also revealed that most borrowers did not spend the loan amount on intended and agreed projects.

2.4.2 Information Sharing Function

Thuo (2016) conducted a study to determine effect of sharing of credit information on banks' performance in financial perspective. The specific objectives were to determine how capital adequacy affects profitability of Kenyan commercial banks, to assess how liquidity management affects banks performance in financial perspective in Kenya and to assess effect of assets quality on banks performance in financial perspective in Kenya. The research utilized a descriptive research design. The study established an insignificant negative relation between credit information sharing assets quality and banks' performance in financial perspective. Results also found a negative but significant relation between capital adequacy and financial performance and an insignificant positive relation between liquidity and banks' performance in financial perspective.

Kisengese (2014) conducted a study to assess the impact of the credit reference bureaus on nonperforming loans of commercial banks in Kenya. The study sought to establish the influence of credit information sharing on nonperforming loans of commercial banks in Kenya. The research design for this study was descriptive survey while the population of interest consisted of 43 financial institutions operating in Nairobi city of Kenya. The findings were that, all banks had challenges of non-performing loans.

Sharing of customer credit information affected the Non-performing loans as it helped the banks to decline loaning chronic defaulters; Including all credit history from other credit suppliers (positive information) would increase credit approval by commercial banks, while low default rate would result from lending to borrowers based solely on all credit suppliers positive information which would increase credit approval by commercial Banks. The study concluded that credit information sharing is negatively related with nonperforming loans of commercial banks in Kenya.

Maina (2015) conducted a study to evaluate of the role of information sharing in mitigating non-performing loans in Kenya's banking sector. Guided by five research objectives, the study established quarterly distribution trend of the non-performing loans (NPL) from 2004-2013, identified factors accounting for NPL, examined the relationships between the key factors, evaluated the effect of information sharing on NPL and proposed strategies on improving information sharing towards mitigating NPL for Kenya's banking sector. The census strategy was used for all 43 commercial banks and 1 mortgage financial institution in Kenya. The study confirmed that

information sharing practice is only one among other factors that account for NPL. The study concluded that before CRB regulation and information sharing practice was introduced, demand for collateral was the tool mostly used alongside relationship management, also considered an alternative borrower disciplining device.

Jagongo and Kerage (2015) conducted a study on credit information sharing and performance of commercial banks in Kenya. The variables under consideration were non-performing loans portfolio, level of interest rates, volume of lending and operating cost. The researchers adopt census survey of all commercial banks licensed under the Banking Act (cap 488 laws of Kenya). The study covers a period of five years from 2008 to 2012 and performance was measured by financial ratios to draw conclusions.

The study used both primary and secondary data which was analyzed using both inferential and descriptive statistics and multiple regression analysis. The study established that credit information sharing led to improved financial performance of commercial banks in Kenya. The study concluded that the breadth of credit markets is associated with information sharing. There is positive relationship between credit information sharing and the performance of the banking sector. The relationship is that as the banks share credit information about the borrowers, their respective performance will improve

Bonaya (2012) sought to investigate the effect of credit information sharing on loan performance as one these factors in the blend. The specific variables under study

were Aggregate Total Loans and advances by commercial banks and Commercial banks' monthly weighted average lending rate. The study used econometric analysis system (Eviews, Version 7.0) to analyze 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 42 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 concluded 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.

2.4.3 Moral Hazard Function

Kiptoo, Wanyoike and Gathogo (2015) sought to assess the influence of cross borrowing on financial performance of Savings and Credit Co-operatives (SACCOs) in Eldama Ravine Sub-County. The specific objectives of the study were to assess the effect of adverse selection and credit policies on financial performance of SACCOs. Data was collected using a structured questionnaire and analyzed using descriptive and inferential statistics. The target population of the study comprised 150 Board members, SACCO unionizable staff and SACCO management staff. Stratified random sampling was used to obtain a sample size of 107 respondents.

Data analysis was done using SPSS version 20. From the analysis, adverse selection was found to strongly influence financial performance than credit policy. Since adverse selection was a significant factor, SACCOs should share credit information between themselves and with other lenders. The study should also update their credit policies and develop enhanced strategies to mitigate risk associated with credit policy. The study concluded that that adverse selection and credit policy had influence on the financial performance of SACCOs.

Ai, Kiku and Li (2016) conducted a study to quantify the impact of moral hazard: evidence from a structural estimation. The study performed an empirical evidence on firm size, growth and managerial pay-performance sensitivity to identify the degree of moral hazard. They developed and estimated a dynamic equilibrium model of firms with agency frictions to quantify the impact of moral hazard. In a structural estimation, they exploited empirical evidence on firm size, growth and managerial pay-performance sensitivity to identify the degree of moral hazard. They found that the magnitude of unobservable shocks is relatively small and accounts for about 10% of the total variation of firm output. Nonetheless, moral-hazard induced incentive pay is quantitatively significant and accounts for 52% of managerial compensation. Their welfare analysis suggested that eliminating moral hazard results in about 3.4% increase in aggregate output. The study concluded that moral-hazard induced incentives are quantitatively significant and explain 52% of managerial compensation.

Riungu (2014) sought to examine the effect of credit reference bureaus on profitability of commercial banks in Kenya. The specific variable under consideration was moral hazard consideration. The study adopted descriptive survey research design. The target population consisted of 44 commercial banks in Kenya. The study concluded that credit reference bureau services assist in reducing the incidence of non-performing loans and hence in improving the bank profitability. This is made possible through the reduction of transaction costs, enhanced information sharing, reduced loan loss and delinquency, and enhanced credit evaluation practices due to credit reference bureau services are used. The study concluded that taming moral hazard issue boost the profitability of commercial banks in Kenya.

Alloyo (2013) conducted a study to examine the relevance of credit reference bureaus and its effects on the financial performance of banks in Kenya. The specific variables under the study were default rate and interest rate. The study adopted a descriptive design and used secondary data in analysis. The target population consisted of 44 banks. The research findings showed that before commissioning of credit reference bureaus the semi-annual financial performance of banks was fairly constant. However, the financial performance increased slightly with commencement of credit reference bureaus.

The findings also established that consumers and lenders find the credit reference bureaus useful in the financial industry in Kenya which will lead to a bigger credit market, lower default and interest rates, improved profitability for the financial

institutions, increase price competitiveness of credit facilities, instill good credit behavior among lenders, improve pool of borrowers, expansion of lending and help improve access to credit in Kenya. The study concluded that credit reference bureaus are useful in the financial industry in Kenya as help in lowering rates.

Kagondu (2009) aimed at identifying the factors currently influencing credit rationing by Kenyan commercial banks. The specific variables were credit rationing and credit risk assessment. This was done by testing the banks against factors identified for commercial banks in other parts of the world. The study also aimed at ranking the factors in order of importance to the banks. Data was analyzed using Factor Analysis and the population of the study comprised all the 45 banks in operation as at 31.07.02. Only 23 banks responded to the questionnaires amounting to a response rate of 51%. The study established that the most important factors influencing credit rationing were related to perceived credit risk arising from inadequate reliable information on the creditworthiness of borrowers.

Scarcity of profitable investment projects and an emphasis on attaining assets liabilities balance were also very important. The characteristics of a potential borrower had a major impact on the credit rationing behavior of most banks in particular the past performance and level of financial gearing of the firm. The study concluded that the borrower is protected since he or she is allowed to obtain his or her own credit report when the borrower believes that the data is incorrect and needs to be rectified.

Ng'etich (2011) carried out a study that sought to establish the effects of interest rate spread on the level of Non-Performing Assets (NPAs). The study adopted a descriptive research design on a sample of all commercial banks in Kenya operating by 2008 which were 43 in number. The study used questionnaires to collect data from primary data sources and secondary data, collected from Bank Supervision Report, to augment the primary data findings. The study used both quantitative and qualitative techniques in data analysis to the relationship between the interest rate spread and loan non-performance. The data was presented using graphs, table and pie-Charts. The study concluded that interest rate spread affects performing assets in banks as it increases the cost of loans charged on the borrowers, regulations on interest rates have far reaching effects on assets non-performance, for such regulations determine the interest rate spread in banks and also help mitigate moral hazards incidental to NPAs.

2.4.4 Risk Assessment Function

Mutuku (2016) conducted a study to determine the effect of these risk management practices to the financial performance of the commercial banks. The specific parameters were risk identification, risk assessment and risk management. With a specific goal to carry out this study, the researcher obtained primary data through an organized survey. The study adopted descriptive survey design. This survey was done using a structured questionnaire that was conveyed out to the 42 Commercial Banks in the nation. Equally, secondary data was obtained from the specific banks websites and published financial results. Both sets of data were analyzed using the

SPSS tool and a multiple regression equation was established. From the research it was concluded that risk management practices under study significantly affected the financial performance of commercial banks with an exception of capital adequacy and risk monitoring which had a negative effect.

Alshatti (2015) conducted a study on the effect of credit risk management on financial performance of the commercial European banks in Europe. The independent variable used in the study was none performing Loans Ratio (NPLR) and Capital Adequacy Ratio (CAR). The study adopted cross-sectional research design. The study used regression analysis to determine and predict the relation between the variables under study. Monetary performance of the European banks was measured by ROA and ROE ratios. The study revealed that there is a connection amongst CAR and ROA and amongst NPLR and ROA of banks. The study concluded that none performing Loans Ratio (NPLR) and Capital Adequacy Ratio (CAR) influenced the profitability performance of commercial European banks in Europe.

Adeusi, Akeke, Adebisi and Oladunjoye (2014) conducted a study on Risk Management and Financial Performance of commercial Banks in Nigeria. The independent variables in the study were liquidity, credit and capital risks. The study adopted causal research design. Data for the study was derived from annual observations of ten Nigeria banks between the periods 2006 to 2009. Profitability of the institutions was in by ratios of ROA and ROE. The study inferred that there is a critical relationship between bank performance and risks administration. The study

also concluded that better risk management in such as management of funds, reducing unnecessary costs such as doubtful advances and obligation value proportion examination brings about higher financial performance. In this way, the analyst held the view that it is of high significance that commercial banks have sufficient risk administration practices.

Mukuna (2013) examined the relevance of credit reference bureaus and its effects on the financial performance of banks in Kenya. The specific objective of the study was; to establish the effect of credit reference bureaus on the financial performance of banks in Kenya. The study adopted a descriptive design and used secondary data in analysis. The target population consisted of 44 banks. The research findings showed that before commissioning of credit reference bureaus the semi-annual financial performance of banks was fairly constant. However, the financial performance increased slightly with commencement of credit reference bureaus. The concluded that consumers and lenders find the credit reference bureaus useful in the financial industry in Kenya which will lead to a bigger credit market, lower default and interest rates, improved profitability for the financial institutions, increase price competitiveness of credit facilities, instill good credit behavior among lenders, improve pool of borrowers, expansion of lending and help improve access to credit in Kenya.

A study by Gitahi (2013) on the effect of credit reference bureaus on the level of non-performing loans in the commercial banks in Kenya by analyzing data from financial statements from these banks for a period of six years (2007 – 2012), by

adopting an event study research design and use of regression analysis method. The specific variable under consideration was credit reference bureaus. The target population consisted of all commercial banks in Kenya. The study found that credit reference bureaus have an effect on non-performing loans in that there was an average reduction of 4 percent on the level of non-performing loans, in the years after introduction of credit reference bureaus, that is, 2010 to 2012. The study also concluded that there is an inverse relationship between the number of credit checks done by the credit reference bureaus and the level of non-performing loans.

2.4.5 Inflation

Imbuga (2014) conducted a study on to determine the Effects of inflation as a macroeconomic variable on loan repayment in commercial banks in the Kenyan banking system. The dependent variable under investigation was nonperforming loans while independent variable was inflation. This research adopted a descriptive research design. The study targeted 10 (ten) commercial banks listed at the Nairobi Securities Exchange (NSE) out of a total population of about 48 commercial banks in the financial sector in Kenya. The study used primary data source mainly from published financial statements for a span of five years (2008-2012).

The study used an ordinary least square (OLS) regression equation and tested the values at 5% significance level and found evidence that Inflation was found to be positively and significantly related to credit risk. The study recommends that commercial banks managers employ a more flexible approach to dealing with the macroeconomic factors: such as with inflation, an increase in the loan loss provision

is recommended when there exists high inflation and a decrease in loan loss provision during periods of low inflation rate. The study concluded that reducing balance approach on loan amounts is also recommended while also incorporating a fixed lending rate approach on loans of huge amounts that span a number of years.

Wairimu (2013) conducted a study to determine the effect of credit reference bureaus on the level of non-performing loans in the commercial banks in Kenya. This study adopted longitudinal design which is one in which multiple observations are made over time to establish a trend. The population consisted of all the 44 lending institutions operating in Kenya. Secondary data was used from bank` annual reports, the general business publications, reports from different financial institutions and the central bank's annual supervisory reports. Statistically significant association exists between annual inflation and the cost of borrowing among financial institutions in Kenya.

Interest charged on deposits affect cost borrowing among lending institutions in Kenya. Interests on T-bills also affect the cost of borrowing among lending institutions in Kenya. Statistical association was established between annual CBR and cost of borrowing among lending institutions in Kenya. The study concluded that CRB affects the cost of borrowing among lending institutions in Kenya. Central Bank of Kenya should put in place sound monetary and fiscal policies that stabilize inflationary pressure within the country. This will keep the inflation rates stable and therefore making the cost of credit affordable.

The study also recommends that lending institutions in Kenya should offer affordable interest rates on customer deposits. There should be minimal discrepancies between interest charged on deposits and interest on loans advanced to customers by lending institutions in Kenya. Central Bank of Kenya should supervise and regulate the interest on T-bills charged by lending institutions on short term credit. The study further recommends that the national treasury in connection with the central bank should fully operationalize the credit reference bureau mechanisms. Sound policies ought to be set in place to guide the functioning of the CRB in Kenya.

Nzuve (2016) conducted a study on the impact of macroeconomic variables on financial performance of deposit taking microfinance institutions in Kenya. The specific objectives were to assess the impact of inflation on the financial performance of deposit taking microfinance institutions in Kenya, to ascertain the influence of gross domestic product growth rate on the financial performance of deposit taking MFIs in Kenya, to examine the relationship between exchange rate and financial performance of deposit taking MFIs in Kenya, to determine the impact of national saving rate on the financial performance of deposit taking MFIs and to find out the impact of employment rate on the financial performance of deposit taking MFIs in Kenya.

The study employed the descriptive survey design and a correlation research design. The findings of this study are; there is a negative relationship between inflation rate and financial performance of deposit taking micro finance institutions in all the years studied. There was a positive relationship between gross domestic product and

financial performance of deposit-taking micro finance institutions in all the years studied. There was a positive relationship between exchange rate and financial performance of deposit-taking micro finance institutions in all the years studied. There was a positive relationship between national savings rate and financial performance of deposit-taking micro finance institutions in all the years studied. There was a positive relationship between employment rate and financial performance of deposit-taking micro finance institutions in all the years studied. The study concluded that inflation rate has negative relationship on the financial performance of deposit-taking micro finance institutions in all the years studied.

Miriti (2014) conducted a study to establish the factors influencing financial performance of savings and credit cooperative societies. The study was guided by the following objectives, to establish how loan repayment influence financial performance of SACCOs, to determine how interest rates influence financial performance of SACCOS, to assess how membership enrolment influence financial performance of SACCOs, to establish how duration of loan processing influence financial performance of SACCOS, to identify how management of loan defaulters influence financial performance of SACCOS.

Descriptive research design was used in this study where information was collected without changing the environment. The study established that there is a negative relationship between inflation rate and financial performance of d SACCOs. The study concluded that inflation is a factor beyond the control of the SACCO therefore

the SACCO should look for other ways of controlling its lending rate like trying to minimize other operations cost.

Ngele (2016) conducted a study to establish the effect of interest rate on borrowers' uptake of credit facilities in commercial banks in Kenya. Commercial banks play a vital role of provision of credit facilities to corporate organizations, businesses and individuals. Despite the intervention of Central bank of Kenya, interest rate offered by commercial banks has remained significantly high therefore influencing uptake of credit facilities by potential borrowers. This study employed descriptive statistics and a multiple regression model was used. Secondary data was gathered by a review of existing materials on the topic under study and the Kenyan banks.

The study covered a period between 2005 to 2014 The study findings established interest rates, level of deposits and inflation are significant in the uptake of credit facilities. Interest rates have a significant impact on borrowers' uptake. This result is against the inverse economic relationship between interest rate and credit facilities. Inflation is significant in explaining the variation in the borrower's uptake though the effect is negative. Deposit volume is a significant determinant of borrower's uptake and the relationship is positive which demonstrates the price in elastic demand of loanable funds.

The study concluded that the government should intervene to monitor interest rates and maintain it at reasonable levels. It is evident from the study that potential borrowers uptake of credit facilities is not only determined by the price commercial banks charge for the loans and the advances they offer. These factors could be the

accessibility of credit facilities and the need or purpose that potential borrowers intend to utilize the funds advanced for. If the funds are for investment purposes and the cost of the funds is outweighed by the returns then potential borrowers will go ahead and access credit. If the funds on the other hand are for financial smoothing which must be fulfilled at whatever cost then the price charged by financial institutions will not be of much consideration to potential borrowers.

Cheruiyot, Bichanga and Nyangau (2016) conducted a study to achieve stability, effectiveness, and access to financial services. The purpose of this study was to establish the role of credit reference bureau in financial performances of banks. Objectives of the study were to determine effect of loan risks, loan lending rate, loan delinquency, and loan access on financial performance of banks. The study was carried out at Kericho town. From findings, banks needs to manage credit risk to enable financial performance and realized its objectives, Minimize cash loss, performs better by increasing returns on assets and better financial returns.

The study concluded that credit risks identification, credit scoring mechanism, credit analysis and assessment are good predictors of the model consequently those three indicators used of credit risk management have responded positively with the financial performance of banks in Kenya. The study recommends that the bank's policy recommendations are the key factor of success of financial institutions. The study concluded that credit risks management is a key factor for the success of financial institution operations in Kenya and by extension pillar to financial prosperity and stability. It is therefore important for the Government of Kenya to

develop policy and legal environment that is conducive to association of commercial banks.

2.5 Critique of Literature

Credit reference services from the studies reviewed remains an important tool to financial performance of financial institutions. All these studies found that the existence of credit reference bureau leads to a better credit market, lower default and interest rates, improved profitability, general financial performance and increased competitiveness within the industry. This study will assist lenders who would use CRBs to enhance credit cost, share credit information, reduce moral hazard and risk assessment tool. However, CRBs are new innovative financial instruments which have not been fully utilized and may not be the only alternative to fuel financial performance of deposit-taking SACCOs but when used alongside other better management skills would drastically improve financial performance.

2.6 Research Gap

A critical review of past literature showed that several conceptual and contextual research gaps existed in the effect of credit cost function, information sharing function, moral hazard function and risk assessment function on financial performance. For instance, Gaitho (2013) who explored the effect of credit reference bureaus on credit access in Kenya, researched on the effect of CRBs on NPLs in commercial banks in Kenya, Keitany (2013) who sought to review the relationship between loan default and the financial performance of Savings and Credit Cooperative Societies (SACCOs) in Kenya.

Shisia, Marangu and Omwaro (2014) reviewed an assessment of the contributions of CRB regulations towards mitigating credit risk in Kenya`s banking industry. Kago (2014) investigate the effect of credit reference bureau service on financial performance of deposit taking microfinance institutions in Kenya; Bonaya (2012) sought to investigate the effect of credit information sharing on loan performance as one these factors in the blend; Kiptoo, Wanyoike and Gathogo (2015) sought to assess the influence of cross borrowing on financial performance of Savings and Credit Co-operatives (SACCOs) in Eldama Ravine Sub-County; Ochung (2013) sought to investigate factors affecting loan repayment among customers of commercial Banks in Kenya with specific reference to Barclays Bank of Kenya Limited.

Kwambai and Wandera (2013) sought to examine the effect of credit information sharing on non-performing loans: A case of commercial banks in Kenya; Mukuna (2013) examined the relevance of credit reference bureaus and its effects on the financial performance of banks in Kenya. Taner (2008) carried out a study to investigate the effects of inflation uncertainty on credit markets by using a disequilibrium framework; Klein (2013) did a study to investigate the non-performing loans (NPLs) in Central, Eastern and South-Eastern Europe (CESEE) in the period of 1998 to 2011.

Further, Muhammad, Ammara and Abrar (2012) carried out a study to provide the perception of Pakistani bankers regarding the economic factors causing non-performing loans in the Pakistani banking sector since 2006. These studies have

research gaps which include objective, scope and geographical location gaps. Specifically, there exists an objective gap since this study sought to establish the effects of credit reference bureaus functions on financial performance of deposit taking SACCOs in Kenya. Further, there exists a scope gap since this study focused on licensed deposit taking SACCOs in Kenya.

2.7 Summary

The above chapter reviewed the various theories that explain the independent and dependent variables. The chapter also explored the conceptualization of the independent and the dependent variables by analyzing the relationships between the two set of variables. An empirical review was conducted where past studies both global and local were reviewed in line with the following criteria: title, scope, methodology and a critique from which the research gap was identified.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Research methodology discusses the procedures and methods of the research period. This section is an overall scheme, plan or structure designed to assist the researcher in answering the raised research question. It is a programme to guide the researcher in collecting, analyzing and interpreting observed facts. This chapter provides information on the research methodology that was used in the study. It also addressed the research design especially with respect to the choice of the design. It also discussed the research philosophy that was adopted, population of study, sample and sampling techniques, data collection methods as well as data analysis and data presentation methods that were employed in the study.

3.2 Research Philosophy

This study will use positivism research philosophy. Positivism research philosophy reflects the belief that reality is stable. This reality can be observed and described from an objective view point without necessarily interfering with the phenomenon itself (Eriksson & Kovalainen, 2015). Positivist belief that hypothesis developed from existing theories can be tested by measuring observable social realities, thus positivism is derived from natural sciences. If a research philosophy reflects the principles of positivism then it tends to adopt the philosophical stance of the natural scientists.

Such researchers prefer 'working with an observable social reality and that the end product of such research can be law-like generalizations similar to those produced by the physical and natural scientists (Creswell & Creswell, 2017). Another important component of the positivist approach to research is that the research is undertaken, as far as possible, in a value-free way. The researchers claim to be external to the process of data collection in the sense that there is little that can be done to alter the substance of the data collected.

In addition, this study's approach is based on positivism as it relies on experimental and non-manipulative methods. These ensure that there is a distance between the subjective biases of the researcher and the objective reality of the study. The positivist approach generally involves stating theory, hypothesis generation and testing. Typically, quantitative methods are used. The positivist position is grounded in the theoretical belief that there is an objective reality that can be known to the researcher, if he or she uses the correct methods and applies those methods in a correct manner (Cohen & Crabtree, 2006).

Positivistic thinkers adopt scientific methods and systematize the knowledge generation process with the help of quantification to enhance precision in the description of parameters and the relationship among them (Thomas, Silverman, & Nelson, 2015). Positivism can also be defined as a research approach that is based on the ontological doctrine that reality is independent of the observer and it attempts to measure the variables of a social phenomenon through quantification (Shamsudin, Chauhan & Kura, 2012). Therefore, the rejection of metaphysical inquiry in favour

of science is the most important feature of positivism and is what makes this pholisophy appropriates for this study.

3.3 Research Design

According to Laurel (2011) and Kothari (2008) a research design is the actual configuration and structure the research process is based on. The Research design provides direction on what methodology, type of data collection and type of analysis is required to unambiguously answer the research question. This study adopted a descriptive research design which generally describes the characteristics of a particular situation, event or case. Both quantitative and qualitative research approaches was used.

Descriptive research design was used because it focused on complex analysis to bring out the correlation of variables. This was consistent with Bryman and Bell (2015) who explained that a descriptive design is described as a method of collecting information by administering a questionnaire to a sample of individuals and is appropriate as it answers research questions who, what, where, when and how is the problem. According to Bloomberg, Cooper and Schindler (2011), a descriptive study aims at finding out the what, where and how of a phenomenon. This study is able to generalize the findings to all the SACCOs.

Descriptive studies report summary data such as measures of central tendency including but not limited to the mean, median, mode, deviance from the mean, variation, percentage, and correlation between variables. Descriptive statistics include measures of central tendency, variation and correlation. 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, (Shuttleworth, 2008).

3.4 Target Population

A population has been defined as the total collection of elements about which inferences are made and refers to all possible cases which are of interest for a study. Smith (2004) defined population as the larger collections of all subjects from where a sample is drawn. The target population comprised of 181 registered deposit-taking SACCOs by 31st December 2014 (SASRA, 2014) and the three licensed CRBs in Kenya.

3.5 Sampling Frame

A sampling frame is a list, directory or index of cases from which a sample can be selected. The sampling frame involved a sample of 135 selected from a pool of 181 deposit taking SACCOs registered as at 31st December 2014 (SASRA, 2014). The choice of the licensed deposit taking SACCOs in Kenya was very objective since it was possible to obtain information that is representative of Kenya. In addition, SACCOs form the smaller arm in the financial sector and in most cases deal a larger group of clients from the informal sector as opposed to other financial institutions like banks.

It is not likely that these clients have recorded information about their credit history hence this study has helped unearth whether the credit reference bureaus functions have assisted the SACCOs in terms of financial performance. This study adopted

Yamane (1967) simplified formula to calculate the sample size which provided the number of responses that need to be obtained using the equation:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n = sample size

N = population size

e = the level of precision

1 = Constant

This formula assumes a degree of variability (i.e. proportion) of 0.5, the level of precision of 5% and a confidence level of 95%.

$$n = 181/ 1+ 181(0.05)^2$$

$$= 124.6 \approx 125 \text{ SACCOs}$$

$$n = 125 \text{ SACCOs}$$

Kothari (2008) argued that a 10 unit sample is added to gather for non-response. Therefore, the sample size of the study will be 135 (125+10) Sacco's. Stratified random sampling was used to select the sample under study. Table 3.1 below illustrates the sample size.

Table 3.1: Sample Size

Categories	Population	Sample
Government based DTSs	16	12
Teachers based DTSs	42	31
Farmers based DTSs	58	43
Private institutions based DTSs	42	31
Community based DTSs	23	18
Total	**181**	**135**

Source: SASRA (2014)

3.5.1 Sample Size and Sampling Techniques

Cooper and Schindler (2008) define sampling as selecting a given number of subjects from a defined population as representative of that population. Sampling is a deliberate choice of a number of people who will provide the data from which conclusions will be drawn on larger group which these people represent. The major criterion used when deciding on the sample size is the extent to which the sample size represents the population.

The study used stratified random sampling where the SACCOs were grouped into their respective strata and randomly selected. The SACCOs were grouped into five respective strata of government based, teachers based, farmers based, private institutions based and community based. Sampling was to go on until saturation was achieved, namely no new information was generated Miller and Miller (2015), and thus those SACCOs that were found not registered with CRBs were automatically left out.

According to Adejimi, Oyediran and Ogunsanmi (2010), stratified technique is advantageous as it samples each sub-population (stratum) independently by grouping

members of the population into relatively homogeneous subgroups before sampling. This improves the representativeness of the sample by reducing sampling error. The study sampled135 of the 181 (74.5%) licensed deposit taking SACCOs since these were the only licensed deposit-taking SACCOs by 2014.

Multistage cluster sampling is a synonym for multistage stratified sampling (Garson, 2012), thus was used in this study; the study had the category or form randomly sampled from a population of SACCOs in Kenya to form the primary cluster, then the second stage sampling involved random sampling of licensed deposit taking SACCOs from SACCOs in the selected type to form the secondary cluster and the final third stage did involve a random sample of a top two managers from the licensed deposit taking SACCOs.

3.6 Data Collection Instruments

The study did use primary and secondary data which was largely quantitative and descriptive in nature. Primary data refers to information that a researcher gathers from the field. Data collected from secondary sources was available from the CRBs, published journals, annual reports and financial reports. According to Kothari (2008) primary data refers to information that a researcher gathers from the field while secondary data is data gathered from other sources such as literature review and recorded statements of different institutions. Primary data was obtained from the original sources using questionnaires. This study used a structured questionnaire to collect data on credit access function, information sharing function, consumer protection function, and risk management.

Sutrisna (2009) points out that, questionnaires are appropriate for studies since they collect information that is not directly observable as they inquire about feelings, motivations, attitudes, accomplishments as well as experiences of individuals. In addition, Marshall and Rossman (2010) points out that, questionnaires are appropriate for studies since they collect information that is not directly observable as they inquire about feelings, motivations, attitudes, accomplishments as well as experiences of individuals. Questionnaires have the added advantage of being less costly, using less time as instruments of data collection and useful in obtaining objective data. While the close-ended questions will guide the respondents' answers within the choices given, the open-ended ones will be useful in obtaining a more detailed response essentially in cases where the researcher has no pre-determined options.

3.7 Data Collection Procedure

Leavy (2015) define data collection as the precise, systematic gathering of information relevant to the research sub-problems, using methods such as interviews, participant observations, focus group discussion, narratives and case histories. Some of the questionnaires were self-administered with the help of two research assistants while others were administered via mail. The questionnaires were administered through two methods a drop and pick method and mail survey due to the busy schedules of the respondents.

To enhance the response rate, the study did put into consideration the research ethical issues that include confidentiality and anonymity. This study explained to the

respondents the importance of the study and did seek informed permission prior to the research date. The study assured the respondents of the confidentiality and anonymity of their identities, the respondents were briefed in cases where there were challenging questions; otherwise voluntary participation by respondents was enhanced, the data collection method were freed from emotional harm to respondents and that only respondents competent enough to address the objective were considered.

3.8 Pilot Testing

A pilot is a small scale kind of research projects that collects data from respondents similar to those that will be used in the future research. Pilot test is conducted to detect weaknesses in design and instrumentation and to provide proxy data for selection of a probability sample (Cooper & Schindler, 2011). It assists the research in determining if there are flaws, limitations or other weaknesses within the questionnaire design and allows him or her to make necessary revisions to the questionnaire prior to the implementation of the study. A pilot was meant to test for clarity and understanding of questions to test if the questions would yield as expected. A pilot test is thus conducted in order to test for reliability and validity of the data collection instruments (questionnaire, journals and publications). Validity was enhanced by engaging the study with the relevant experts on whether the data accurately measures CRBs and performance.

Creswell and Creswell (2017), Gall, Gall and Borg, (2007); Castillo (2009) suggest that a Cronbach alpha of 0.7 indicates that the data was reliable. Castillio (2009)

provided the following rules of thumb: >0.9 – Excellent, >0.8 – Good, >0.7 – Acceptable, >0.6 – Questionable, >0.5 – Poor and <0.5 – Unacceptable. The acceptable value of 0.7 was used as a cut–off of reliability for this study. A pilot study was undertaken on 5 percent (7 licensed deposit taking SACCOs which were randomly selected) of the sample population.

The questionnaires were subjected to overall reliability analysis of internal consistency. On the basis of the evaluation, the instruments were adjusted appropriately before subjecting it to the final data collection exercise. Their review comments were used to ensure that content validity was enhanced. Cronbach's alpha can be written as a function of the number of test items and the average inter-correlation among the items. Below, for conceptual purposes, is the formula for the standardized Cronbach's alpha:

$$\alpha = \frac{N \cdot \bar{c}}{\bar{v} + (N-1) \cdot \bar{c}}$$

Here N is equal to the number of items, c-bar is the average inter-item covariance among the items and v-bar equals the average variance. One can see from this formula that if you increase the number of items, you increase Cronbach's alpha.

3.8.1 Reliability of the Instrument

Joppe (2010) defines reliability as the extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability and if the results of a study can be reproduced under a similar

methodology, then the research instrument is considered to be reliable. Reliability is the consistency of a set of measurement items (Cronbach, 1951). Reliability is the consistency of measurement, or the degree to which an instrument measures the same way each time it is used under the same condition with the same subjects. Reliability refers to the repeatability, stability or internal consistency of a questionnaire (Jack & Clarke, 1998). Cronbach's alpha was used to test the reliability of the measures in the questionnaire (Cronbach, 1995). According to Cooper and Schindler (2008), Cronbach's alpha had the most utility for multi-item scales at the interval level of measurement, requires only a single administration and provides a unique, quantitative estimate of the internal consistency of a scale.

3.8.2 Validity of the Research Instrument

Joppe (2010) provides the following explanation of what validity is in quantitative research where validity determines whether the research truly measures that which it was intended to measure or how truthful the research results are. Validity is the accuracy and meaningfulness of inferences, which are based on the research results. Validity exists if the data measure what they are supposed to measure. In order to test and enhance the validity of the questionnaire, seven questionnaires were pilot tested and reviewed with a view to improve validity of the data that was collected (Kothari, 2008).

Validity refers to whether a questionnaire is measuring what it purports to measure (Bryman & Bell, 2015). It describes validity as the degree of congruence between the explanations of the phenomena and the realities of the world. While absolute validity

was difficult to establish, demonstrating the validity of a developing measure was very important in research (Bryman, 2015). This study used both construct validity and content validity. For construct validity, the questionnaire was divided into several sections to ensure that each section assessed information for a specific objective, and also ensured that the same closely ties to the conceptual framework for this study.

To ensure content validity, the questionnaire was subjected to thorough examination by two randomly selected expert opinion views and the supervisors. They were asked to evaluate the statements in the questionnaire for relevance. On the basis of the evaluation, the instrument was adjusted appropriately before subjecting it to the final data collection exercise. Their review comments were used to ensure that content validity is enhanced

3.9 Data Analysis

Burns and Grove (2010) define data analysis as a mechanism for reducing and organizing data to produce findings that require interpretation. According to Hyndman (2008), data processing involves translating the answers on a questionnaire into a form that can be manipulated to produce statistics. After quantitative data was obtained through questionnaires, it was prepared in readiness for analysis through editing, handling blank responses, coding, categorizing and keyed into computer software called statistical package for social sciences (SPSS) for analysis. SPSS offers extensive data handling capacity and numerous statistical routine that can analyze small to large data statistics (Donald, Delno & Tromp, 2006).

The statistics generated included descriptive statistics and inferential statistics. Microsoft excel was used to complement used SPSS software version 20.0 especially in production of diagrams and tables. The study conducted normal distribution test for the dependent variable for normality distribution. The particular descriptive statistics used included frequencies and percentages while the particular inferential statistics included Pearson correlation analysis. Correlation analysis was used to establish either positive or negative relationships between the variables. Simple and multiple regression analysis was conducted to establish the significance of the variables. The following diagnostic tests were conducted prior data regression analysis.

3.9.1 Checks for Multicollinearity

Multicollinearity is usually a situation in which there is a high degree of association between independent variables and dependent variable. Multicollinearity was used to determine whether the predictors in the regression model were moderately or highly correlated to an extent of limiting the research conclusion. The study used large samples to solve the problem as Multicollinearity is not known to exist in large samples. Again those predictors found to be highly correlated were removed. Multicollinearity was tested using variance inflation factor (VIF) in all the analysis and it ranged from 1 to 4 which was not a cause of concern according to Farrar and Glauber (1967) who indicated that where VIF $\geq$ 10 indicate presence of Multi-collinearity

3.9.2 Autocorrelation

The test for autocorrelation was performed to establish whether residuals are correlated across time (autocorrelation). Ordinary Least Squares (OLS) assumptions require that residuals should not be correlated across time and thus the Wooldridge test was adopted in this study. The null hypothesis is that no first order serial /auto correlation exists. Failure to identify and account for serial correlation in a panel model would result into biased standard errors and inefficient parameter estimates.

3.9.3 Heteroscedasticity

Ordinary least squares (OLS) assumption stipulates that the residuals should have a constant variance meaning that they should be Homoskedastic. Heteroscedasticity (that is unequal variance) of error term was checked using the modified Wald test. When the results indicated that the error terms were heteroskedastic, given that the p-value is less than the 5%, this would be a violation of the OLS assumption of constant variance of residuals and thus the presence of Heteroscedasticity was corrected through robust standard errors.

3.9.4 Unit Root Testing

A unit root was tested through the Levine Lin Chun test to establish whether the variables were steady over time or not. In case of unit root test first differencing was done.

3.9.5 Normality Test

Normality test was done to examine whether the dependent variable fits to a linaer model. The normality of data was tested using the Kolmogorov-Smirnov test using the IBM SPSS software. The K-S test values and the results indicated that the null-hypothesis of a normal distribution should not be rejected given that the Kolmogorov-Smirnov p-value was greater than 0.05. This means that the probability is greater than 0.05, and that the data is considered to be normally distributed (Saunders & Thornhill, 2012).

3.9.6 Linearity Test

Linearity Test was conducted to examine whether the relationship between the dependent and independent variables were linear to fit in a linear regression model. The hypotheses testing were conducted using simple regression model and thus were tested per objective as shown below;

Objective1: Effect of borrowing cost function on financial performance;

$Y=\beta_0+\beta_1 X_1+\varepsilon$**………………………………………………Equation3.1**

Where

X_1=Credit Cost Function

Y= Financial Performance

Objective 2: Effect of information sharing function on financial Performance;

$$Y = \beta_0 + \beta_2 X_2 + \varepsilon \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \textbf{Equation 3.2}$$

Where X_2 = Information Sharing Function

Y = Financial Performance

Objective 3: Effect of consumer moral hazard on financial performance;

$$Y = \beta_0 + \beta_3 X_3 + \varepsilon \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \textbf{Equation 3.3}$$

Where X_3 = Moral Hazard Function

Y = Financial Performance

Objective 4: Effect of risk management function on financial performance;

$$Y = \beta_0 + \beta_4 X_4 + \varepsilon \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \textbf{Equation 3.4}$$

Where X_4 = Risk Assessment Function

Y = Financial Performance

β_0 = Constant value of Financial Performance

Therefore, the overall multiple linear regression model is:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon \ldots \ldots \ldots \ldots \ldots \textbf{Equation 3.5}$$

3.9.6 Testing for the Intervening Effect of Inflation

The Baron and Kenny approach in testing for mediation was employed for the purpose of this study. For intervening effect to be considered positive, four

conditions should be fulfilled: One, the independent variable is significantly related to the dependent variable in the absence of the intervening variable.

$$Y = \beta_0 + \beta_1 X + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \textbf{Equation 3.6}$$

Two, the independent variable is significantly related to the intervening variable.

$$M = \beta_0 + \beta_1 X + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \textbf{Equation 3.7}$$

Three, intervening variable is significantly related to the dependent variable.

$$Y = \beta_0 + \beta_1 M + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \textbf{Equation 3.8}$$

Four, when controlling for the effect of the intervening variable on the dependent variable, the effect of the independent variable on the dependent variable is insignificant in the presence of the mediating variable.

$$Y = \beta_0 + \beta_1 X + \beta_1 M \, \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \textbf{Equation 3.9}$$

Where;

Y=Financial performance

X=Credit reference Bureaus

M=Inflation

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSIONS

4.1 Introduction

This chapter represents the findings, results and interpretation of the variables including the response rate, reliability and validity and descriptive statistics. Correlation, multiple regression and simple regression analysis for each variable was performed. The independent variables of the study were borrowing cost function, information sharing function, moral hazard function, risk management function and inflation and how they affect the dependent variable which was financial performance of SACCOs in Kenya.

4.2 Response Rate

The number of questionnaires that were administered was 128 and a total of 110 questionnaires were properly filled and returned but some of the respondents returned the questionnaires half-filled while others did not return them completely despite a lot of follow up. The response rate result is shown in Table 4.1.

Table 4.1: Response Rate

Response	Frequency	Percent
Returned	110	85.9%
Unreturned	18	14.1%
Total	**128**	**100%**

Out of the 128 questionnaires administered 110 were filled and returned representing 85.9 percent. This response rate is considered satisfactory to make conclusions for the study. Bailey (2000) stated that a response rate of 50% is adequate while a response rate greater than 70% is very good. This implies that based on this assertion, the response rate in this case of 85.9% is therefore very good. The data collection procedures used could have attributed to this high response rate. These included use of competent research assistants, pre-notification of respondents and voluntary participation by respondents; drop and pick of questionnaires to allow for ample time to fill; assurance of confidentiality and anonymity and follow up calls to clarify queries from the respondents.

4.3 Reliability and Validity

The study used Cronbach alpha to test for reliability of data. Reliability is the consistency of measurement, or the degree to which an instrument measures the same way each time it is used under the same condition with the same subjects. Kaiser-Mayer-Oklin (KMO) and Bartlett`s tests were also applied to test for validity of the data. Validity is the accuracy and meaningfulness of inferences, which are based on the research results. Validity exists if the data measure what they are supposed to measure.

4.3.1 Reliability Test

Reliability test was conducted to test for data collection instruments' ability to produce consistent and accurate results. Cronbach alpha was used to test for

reliability of data. The acceptance value of 0.70 was used as cut-off of the reliability for the study. Results are presented in table 4.2.

Table 4.2: Reliability Statistics

Variable	Cronbach alpha	Items	Comments
Credit Cost Function	0.764	12	Acceptable
Information Sharing Function	0.783	12	Acceptable
Moral Hazard function	0.801	11	Acceptable
Risk Assessment Function	0.798	11	Acceptable
Inflation	0.757	10	Acceptable

The study findings in table 4.2 indicated that the data instruments were reliability with a Cronbach alpha Value of above 0.70. Castillio (2009) provided the following rules of thumb: >0.9 – Excellent, >0.8 – Good, >0.7 – Acceptable, >0.6 – Questionable, >0.5 – Poor and <0.5 – Unacceptable. The findings indicated that the Cronbach alpha for each of the variables was above the lower limit of acceptability thus reliable with Credit cost function having a coefficient of 0.764; information sharing function 0.783; moral hazard function 0.801; risk assessment function 0.798 and inflation 0.757 as shown in table 4.1.

4.3.2 Validity Test

To test for validity of the study, Kaiser-Mayer-Oklin (KMO) test for sampling adequacy was used while Bartlett's test was used to measure sphericity test on

whether the relationship among variables has been significant or not so as to determine the validity of the responses collected for the problem addressed by the study. A Bartlett's test of sphericity tests the correlation significance thus a value of less than 0.05 implies that the data is valid while KMO value closer to 1 is considered better and a value of 0.6 is a suggested minimum. A factor analysis was done for all the variables and all the data was found to be valid.

Table 4.3: Factor Analysis

Variable	KMO	Bartlett`s	Df	Sig.
Credit Cost Function	0.632	442.792	66	0.000
Information Sharing Function	0.687	628.167	66	0.000
Moral Hazard Function	0.748	484.448	55	0.000
Risk Assessment Function	0.623	689.453	58	0.000
Inflation	0.621	351.085	45	0.000

Results in table 4.3 show that credit cost function based on 12 items, the KMO value of 0.632 is acceptable since had a value of more than 0.5 while the Bartlett test is significant with a p-value of 0.000; information sharing function based on 12 items, the KMO value indicate sampling adequate and the Bartlett's test shows significance of data with a p-value of 0.000. Moral Hazard function based on 11 items, the KMO value indicates adequate sampling and Bartlett's test shows significance of data. Risk assessment function based on 11 items, the KMO test shows sampling adequate and

Bartlett's test indicate significance of data; inflation based on 10 items the KMO test indicate sampling adequacy and Bartlett's test shows significance of data with a p-value of 0.000.

4.4 Demographic Information

The study sought to establish the respondents` views by a general analysis on the category of deposit-taking SACCOs, the number of years the SACCOs were licensed in deposit taking and whether the respondents were aware of the existence of credit reference bureaus. The research targeted 128 SACCOs but only 110 responded. The study established five categories of deposit-taking SACCOs namely government based, teachers based, farmers based, private institutions based and community based.

4.4.1 Categories of Sacco

The respondents were asked to indicate their type of Sacco. The study intended to establish the most common DTSs in Kenya. Results are presented in table 4.4.

Table 4.4: Categories of Sacco

Type of Sacco	Frequency	Percent
Government based	11	10.1
Teachers based	24	21.8
Farmers based	37	33.6
Private institutions based	25	22.7
Community based	13	11.8
Total	**110**	**100**

Table 4.4 show five categories of deposit-taking SACCOs namely government based deposit-taking SACCOs, teachers based, farmers based deposit-taking SACCOs, private institutions based deposit-taking SACCOs and community based deposit-taking SACCOs. Farmers based deposit-taking SACCOs had the largest share of 33.6 percent, Private institutions based SACCOs had 22.7 percent followed by teachers based with 21.8 percent, community based had 11.8 percent while government based had the smallest share of 10.1 percent. This larger share could mean that farmers based SACCOs are the most frequently common DTSs in the country.

4.4.2 Years of Existence

The respondents were asked to indicate the years of existence of their deposit taking SACCOs. The study sought to establish the relationship between firm years of existence and its financial performance. Results are presented in table 4.5.

Table 4.5: Years of Existence

Duration	Frequency	Percent
5-10 years	17	15.5
Above 10 years	93	84.5
Total	**110**	**100**

Table 4.5 shows that 84.5% of the respondents who were the majority indicated that their deposit taking SACCOs has been in existence for over 10 years while only 15.5% indicated that they have been existence for between 5 to10 years. This could mean that SACCOs have provided lending services for many years which is in

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agreement with SASRA (2012) that SACCOs control 39 percent of the total loan accounts in Kenya.

4.4.3 Number of Years the SACCO was licensed in Deposit-taking Business

The respondents were requested to indicate number of years their SACCOs were licensed in Deposit-taking Business. Results are presented in table 4.6.

Table 4.6: Number of Years the SACCO was licensed

	Frequency	Percent
2 to 5 years	79	71.8
More than 5 years	31	28.2
Total	**110**	**100.0**

Results in Table 4.6 shows that majority 71.8 percent of the SACCOs were licensed two to five years ago while 28.2 percent were licensed five and more years ago. This could indicate that many SACCOs were registered after 2010 when the credit reference bureaus started and so the SACCOs were aware of the need to be registered in the credit bureaus to control defaults rate thus improving their financial performance.

4.4.4 Benefits of Credit Reference Bureaus on SACCOs After Registration

Qualitatively, the respondents were asked to indicate benefits their SACCOs have received after it was registered by Credit Reference Bureaus (CRBs). Majority of the respondents indicated that CRBs have helped SACCOs improve their financial

performance since they check on non-performing loans. They also ensure that their products (loans) are priced reasonably for less risky customers and vice versa for a more risky customer whose with a past default history on loans taken. Further, some of the respondent indicated that CRB have facilitated information flow between lenders and borrowers.

This information is used by parties as a tool to aid in the appraisal of their credit worthiness leading to informed decisions. They further indicated that credit reference bureau have helped their firms to lend to lend to less riskier clients. The credit bureaus have also reduced the borrowing cost by forcing creditors to be more competitive for good borrowers. Those lower costs for good credit risks motivate those borrowers to be more careful with repayment. The respondents further indicated that credit bureaus have helped reduced the moral hazard by developing a credit culture where they operate as borrowers become aware that credit market becomes aware of their credit history and rewards or punishes them accordingly.

Finally, respondents indicated that CRBs provides reliable and inexpensive system to exchange information on the character and ability to pay of borrowers enhancing credit access. They further indicated that CRB has helped reduce cases of multiple borrowing, over-indebtedness and loan defaults. Credit bureaus have enabled SACCOs in the provision of credit reports with information that is relevant, complete, accurate and recent to assist in creditor in decision making.

4.5 Descriptive Statistics

The independent variables under the study were credit cost function, information sharing function, moral hazard function, risk assessment function and inflation; and how they affect the independent variable which was financial performance of SACCOs.

4.5.1 Credit Cost Function

In the first objective, the study sought to assess the effect of credit cost function on the financial performance of SACCOs. Results were presented in Table 4.7.

Table 4.7: Credit Cost Function

Statement	No idea	Strongly disagree	Disagree	Agree	Strongly Agree	Mean	Std. Dev
Credit reference bureaus help reduce borrowing cost in our SACCO	6.4%	5.5%	10.0%	33.6%	44.5%	4.05	1.16
Credit reference bureaus have led to increase in the volume of both secured and unsecured loans in our SACCO	1.8%	8.2%	6.4%	34.5%	49.1%	4.21	1.01
Credit reference bureaus have led to timeliness and accuracy for loans in our SACCO	0.9%	12.7%	10.0%	33.6%	42.7%	4.05	1.06
CRBs have led to increase in the volume of good loan in our SACCO	3.6%	2.7%	10.0%	38.2%	45.5%	4.19	0.98
Credit reference bureaus have reduced	0.9%	9.1%	0.1%	42.7%	46.4%	4.32	1.13

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cases of Non-performing loans in our SACCO						
Credit reference bureaus help members remove fear for access of credit in our SACCO	2.7%	4.5%	4.5%	46.4%	41.8%	4.20	0.93
Credit reference bureaus help reduce access to credit to unworthy borrowers in our SACCO	2.7%	4.5%	7.3%	22.7%	62.7%	4.38	1.00
Credit reference bureaus have enhanced access of personal properties to members in our SACCO	4.5%	8.2%	5.5%	38.2%	43.6%	4.08	1.11
Credit reference bureaus have led to conducive environment for credit transactions in our SACCO	2.7%	2.7%	12.7%	36.4%	45.5%	4.19	0.95
Credit reference bureaus have led to improved standards of living of the members of the SACCO.	0.0%	6.4%	3.6%	42.7%	47.3%	4.31	0.82
Credit reference bureaus have led to reduction in liquidity problems in our SACCO.	2.7%	7.3%	5.5%	37.3%	47.3%	4.19	1.02
Credit reference bureaus have led to increase in total assets in our SACCO	5.5%	3.6%	11.8%	37.3%	41.8%	4.06	1.09
Average						**4.19**	**1.02**

Results in Table 4.7 shows that 78.1 percent agreed that CRBs help reduce borrowing cost thus resulting to increased credit access and income in form of interest charged from the loans granted agreeing with Triki and Gajigo (2012) who found that the presence of public credit registers is associated with high access to finance. Eighty three point six (83.6) percent of the respondents agree that credit reference bureaus have led to increase in the volume of both secured and unsecured loans. This is in agreement with Jagongo & Kerage (2015) who found out that with sfficient credit informaion the volume of loans significantly increase.

Seventy six point thee (76.3) percent agree that credit reference bureaus have led to timeliness and accuracy for loans. Chakazamba, et al., (2013) found that after the introduction of credit registries time taken in lending decisions reduced otherwise loan applicants took a lot of time before they could get responses. The findings indicate that 83.7 percent agreed that credit reference bureaus have led to increase in the volume of good loan in the SACCOs. The respondents indicate that 89.1 percent agreed that credit reference bureaus have reduced cases of Non-performing loans.

Eighty eight point two (88.2) percent agree that credit reference bureaus help members remove fear for access of credit and also for lenders no longer fear to get a negative selection of applicants since their competitor has already picked all cherries which is in agreement with (Boyd & Hakenes, 2013). Eight five point four (85.4) percent agreed that credit reference bureaus help reduce access to credit to unworthy borrower agreeing with Jappelli and Pagano (2005) who argued that information

sharing gives lenders the information about the characteristics and indebtedness of borrowers.

The findings show 81.8 percent agreed that credit reference bureaus have enhanced access of personal properties to members. Eighty one point nine (81.9) percent agreed that credit reference bureaus have led to conducive environment for credit transactions, an indication that there is fairly transparence in the credit transactions. On the other hand, 90 percent agreed that credit reference bureaus have led to improved standards of living of the members; 84.6 percent agreed that credit reference bureaus have led to reduction in liquidity problems since the savings from members boost the liquidity levels.

Seventy nine point one (79.1) percent agreed that credit reference bureaus have led to increase in total assets because the contributions from members are reinvested in income generating projects. Using a five-point scale likert mean, the overall mean of the responses was 4.19 which indicates that majority of the respondents agreed to the statement of the questionnaire. Additionally, the standard deviation of 1.02 indicates that the responses were varied.

4.5.2 Information Sharing Function

The second objective of the study sought to assess the effect of Information Sharing Function on the financial performance of SACCOs. Results were presented in Table 4.8.

Table 4.8: Information Sharing Function

Statement	No idea	Strongly disagreed	Disagree	Agree	Strongly Agree	Mean	Std. Dev.
Credit reference bureaus have led to share of negative credit reports on in our SACCO	2.7%	0.7%	0.5%	44%	52.0%	4.5	0.8
Credit reference bureaus have led to share of positive credit reports on in our SACCO	3.6%	2.7%	3.6%	41.8%	48.2%	4.3	0.9
The listing of negative credit information for five years has reduced defaults in our SACCO	5.5%	4.5%	5.5%	38.2%	46.4%	4.2	1.1
Credit reference bureaus have led to improved default rate of borrowers in our SACCO	6.4%	1.8%	10.0%	30.9%	50.9%	4.2	1.1
Credit reference bureaus have led to improved lenders response rate on credit lending in our SACCO	6.4%	3.6%	3.6%	41.8%	44.5%	4.2	1.1
Credit reference bureaus information disclosed is sufficient in making credit decisions regarding good or bad credit ratings in our SACCO	2.7%	3.6%	17.3%	20.9%	55.5%	4.2	1.0
Credit reference bureaus have led increase in total deposits in form of savings in our SACCO	2.7%	5.5%	8.2%	26.4%	57.3%	4.3	1.0
Credit reference bureaus help access of credit information from other countries	20.%	0.0%	3.6%	18.2%	58.2%	4.0	1.6
Credit reference bureaus have reduced privacy of borrowers credit history in our SACCO	5.5%	0.0%	4.5%	29.1%	60.9%	4.4	1.0

Credit reference bureaus have led to reduction of multi-loaning practices for borrowers in our SACCO	2.7%	0.0%	10.0%	33.6%	53.6%	4.4	0.9
Credit reference bureaus have led quality management of credit in our Sacco	0.9%	1.8%	3.6%	51.8%	41.8%	4.3	0.7
Credit reference bureaus have led to improved character of borrowers in our Sacco	1.8%	3.6%	10.0%	43.6%	40.9%	4.2	0.9
Average						**4.2**	**1.0**

Results revealed that 96 percent agree that Credit reference bureaus have led to share of negative credit reports; 90 percent agreed that Credit reference bureaus have led to share of positive credit reports. This is in agreement with Lin, Ma, and Song (2012) who stated that Credit is more abundant when borrowers and lenders benefit from credit information institutions. The findings reveal 84.6 percent agree that the listing of negative credit information for five years has reduced defaults. Nganga (2011) study on stakeholder perception of credit reference bureau service in Kenya credit market reveals that many of the borrowers do not want to be listed in CRBs and would try as much as possible to service their credit facilities so as to protect their reputation.

Credit reference bureaus have led to improved default rate of borrowers as 81.8 percent agreed to the statement; 86.3 agreed that credit reference bureaus have led to improved lenders response rate on credit lending thus rapid growth can be enhanced by active participation from lenders and borrowers (Yang, 2015). 76.4 percent

indicate that credit reference bureaus information disclosed is sufficient in making credit decisions regarding good or bad credit ratings. This is in support that to be effective, credit bureaus gather information on all borrowers from as many of all available creditor sources, including financial institutions of all types, credit card companies, utilities, department and specialty stores; and other commercial, distribution, industrial, and service firms under reciprocity agreements (Berger & Frame, 2005).

Eight three point seven (83.7) percent agreed that Credit reference bureaus have led to increase in total deposits in form of savings in our SACCO This supports Houston, Lin, Lin, and Ma (2010) who found both increase in total deposits in form of savings in our SACCO credit rights and information sharing is associated with faster output growth. Seventy six point four 76.4 percent agreed that Credit reference bureaus access of credit information from other countries as revealed by Shisia, Marangu, and Omwario (2014) who argue that CRB firms in Kenya should link with other regional CRB firms in other countries in order to monitor loan defaulters who move from one region to another. Ninety (90) percent agree that Credit reference bureaus have reduced privacy of borrowers' credit history.

Eighty seven point two (87.2) percent agreed that Credit reference bureaus have led to reduction of multi-loaning practices for borrowers; 93.6 agreed that Credit reference bureaus have led to quality management of credit; 84.5 percent strongly agreed that credit reference bureaus have led to improved character of borrowers supporting Mwiya (2010) that the moral character of the borrower is the most

important single issue in credit evaluation thus none of the borrowers would wish to evaluated as unworthy credit applicant.

Using a five-point scale likert mean, the overall mean of the responses was 4.2 which indicates that majority of the respondents agreed to the statement of the questionnaire. Additionally, the standard deviation of 1.0 indicates that the responses were varied.

4.5.3 Moral Hazard Function

The third objective of the study was to establish the effect of moral hazard function on financial performance of SACCOs in Kenya. Results are presented in table 4.9.

Table 4.9: Moral Hazard Function

Statement	No idea	Strongly disagree	Disagree	Agree	Strongly Agree	Mean	Std. Dev.
Credit reference bureaus have led to good credit culture` in our SACCO	4.50%	7.30%	1.80%	34.5%	51.80%	4.22	1.095
Credit reference bureaus publish all assumptions & methods relevant to decision-making in loans issuance in our Sacco	2.70%	4.50%	0.90%	34.5%	57.30%	4.39	0.93
Credit reference bureaus have led enhanced loan delinquency in our Sacco	4.50%	1.80%	4.50%	50.0%	39.10%	4.17	0.947
Credit reference bureaus reduce political influence	5.50%	4.50%	18.2%	29.10%	42.70%	3.99	1.137

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on decisions you make on loans in our Sacco							
Credit reference bureaus have reduced liability status	1.80%	6.40%	3.60%	48.2%	40.00%	4.18	0.911
Credit reference bureaus have led to reduced bad "culture" on loan repayment	0.00%	0.00%	2.70%	45.50%	51.80%	4.49	0.554
Credit reference bureaus have enhanced turnover for loan applications in our SACCO	3.60%	0.00%	0.00%	43.60%	52.70%	4.42	0.828
Credit reference bureaus have led to assumption that borrowing is a right regardless of capabilities	7.30%	1.80%	11.80%	16.40%	62.70%	4.25	1.192
Credit reference bureaus have reduces undesired monopolistic actions of lenders	1.80%	6.40%	5.50%	27.30%	59.10%	4.35	0.973
Credit reference bureaus have led to increased customers rights in our SACCO.	1.80%	1.80%	9.10%	43.60%	43.60%	4.25	0.84
Credit reference bureaus have led to adequate loaning in our SACCO	1.80%	9.10%	4.50%	33.60%	50.90%	4.23	1.02
Average						**4.3**	**0.9**

Results in table 4.9 indicated that 86.3 percent of the respondents agreed that credit reference bureaus have led to good credit culture while 91.8 percent strongly agree that Credit reference bureaus publish all assumptions and methods relevant to decision-making in loans issuance; 81.9 percent agreed that Credit reference bureaus have led to enhanced loan delinquency; 71.8 percent agreed that Credit reference bureaus reduce political influence on decisions you make on loans. 88.2 percent agreed that Credit reference bureaus have reduced liability status of SACCOs. Majority (97.3 percent) agreed that Credit reference bureaus have led to reduced bad "culture" on loan repayment as Anderson (2007) found that with CRBs a culture of financial discipline will be installed since customers know that they will be monitored.

Ninety six point three (96.3) percent agreed that Credit reference bureaus enhanced turnover for loan applications. Seventy nine point one (79.1) percent agreed that Credit reference bureaus have led to assumption that borrowing is a right regardless of capabilities. The respondents indicate 86.4 percent agreed that Credit reference bureaus have reduces undesired monopolistic actions of lenders. Kohansal and Mansoori (2009) found that monopoly power in credit markets often exercised by informal lenders, large transaction costs incurred by borrowers in applying for loans and moral hazard problems are the main causes of defaults.

Eighty seven point two (87.2) percent agreed that Credit reference bureaus have led to increased customers' rights. Further, 84.5 percent agreed that Credit reference bureaus have led to adequate loaning. This is in agreement with Kioko (2014) that if

loans increase they signal good performance. Using a five-point scale likert mean, the overall mean of the responses was 4.3 which indicates that majority of the respondents agreed to the statement of the questionnaire. Additionally, the standard deviation of 0.9 indicates that the responses were varied.

4.5.4 Risk Assessment Function

The fourth objective of the study was to establish effect of risk assessment function on financial performance of SACCOs in Kenya. Results are presented in table 4.10.

Table 4.10: Risk Assessment Function

Statement	No idea	Strongly disagree	Disagree	Agree	Strongly Agree	Mean	Std. Dev
CRBs have improved credit risk assessment in our SACCO	3.6%	7.30%	7.3%	33.6%	48.20%	4.15	1.077
CRBs lead credit risk identification in our SACCO	1.8%	0.90%	1.8%	40.0%	55.50%	4.46	0.75
CRBs enhance prevention of multi-loaning in our SACCO	0.0%	0.90%	4.5%	41.8%	52.70%	4.46	0.631
CRBs have enhanced detection of loan frauds in our SACCO	0.0%	0.90%	6.4%	27.3%	65.50%	4.57	0.656
CRBs lead to credit monitoring of borrowers characteristics in loan repayment in our SACCO	0.0%	2.70%	0.0%	49.1%	48.20%	4.43	0.642
CRBs use credit information as	2.7%	7.30%	1.8%	37.3%	50.90%	4.26	1.002

evidence in conflict resolutions							
CRBs help establish the score of credit applicants	4.5%	4.50%	3.6%	28.2%	59.10%	4.33	1.059
CRBs help lenders fix maximum loan to a borrower in our SACCO	2.7%	1.80%	6.4%	45.5%	43.60%	4.25	0.872
CRBs help lenders fix minimum to a borrower in our SACCO	2.7%	3.60%	7.3%	42.7%	43.60%	4.21	0.93
CRBs have enhanced controls on loans provision in our SACCO	4.5%	1.80%	3.6%	50.0%	40.00%	4.19	0.943
CRBs enhance relaxation of private Act enjoyed by borrowers.	0.0%	3.60%	0.0%	50.9%	45.50%	4.38	0.677
Average						**4.3**	**0.8**

The study sought to establish the effect of risk assessment function on the financial performance of SACCOs where Credit reference bureaus have led to improved credit risk assessment; 81.8 percent agreed that Credit reference bureaus have led to credit risk identification established that CRB has enhanced effective risk identification or monitoring and microcredit extension which is in agreement with Gaitho (2013) who established that CRB has enhanced effective risk identification or monitoring and microcredit extension; 94.5 agreed that credit reference bureaus have enhanced prevention of multi-loaning. This is in agreement with McIntosh and Wydick (2007) that borrowers can take separate loan contracts from different lenders where there is information asymmetry.

Ninety two point eight (92.8) percent agreed that credit reference bureaus enhanced detection of frauds. Ninety seven point three (97.3) percent agreed that CRBs have improved credit monitoring of borrowers characteristics in loan repayment. Eighty eight point two (88.2) agreed that credit reference bureaus have led to use of credit information in conflict resolution. Eighty seven point three (87.3) percent agreed that credit reference bureaus help establish the score of credit applicant In any emerging countries information about a business or individuals credit track record is simply unavailable and as a result borrowing money becomes difficult (Haynes, 2012).

Eighty nine point one (89.1) percent agreed that credit reference bureaus help fix maximum loan to be granted to a borrower. Eighty six point three (86.3) percent agreed that credit reference bureaus help lender fix minimum loan to be granted to a borrower. This is in support with Klein (2013) that there is merit to strengthen supervision to prevent a sharp buildup of NPLs in future, avoid excessive lending and maintain high credit standards. Ninety (90) percent agreed that credit reference bureaus have enhanced controls on loan provision. Ninety six point four (96.40 percent agreed that credit reference bureaus have enhanced relaxation of private Act previously enjoyed by borrowers.

Using a five-point scale likert mean, the overall mean of the responses was 4.3 which indicates that majority of the respondents agreed to the statement of the questionnaire. Additionally, the standard deviation of 0.8 indicates that the responses were varied.

4.5.5 Inflation Trend Analysis

The fifth objective of the study was to establish the intervening effect of inflation on the relationship between credit reference bureaus functions and financial performance of SACCOs in Kenya. Figure 4.1 indicates the general trend for inflation for the years 2010 to 2014. The trend line shows that rate of inflation was high in the year 2011. The rate of inflation was low at 4.0 for the year 2010. The trend line shows that inflation rate has decreased gradually since the year 2011 but rose again in the year 2013 and 2014.
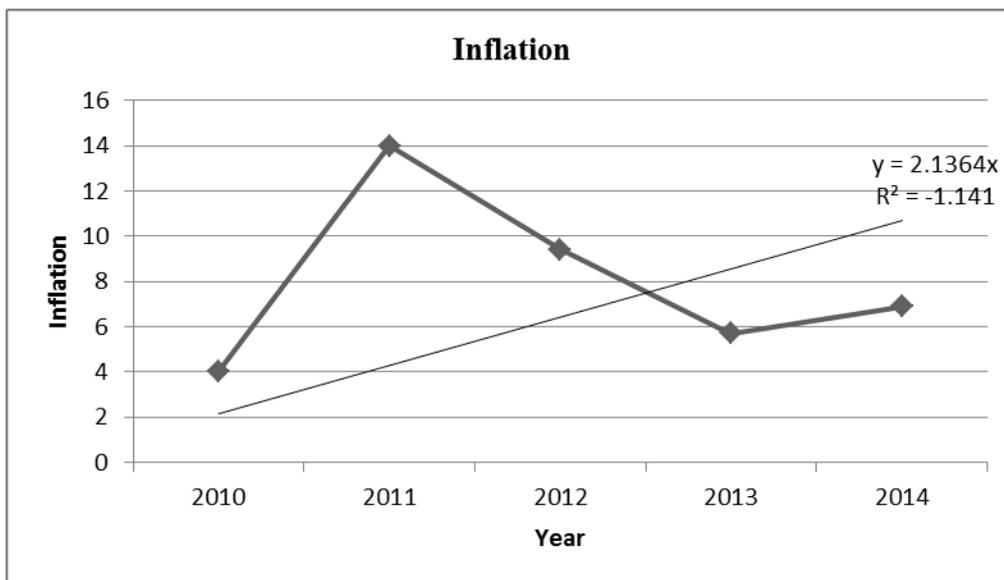
Figure 4.1 Inflation

4.6 Financial Performance

The financial performance of SACCOs was measured in terms of return on assets, asset quality and profitability. The trend analysis was conducted to shows the financial growth of SACCOs from the year 2010 to the year 2014.

4.6.1 Return on Assets (ROA)

Figure 4.2 indicates the general trend return on assets for the years 2010 to 2014. The trend line shows that return on assets has been increasing gradually from the year 2010 to 2014. The trend line shows that the return on assets has been increasing over the years.
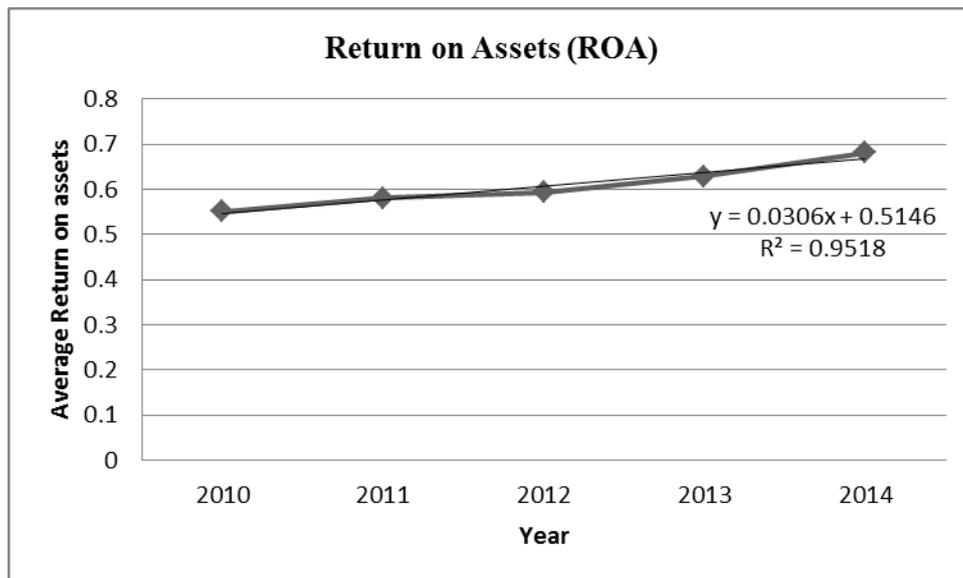
Figure 4.2 Average return on assets

4.6.2 Asset Quality

Figure 4.3 indicates the general trend of asset quality for the years 2010 to 2014. The trend line shows that asset quality has been increasing gradually from the year 2010

to 2014. The trend line shows that the asset quality has been increasing over the years.
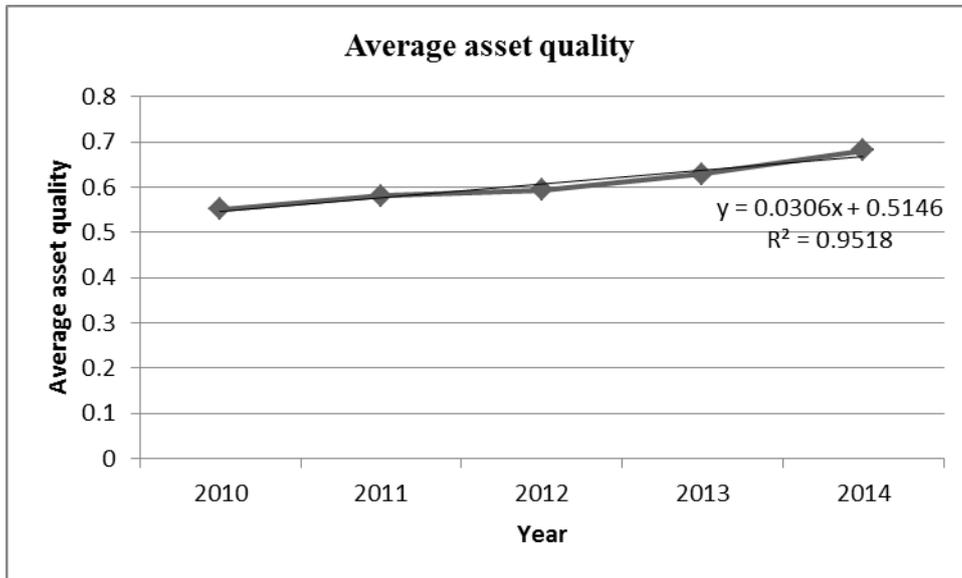
Figure 4.3 Average Asset Quality

4.6.3 Profitability

Figure 4.4 indicates the general trend of profitability for the years 2010 to 2014. The trend line shows that profitability has been increasing steadily from the year 2010 to 2014. The trend line shows that the profitability has been increasing over the years
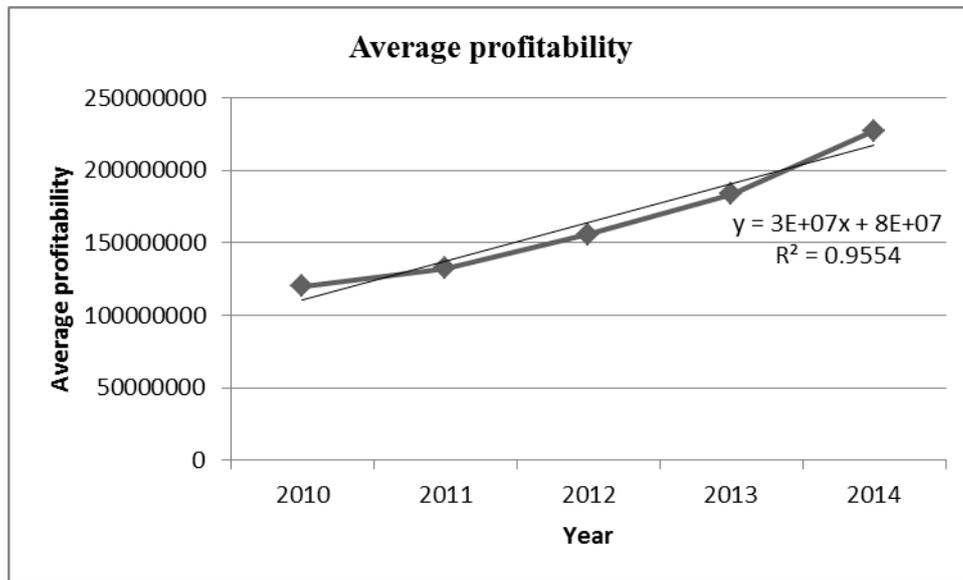
Figure 4.4 Average Profitability

4.7 Correlation Analysis

Correlation analysis is the statistical tool that can be utilized to determine the level of association between two variables (Levin & Rubin, 1998). This analysis can be seen as the initial step in statistical modeling to determine the association between the dependent and independent variables. Prior to carrying out a multiple regression analysis, a correlation matrix was developed to analyze the strength of association between the independent variables as this would assist in developing a prediction multiple model which will reveal no relationship in cases where the value of the correlation is 0. On the other hand, a correlation of ± 1.0 means there is a perfect positive or negative relationship (Hair *et al*., 2010). Also, the relationship is considered small when $r = \pm 0.1$ to ± 0.29, while the relationship is considered medium when $r = \pm 0.30$ to ± 0.49, and when r is ± 0.50 and above, the relationship can be considered strong.

Table 4.11: Correlation Matrix

		Financial performance	Credit cost functions	Information sharing function	Moral hazard function	Risk assessment function
Mean ROA	Pearson Correlation	1.000				
	Sig. (2-tailed)					
Credit cost functions	Pearson Correlation	.539**	1.000			
	Sig. (2-tailed)	0.000				
Information sharing function	Pearson Correlation	.577**	.494**	1.000		
	Sig. (2-tailed)	0.000	0.000			
Moral hazard function	Pearson Correlation	.510**	.228*	.234*	1.000	
	Sig. (2-tailed)	0.000	0.017	0.014		
Risk assessment function	Pearson Correlation	.523**	.259**	.423**	.233*	1.000
	Sig. (2-tailed)	0.000	0.006	0.00	0.014	

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Results in Table 4.11 indicated that there was a positive association of 0.539 between credit cost function and financial performance (r=0.539). The results showed that credit cost function was significant on financial performance since the p-value is less than 0.05 (p=0.000). This is in agreement with studies of Gaitho (2013) on credit

cost; Jappelli and Pagano (2005) on information sharing; Boyd and Hakenes (2013) on moral hazard; Laeven and Revine (2011) on risk assessment and Nadeem (2013 on inflation.

Triki and Gajigo (2012) in their study on credit bureaus and access of finance found a significance relationship since the volume of loans increased after the introduction of credit bureaus. According to Sambasivam and Biruk (2013) the deposit and loan portfolio in SACCOs amounts to about 34 percent of national savings and about 24 percent of outstanding domestic credit (as cited in CBK Report, 2008). It is undeniable fact that member's loan demand is very high and incompatible compared with the availability of funds. This follows that SACCOs face a risks arising from liquidity shortage and this has been a major cause of failure of many financial cooperatives societies.

Results in Table 4.11 indicated that there was a positive relationship of 0.577 between information sharing function and financial performance (r=0.577). The results showed that information sharing function was significant on financial performance since the p-value is less than 0.05 (p=0.000). The results are in agreement with Jagongo and Kerage (2015) who studied on credit information sharing and performance of commercial banks and found a significan relationship between NPLs and CIS. They found that the decline in gross NPLs was attributable monitoring standard that was brought about by enhanced ctredit information sharing. Kioko (2014) investigated the role of credit reference bureau on performance of licensed deposit taking SACCOs in Kenya found a significant relation but

recommended for policy formulation. Houston, Lin, Lin and Ma (2010) found both credit rights and information sharing is associated with faster output growth.

Further results indicated that there was a positive relationship of 0.510 between moral hazard function and financial performance (r=0.510). Moral Hazard function was found to be significant on financial performance since the p-value is less than 0.05 (p=0.000). Also Djankov, McLeish and Shleifer (2007) found that creditor rights are relatively more important to lending. However, Acharya, Amihud and Litov (2011) found that strong credit rights reduce the value of cooperation and increases risk of failure and the likelihood of crisis. Information obtained from CRBs by financial institutions is used to ensure safety and soundness; and effective financial services. The shared information to borrowers restricts lending by financial institutions to only those customers they know (IMF, 2013). CRBs have the right to list borrowers for a period of five years if they default their loans so that they are restricted to be granted any further loans.

With little credit rights lenders compete hard in order to be the first lender to attract a borrower through loan pricing and so borrowers cannot avoid the "lemon effect" problem they would otherwise face. CRBs detail the manner in which data should be collected and handled by the CRBs to guarantee borrowers confidentiality. Better credit rights or information sharing lead to more economic growth (Boyd & Hakenes, 2013).

Finally, results in Table 4.11 indicated that there was a positive relationship of 0.523 between risk assessment function and financial performance (r=0.523). The results

showed that risk assessment function was significant on financial performance since the p-value is less than 0.05 (p=0.000). This is in agreement with Haneef, et al., (2012) in their study on Impact of Risk Management on Non-Performing Loans and Profitability of Banking Sector of Pakistan found that risk management is significant on profitability of banking. The Risk Management Benchmarking Survey of the Federation of European Risk Management Association (FERMA) of 2012 revealed that 74% of the twenty countries with mature or advanced risk management practices showed the strongest level of growth in terms of Earnings Before interest, Taxes, Depreciation, and Amortization (EBITDA) (Luzzi, 2012).

4.8 Diagnostic Tests

The study conducted various tests and these tests included test for normality, test for multicollinearity, unit root test, heteroscedasticity test and test for autocorrelation

4.8.1 Test for Normality

The study sought to establish whether financial performance is normally distributed using the graphical method approach.
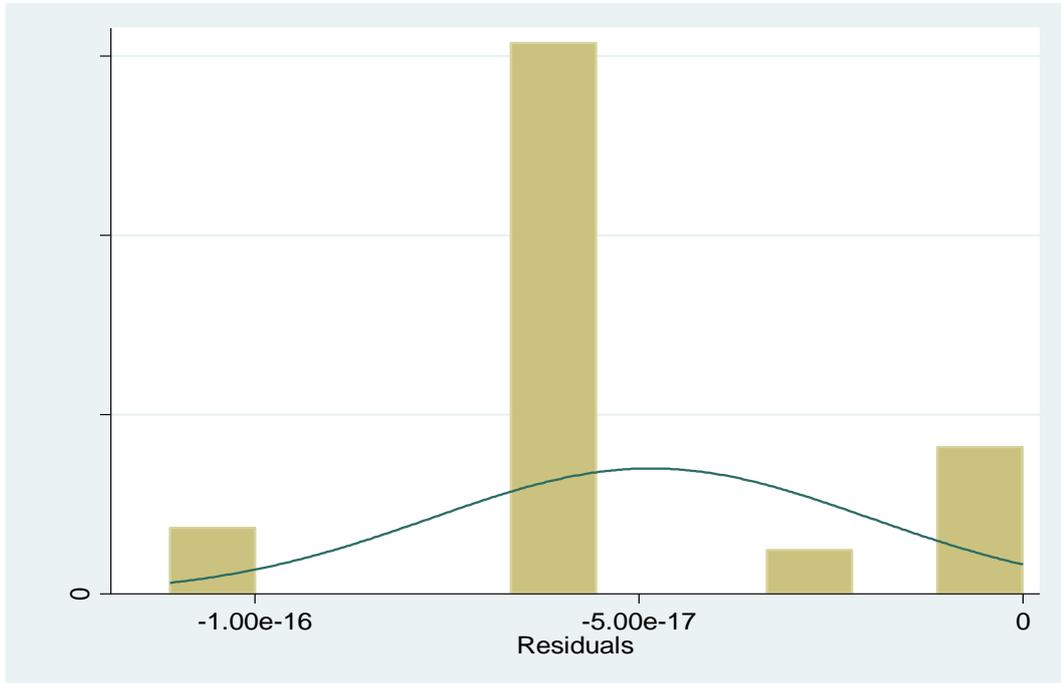
Figure 4.5 Test for Normality

The results showed a bell-shaped indicating that the residuals are normally distributed thus financial performance is normally distributed as shown in the Figure 4.5.

Table 4.12: Test for Normal Distribution

		Financial Performance
N		109
Normal Parameters[a]	Mean	19.4577
	Std. Deviation	2.32697
Most Extreme Differences	Absolute	.098
	Positive	.059
	Negative	-.098
Kolmogorov-Smirnov Z		1.022
Asymp. Sig. (2-tailed)		.247
a. Test distribution is Normal.		

The results for the distribution test for normality has a value of 0.247 which is less than 0.05 implying that financial performance is normally distributed as shown in table 4.12. This is in agreement with the statistical rule that for one to fit a linear model to some data, the dependent variable has to be normally distributed.

4.8.2 Test for Multicollinearity

Multicollinearity exists when two or more of the predictors in a regression model are moderately or highly correlated thereby limiting the research conclusions to be drawn. According to Zainodin, Noraini, and Yap (2011), multicollinearity refers to the presence of correlations between the predictor variables. In severe cases of perfect correlations between predictor variables, multicollinearity can imply that a unique least squares solution to a regression analysis cannot be computed (Field, 2009). Multicollinearity inflates the standard errors and confidence intervals leading

to unstable estimates of the coefficients for individual predictors. Multicollinearity was assessed in this study using the Variance Inflation Factor (VIF) as shown in table 4.13.

Table 4.13: Variance Inflation Factor

	Collinearity Statistics VIF
Credit cost function	1.058
Information sharing function	1.053
Moral hazard function	1.056
Risk assessment function	1.051

Results were presented in table 4.13. A variance inflation factor test was conducted to test for multicolinearity of the predictors and a value less than 10 is acceptable. Credit cost function had V.I.F value of 1.058 which is less than 10 implying there is no multicolineerty in credit cost function. Under information sharing function a V.I.F value of 1.053 means that there is no multicolinearity in information sharing function since it is less than 10. The results indicated that moral hazard function had a V.I.F value of 1.056 implying there is no multicolinearity in moral hazard function. Additionally, risk assessment function had a V.I.F value of 1.051 implying no multicolinearity in risk assessment function is acceptable since it is less than 10. This suggests that the predictors are not highly correlated.

4.8.3 Unit Root Test (Stationary Test)

Stationary means that the marginal distribution of the process does not change and its mean level and variance stay steady over time otherwise any violation would mean non-stationarity. Most economic variables are usually non-stationary in nature and

prior to running a regression analysis. Unit root tests were thus conducted using the Levin-Lin-Chu (LLC) test to establish whether the variables were stationary or non-stationary. The purpose of this is to avoid spurious regression results being obtained by using non-stationary series. The null hypothesis was that data is not stationary while the alternative hypothesis was data is stationary.

Table 4.14: Unit Root

Variable name	t-	P-value	Comment
Credit cost function	-3.3960	0.003	Stationary
Information sharing function	-3.2408	0.006	Stationary
Moral hazard function	-5.1820	0.000	Stationary
Risk assessment function	-5.3430	0.000	Stationary
Inflation	-5.7953	0.000	Stationary
Financial performance	-5.6498	0.000	Stationary

Results in Table 4.14 indicated that all variables have a p-value of 0.003, 0.006, 0.000, 0.000, 0.000 for credit cost function, information sharing function, moral hazard function, risk assessment function, inflation and financial performance respectively which is less than 0.05 implying that data is stationary (i.e. absence of unit roots) at 5% level of significance.

4.8.4 Heteroscedasticity Test

Heteroscedasticity refers to circumstance in which the variability of a variable is unequal across the range of values of a second variable that predicts it. In this case, the variability of the dependent variable widens or narrows as the independent

variable increases thus the inverse is Homoscedastic within cross-sectional units. However, its variance may differ across units: a condition known as group wise Heteroscedasticity. The Breuch-Pagan test tests for the variability of the model residuals. The null hypothesis was that data has constant variance while the alternative hypothesis was that data has non-constant variance.

Table 4.15: Heteroscedasticity Results

Test Statistic	P-Value
7.87	0.0510
H_o : Constant Variance	

The results in Table 4.15 indicate that the null hypothesis of Heteroscedastic error terms is not rejected as supported by a p-value of 0.0510 which is greater than 0.05 implying there is no Heteroscedasticity. This test suggests that the data is homoscedastic.

4.8.5 Test for Autocorrelation

To establish whether or not the residuals are serially correlated over time, Breusch-Godfrey test for autocorrelation was conducted. The null hypothesis is that no first order serial or auto correlation exists when the p-value is greater than 0.05.

Table 4.16:Test for Autocorrelation

Test Statistic	P-Value
17.433	0.823

H_o : No Serial Correlation

From the Table 4.16 the null hypothesis of no serial correlation was not rejected given that the p-value was greater than 0.05 (p-value = 0.823) implying that there is no autocorrelation thus residuals are serially correlated.

4.8.6 Linearity Test

The linearity test indicates the relationship between dependent and independent variables. For linear regression to be conducted, the relationship between the independent and dependent variables needs to be linear. The linearity assumption can best be tested with scatter plots and graphs. Figure 4.6 shows the linearity test for the study.
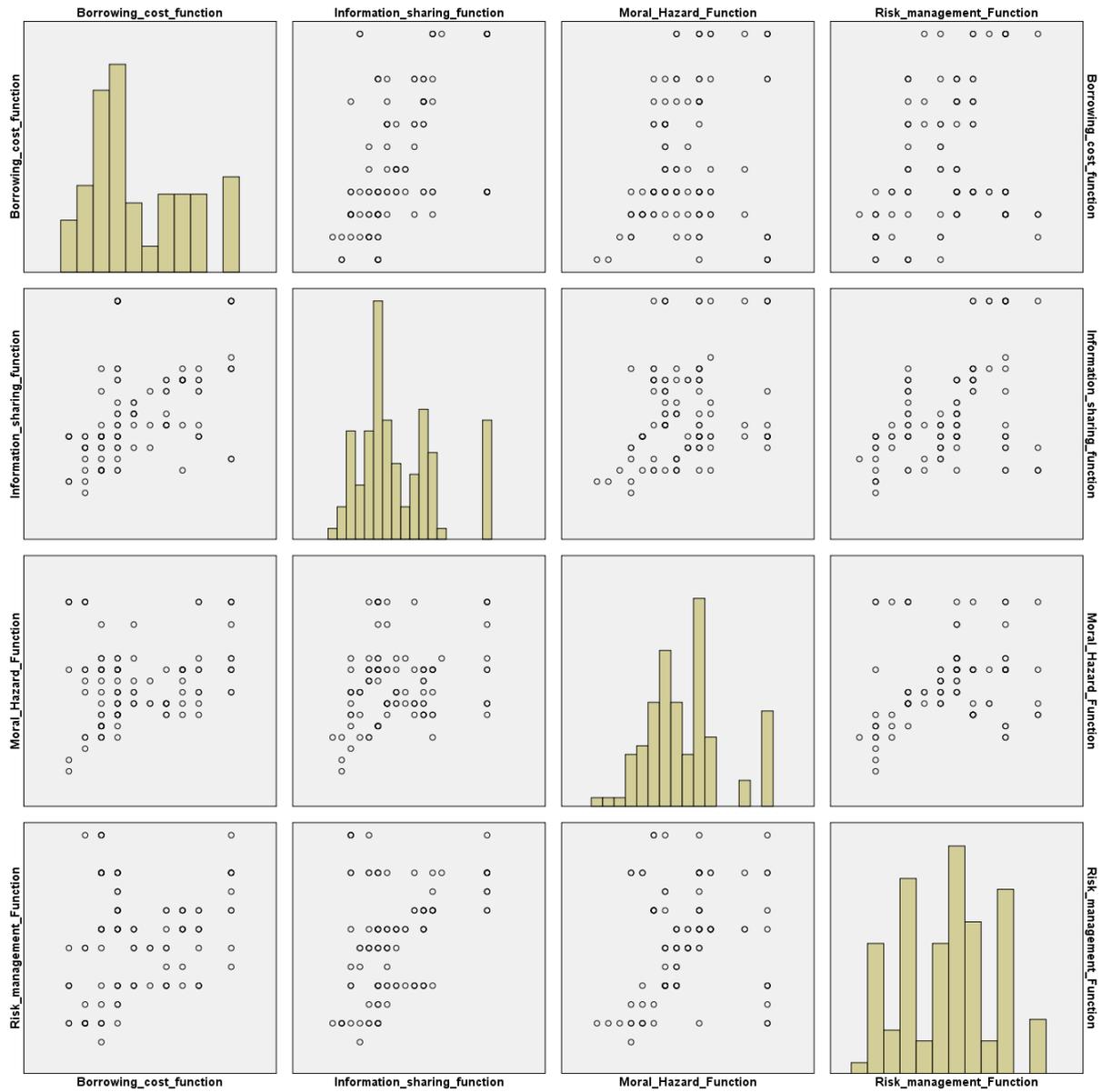
Figure 4.6 Linearity test

The linearity test results shows that the data set was exhibiting linear pattern hence we can conduct linear regression.

4.9 Simple Linear Regression Analysis

Simple linear regression was conducted for hypotheses testing. The study sought to determine the significance of the independent variables (borrowing cost function, information sharing function, moral hazard function and risk management function) to the dependent variable (financial performance). When the p-value is less than 0.05 then it implies that the result is significant.

4.9.1 Credit Cost Function and Financial Performance

The first objective of the study was to establish the effect of credit cost function on financial performance of SACCOs in Kenya. Ordinary least square regression analysis was conducted and the results represented on table 4.17.

Table 4.17: Model Fitness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.539	.290	.284	.05299481

Credit cost function was found to be satisfactory in explaining financial performance of SACCOs in Kenya. This is supported by coefficient of determination also known as the R square of 29.0%. This means that credit cost function explain 29.0% of the variations in the dependent variable which is financial performance of SACCOs in Kenya. Triki and Gajigo (2012) in their study on credit bureaus and access of finance found a significance relationship since the volume of loans increased after the introduction of credit bureaus. Table 4.18 presents the Analysis of Variance (ANOVA) statistics.

Table 4.18: Analysis of Variance

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.124	1	.124	44.197	.000
Residual	.303	108	.003		
Total	.427	109			

The results indicate that the model with one predictor variable (Credit cost function) was statistically significant and predicts the dependent variable (financial performance of SACCOs in Kenya). This results is supported with the F-statistic equal to 44.197 and the calculated p-value equal to $0.00 < 0.05$. Regression of coefficient results is presented in Table 4.19.

Table 4.19: Credit Cost Function and Financial Performance

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.147	.025		5.880	.002
Credit cost function	.115	.017	.539	6.648	.000

Table 4.19 showed that there is a positive relationship between credit cost function and financial performance (r=0. 115). Thus, a unitary percentage increase in credit cost function leads to an increase in financial performance by 11.5%. The constant unstandardised coefficient of .147 imply that in the absence of credit cost function, financial performance will be at .147 meaning that there are other could be drivers of financial performance like information sharing function (X_2), moral hazard function (X_3) and risk assessment function (X_4). The results showed that credit cost function is

also significant on financial performance (p=.000). This finding is consistent with that of Triki and Gajigo (2012) who found out that the presence of public credit registers is associated with high access to finance for countries with public credit bureaus. The borrowing cost function regression model in equation 3.1 is

$Y = \beta_0 + \beta_1 X_1$

$Y = .147 + .115 X_1$

Where Y=Financial Performance

X_1= Credit cost function

In testing for the hypothesis using simple linear regression (table 4.19, above), the acceptance or rejection criteria were that, if the p-value is greater than 0.05, the null hypothesis (Ho) is not rejected but if it's less than 0.05, the Ho fails to be accepted. The null hypothesis was that credit cost function has no significant effect on financial performance of SACCOs in Kenya. Results in table 4.19 above show that the p-value was 0.000<0.05. This indicated that the null hypothesis was rejected hence credit cost function has a significant effect on financial performance of SACCOs in Kenya.

4.9.2 Information Sharing Function

The second objective of the study was to assess effect of information sharing function on financial performance of SACCOs in Kenya. Ordinary least square regression analysis was conducted and the results represented on table 4.20.

Table 4.20: Model Fitness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.577	.333	.327	.05137805

Information sharing function was found to explain financial performance of SACCOs in Kenya. This is supported by coefficient of determination also known as the R square of 33.3%. This means that information sharing function explain 33.3% of the variations in the dependent variable which is financial performance of SACCOs in Kenya. The results are in agreement with Jagongo and Kerage (2015) who studied on credit information sharing and performance of commercial banks and found a significan relationship between NPLs and CIS. Table 4.21 presents the Analysis of Variance (ANOVA) statistics.

Table 4.21: Analysis of Variance

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.142	1	.142	53.926	.000
Residual	.285	108	.003		
Total	.427	109			

The results indicate that the model with one predictor variable (Information sharing function) was statistically significant and predicts the dependent variable (financial performance of SACCOs in Kenya). This results is supported with the F-statistic equal to 53.926 and the calculated p-value equal to $0.000 < 0.05$. This finding is consistent with that of Jagongo and Kerage (2015) who studied on credit information sharing and performance of commercial banks and found a significant relationship between NPLs and CIS. Regression of coefficient results is presented in Table 4.22.

Table 4.22: Information Sharing Function and Financial Performance

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.110	.018		6.111	.003
Information sharing function	.083	.011	.577	7.343	.000

Table 4.22 showed that there is a positive relationship of .083 between Information sharing function and financial performance (r=.083). Thus, a unitary percentage increase in information sharing function leads to an increase in financial performance by 8.4%. The constant unstandardised coefficient of .110 implies that in the absence of information sharing function, financial performance will be at .110 meaning that there are other could be drivers of financial performance like credit cost function, moral hazard function and risk assessment. The results showed that information sharing function was significant on financial performance since the p-value is less than 0.05 (p=0.000).

The results are in agreement with Kiptoo, Wanyoike and Gathogo (2015) sought to assess the influence of cross borrowing on financial performance of Savings and Credit Co-operatives (SACCOs) in Eldama Ravine Sub-County. From the analysis, adverse selection was found to strongly influence financial performance than credit policy. Since adverse selection was a significant factor, SACCOs should share credit information between themselves and with other lenders. They further recommended that they should also update their credit policies and develop enhanced strategies to mitigate risk associated with credit policy. The information sharing function model in equation 3.2 is

$Y = \beta_0 + \beta_2 X_2$.

Thus the specific model is: $Y = .110 + .083X_2$

Where Y=Financial Performance

X_2=Information sharing function

In testing for the hypothesis by using simple linear regression (table 4.22, above), the acceptance or rejection criteria were that, if the p value is greater than 0.05, the null hypothesis (Ho) is not rejected but if it's less than 0.05, the Ho fails to be accepted.

The null hypothesis was that information sharing function has no significant effect on financial performance of SACCOs in Kenya. Results in table 4.22 above show that the p-value was 0.000<0.05. This indicated that the null hypothesis was rejected hence information sharing function has a significant effect on financial performance of SACCOs in Kenya.

4.9.3 Moral Hazard Function

The third objective of the study was to determine effect of moral hazard function on financial performance of SACCOs in Kenya. Ordinary least square regression analysis was conducted and the results represented on table 4.23.

Table 4.23: Model Fitness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.510	.260	.253	.05412884

Moral hazard function was found to explain financial performance of SACCOs in Kenya. This is supported by coefficient of determination also known as the R square

of 26.0%. This means that Moral hazard function explain 26.0% of the variations in the dependent variable which is financial performance of SACCOs in Kenya. The results are in agreement with Djankov, McLeish and Shleifer (2007) found that creditor rights are relatively more important to lending. However, Acharya, Amihud and Litov (2011) found that strong credit rights reduce the value of cooperation and increases risk of failure and the likelihood of crisis. Information obtained from CRBs by financial institutions is used to ensure safety and soundness; and effective financial services. Table 4.24 presents the Analysis of Variance (ANOVA) statistics.

Table 4.24: Analysis of Variance

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.111	1	.111	37.887	.000
Residual	.316	108	.003		
Total	.427	109			

The results indicate that the model with one predictor variable (Moral hazard function) was statistically significant and predicts the dependent variable (financial performance of SACCOs in Kenya). This results is supported with the F-statistic equal to 37.887 and the calculated p-value equal to 0.000<0.05. This finding is consistent with Alloyo (2013) who showed that before commissioning of credit reference bureaus the semi-annual financial performance of banks was fairly constant. However, the financial performance increased slightly with commencement of credit reference bureaus. Regression of coefficient results is presented in Table 4.25.

Table 4.25: Moral Hazard Function and Financial Performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
(Constant)		.121	.023		5.261	.003
Moral hazard function		.094	.015	.510	6.155	.000

Table 4.25 showed that there is a positive relationship of .094 between moral hazard function and financial performance (r=.094). Thus, a unitary percentage increase in moral hazard function leads to an increase in financial performance by 9.4%. The constant unstandardised coefficient of .121 implies that in the absence of moral hazard function, financial performance will be at .121 meaning that there are other could be drivers of financial performance like credit cost function, information sharing function and risk assessment function. The results showed that moral hazard function was significant on financial performance since the p-value is less than 0.05 (p=.000).

The results agree with Djankov, McLeish and Shleifer (2007) who found that creditor rights are relatively more important to lending but also Acharya, Amihud and Litov (2011) found that strong credit rights reduce the value of cooperation and increases risk of failure and the likelihood of crisis. The findings also established that consumers and lenders find the credit reference bureaus useful in the financial industry in Kenya which will lead to a bigger credit market, lower default and interest rates, improved profitability for the financial institutions, increase price competitiveness of credit facilities, instill good credit behavior among lenders,

improve pool of borrowers, expansion of lending and help improve access to credit in Kenya.

The Moral hazard function model in equation 3.3 is

$Y=\beta_0 + \beta_3 X_3$ thus the specific model is: $Y=.121 + .094X_3$

Where Y=Financial Performance

X_3= Moral hazard function

In testing for the hypothesis by using simple linear regression (table 4.25, above), the acceptance or rejection criteria were that, if the p-value is greater than 0.05, the Ho is not rejected but if it's less than 0.05, the Ho fails to be accepted.

The null hypothesis was that Moral hazard function has no significant effect on financial performance of SACCOs in Kenya. Results in table 4.25 above show that the p-value was 0.000<0.05. This indicated that the null hypothesis was rejected Moral hazard function has a significant effect on financial performance of SACCOs in Kenya.

4.9.4 Risk Assessment Function and Financial Performance

The fourth objective of the study was to examine effect of risk assessment function on financial performance of SACCOs in Kenya. Ordinary least square regression analysis was conducted and the results represented on table 4.26.

Table 4.26: Model Fitness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.523[a]	.274	.267	.05360497

Risk assessment function was found to explain financial performance of SACCOs in Kenya. This is supported by coefficient of determination also known as the R square of 27.4%. This means that risk assessment function explain 27.4% of the variations in the dependent variable which is financial performance of SACCOs in Kenya. The results are in agreement with Acharya, Amihud and Litov (2011) found that strong credit rights reduce the value of cooperation and increases risk of failure and the likelihood of crisis. Information obtained from CRBs by financial institutions is used to ensure safety and soundness; and effective financial services. Table 4.27 presents the Analysis of Variance (ANOVA) statistics

Table 4.27: Analysis of Variance

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.117	1	.117	40.752	.000
Residual	.310	108	.003		
Total	.427	109			

The results indicate that the model with one predictor variable (Risk assessment function) was statistically significant and predicts the dependent variable (financial performance of SACCOs in Kenya). This results is supported with the F-statistic equal to 40.752 and the calculated p-value equal to 0.000<0.05. This finding is consistent with Alloyo Haneef, *et al*., (2012) in their study on Impact of Risk

Management on Non-Performing Loans and Profitability of Banking Sector of Pakistan found that risk management is significant on profitability of banking. Regression of coefficient results is presented in Table 4.28.

Table 4.28: Risk Assessment Function and Financial Performance

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.152	.027		5.630	.000
Risk assessment function	.117	.018	.523	6.384	.000

Table 4.28 showed that there is a positive relationship of .117 between risk assessment function and financial performance (r=.117). Thus, a unitary percentage increase in risk assessment function leads to an increase in financial performance by 11.7%. The constant unstandardised coefficient of .152 implied that in the absence of risk assessment function, financial performance will be at .152 meaninmg that there are other drivers of financial performance like credit cost function, information sharing function and moral hazard function. Risk assessment function was significant on financial performance as the p-value is less than 0.05 (p=0.000). This is in agreement with Sambasivam and Biruk (2013) who found that SACCOs face a risks arising from liquidity shortage and this has been a major cause of failure of many financial cooperatives.

Nagarajan (2011) in his study of credit risk management practices for microfinance institutions in Mozambique found that risk management is a dynamic process that could ideally be developed during normal times and tested at the wake of risk. The

study concluded that financial institutions needed to minimize risks related losses through diligent management of portfolio and cash-flow by building robust institutional infrastructure with skilled human resources and inculcating client discipline, through effective coordination of stakeholders. Locally, various aspects of CRB have been reviewed by various scholars. The risk assessment function is $Y=\beta_0+\beta_4X_4$

The specific model in equation 3.4 is:

$Y=.152 + .117X_4$

Where Y=Financial Performance

X_4=Risk assessment function

In testing for the he hypothesis by using simple linear regression (table 4.28, above), the acceptance or rejection criteria was that, if the p-value is greater than 0.05, the Ho is not rejected but if it's less than 0.05, the Ho fails to be accepted.

The null hypothesis was that risk assessment function has no significant effect on financial performance of SACCOs in Kenya. Results in Table 4.28 above show that the p-value was 0.000<0.05. This indicated that the null hypothesis was rejected hence risk assessment function has a significant effect on financial performance of SACCOs in Kenya.

4.10 Multiple Linear Regression Analysis

The results presented in Table 4.29 present the overall fitness model used of the regression model in explaining the study phenomena.

Table 4.29: Model Fitness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.774	.599	.584	.04040447

Independent variables were found to be satisfactory in explaining financial performance of SACCOs in Kenya. This is supported by coefficient of determination also known as the R square of 59.9%. This means that independent variables explain 59.9% of the variations in the dependent variable which is performance of SACCOs. Table 4.30 provides the results on the analysis of the variance (ANOVA).

Table 4.30: Analysis of Variance (ANOVA)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.256	4	.064	39.207	.000
Residual	.171	105	.002		
Total	.427	109			

The results indicate that the overall model was statistically significant. Further, the results imply that the independent variables are good predictors of performance. This was supported by an F statistic of 39.207 and the reported p-value of 0.000 which was less than the conventional probability significance level of 0.05 implying that the independent variables (credit reference bureaus functions) were significant in predicting the dependent variable (financial performance). Regression of coefficient results is presented in Table 4.31.

Table 4.31: Regression of Coefficients

Variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.196	.027		7.337	.000
Credit cost functions	.057	.015	.269	3.748	.000
Information sharing function	.036	.011	.253	3.325	.001
Moral hazard function	.060	.012	.326	5.027	.000
Risk assessment function	.060	.015	.271	3.920	.000

Regression of standardized coefficients results in table 4.31 shows that credit cost functions and financial performance are positively related at .269 (r=.269) and significant (p=0.000). The table further indicates that information sharing functions and financial performance are positively related at .253 (r=.253) and significant related (p=0.001). It was further established that moral hazard function and financial performance were positively and significantly related (r=.326, p=0.000) respectively while risk assessment function and financial performance were positively and significantly related (r=.271, p=0.000) respectively.

The multiple regression indicated that moral hazard function and risk assessment function had the largest influence of financial performance with a standardised coefficient of 0.326 and 271 respectively, followed by that credit cost functions (0.269) and finally information sharing function (0.253).

The large influence in moral hazard function could mean the moral character of the borrower is the most important single issue in credit evaluation (Mwiya, 2010). This would result to timeliness and accuracy in granting loans as well as reducing borrowing costs. This could imply that when CRBs are properly utilized by both

parties they would enhance transparency and efficiency in credit transactions thus improving financial performance.

Additionally, credit cost function is also key to financial performance because the more people access to credit the more income SACCOs receive from the interests charged on loans alongside investing in other income generating activities. Lending is the main business of financial institutions with loans forming the main source of revenue for SACCOs (Kwambai & Wandera, 2013). If loans increase they signal good performance (Kioko, 2014). Credit access would enhance increase in the volume of loans and also increase innovative credit products like house schemes for members which is in agreement with Gaitho (2013).

Risk assessment function is essential with the increased operations and membership in SACCOs. Risk assessment is the key to financial performance since risks can be easily identified, monitored and control measures taken in good time to mitigate risks which is in agreement with Laeven and Revine (2011). Risk assessment provides strategies, techniques, and an approach to recognize and confront any threats faced by an organization in fulfilling its mission (Cielens, 2010).

On the other hand, Djankov, McLeish and Shleifer (2007) found that creditor rights are relatively more important to lending in developed economies whereas information sharing is relatively important to lending in less developed economies. This increase in credit information improves financial performance since the awareness brings both parties together and makes them participate fully. This may reduce the default rate of borrowers, lenders and credit bureaus due to the shared

information which is in agreement with Jappelli and Pagano (2005). Djankov, McLeish and Shleifer (2007) found that creditor rights are relatively more important to lending in developed economies whereas information sharing is relatively important to lending in less developed economies.

The overall model therefore as in equation 3.5 is $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$.

Thus, the optimal model for the study is $Y = .196 + .326 X_1 + 0.271 X_2 + 0.269 X_3 + 0.253 X_4$

Where:

Y = Financial performance

X_1 = Moral hazard function

X_2 = Risk assessment function.

X_3 = Credit cost functions

X_4 = Information sharing function

4.11 Intervening Analysis

The fifth objective of the study was to examine the intervening effect of inflation on the relationship between credit reference bureaus functions and financial performance of SACCOs in Kenya. The intervening model examines the significance of the relationships between the independent variables, intervening variable and the dependent variable. In this case, inflation was examined on how it intervened in the credit reference bureaus functions and the financial performance.

Baron and Kenny (1986), approach in testing for mediation was employed for the purpose of this study. In this study, inflation variable was introduced to examine how

it intervened in all the independent variables: credit cost function, information sharing function, moral hazard function and risk assessment function; and the dependent variable of financial performance.

To test for the significance of the intervening variable, four steps were followed in systematically for all of the variables. The outcome of the regression analysis yielded results was presented from tables 4.32 to 4.35.

4.11.1 To test if the independent variables predict dependent variable in the absence of the intervening variable (first step)

The first step was to test if the independent variables are significantly related to the dependent variables in the absence of the intervening variable. This step was to test if CRDBs functions were significantly related with financial performance without the intervening variable (inflation).

$Y = \beta_0 + \beta_1 X + \varepsilon.$

Y=Financial performance

X =Composite function (Independent variables)

Table 4.32: To test if the independent variables predict dependent variable in the absence of the intervening variable

Variable	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	0.307	0.015		21.18	0.000
credit reference bureaus functions (X)	0.001	0.000	0.433	4.999	0.000

The results in Table 4.32 show that there is a linear relationship between credit reference bureaus functions and financial Performance (r=0.001) and significant (p=0.000). The first intervening condition which states that the independent variable should be significantly related to the dependent variable in the absence of the intervening variable is thus satisfied. This is in agreement with Ekanayake and Azeek (2015) that non-performing loans can be attributed by both inflation and other specific factors.

Shisia, et al., (2014) in their study on assessment of the contribution of credit reference bureau regulation towards mitigating credit risks in the Kenya's banking industry found CRBs having significance towards risk mitigation. A study by Klein (2013) on Non-performing loans in Central, Eastern, South-Eastern Europe; on determinants and impact on macroeconomic performance found some policy implication and recommended that there is merit to strengthen supervision to prevent a sharp build-up of NPLs in future, avoid excessive lending and maintain high credit standards.

4.11.2 To test if the independent variables still predict dependent variable when the intervening variable is in the model (second step)

The second step was to test if the independent variable is significantly related to the intervening variable. The predictors are inflation and credit reference bureaus functions while the dependent variable is financial performance. This step was to test if CRBs functions still predict financial when inflation variable was in the model as shown in table 4.33.

$Z = \beta_0 + \beta_1 X + \varepsilon$.

Where

Z = Financial performance

X = Independent variables and inflation

Table 4.33: To test if the independent variables still predict dependent variable when the intervening variable is in the model

Variable	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	4.315	0.223		19.364	0.000
Credit reference bureaus functions (X)	-0.001	0.001	-0.137	-2.433	0.015

The second step as presented in Table 4.33 indicates that there is a relationship between credit reference bureaus functions, inflation and financial performance (r=-0.001) and significant (p=0.015) thus satisfying the second condition which states that the independent variable should be significantly related to the intervening

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variable. It can be concluded that inflation has significant and intervening effect on the relationship between credit reference bureaus functions and financial performance.

Dukuy (2012) found credit access was influenced by among other factors, firm performance and market environment. Sinkey and Greenwalt (2011) found thaat depressed regional economic conditions the loss-rate of most financial institutions.

4.11.3 To test if the intervening variable is significantly related to the dependent variable (third step)

The third step was to test if the intervening variable is significantly related to the dependent variable. Here inflation was tested if it predicts financial performance as shown in table 4.34.

$Y=\beta_0+\beta_1 Z+\varepsilon.$

Where

Y=Financial performance

Z=Inflation (intervening variable)

Table 4.34: To test if the intervening variable is significantly related to the dependent variable

Variable	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	0.437	0.028		15.774	0.000
Inflation (Z)	-0.016	0.007	-0.222	-2.367	0.020

The third step as presented in table 4.34 revealed that there is a relationship between inflation and financial performance (r=0.016) and significant (p=0.020) thus satisfying the third condition which states that the mediator variable should be significantly related to the dependent variable. Anderson and Sundaresan (2010) found a linkage between credit risk increases and inflation. Similar study by Sinkey and Greenwalt (2011) on large commercial banks in the United States from 2004 to 2009 indicates that depressed regional inflation explains the loss-rate of the commercial banks.

Thus all the three conditions were significant and related satisfying CRBs functions; mediator and financial performance were related and significant. Triki & Gajigo (2012) who found out that the presence of public credit registers is associated with high access to finance for countries with public credit bureaus. NPLs can be attributed by both macroeconomic conditions and bank specific factors (Ekanayake & Azeez, 2015).

A study by Klein (2013) on Non-performing loans in Central, Eastern, South-Eastern Europe; on determinants and impact on macroeconomic performance found some policy implication and recommended that there is merit to strengthen supervision to prevent a sharp buildup of NPLs in future, avoid excessive lending and maintain high credit standards. Similar study by Houston, Lin, Lin and Ma (2010) found both credit rights and information sharing is associated with faster output growth.

However, Shisia, et al.,(2014) in their study on Assessment of the contribution of Credit Reference Bureau Regulation towards Mitigating Credit Risks in the Kenya's

Banking Industry found CRBs having significance towards risk mitigation. Ngaira (2011) studied on the impact of SACCO regulatory authority guidelines on SACCO operations in Kenya found that there is a significant relationship between SACCO performance and regulatory guidelines.

In testing for the hypothesis for the moderating variable (inflation), the mediation test satisfied all the four conditions that should be met for a mediation relationship to be considered and therefore it can be concluded inflation mediate the influence of credit reference bureaus functions on financial Performance. The hypothesis that inflation has an intervening effect on the relationship between credit reference bureaus functions and financial performance was therefore supported ($p > 0.05$).

In statistics significance testing the p-value indicates the level of relation of the independent variable to the dependent variable. If the significance number found is less than the critical value also known as the probability value (p) which is statistically set at 0.05, then the conclusion would be that the model is significant in explaining the relationship; else the model would be regarded as non-significant.

4.11.4 To test if the intervening variable and composite function is significantly related to the dependent variable (forth step)

The fourth step was to test if the intervening variable and composite function is significantly related to the dependent variable. Here inflation and composite function was tested if it predicts financial performance as shown in table 4.35.

$Y = \beta_0 + \beta_2 X + \beta_3 Z + \varepsilon.$

Y=Financial performance

X =Composite function

Z =Intervening variable

Table 4.35: To test if the intervening variable and composite function is significantly related to the dependent variable

Variable	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	0.437	0.028		15.774	0.000
Inflation (Z)	-0.264	0.034	-0.365	-7.765	0.003
Composite function (X)	.472	.328	.662	1.256	0.749

The fourth step as presented in table 4.35 revealed that there is a negative and insignificant relationship between composite of the independent variables and financial performance (r=-0.264) and significant (p=0.749) thus satisfying the fourth condition which states that the independent variable should be insignificant in presence of the intervening variable.

4.12 Hypotheses Testing

In testing for the hypothesis for the intervening variable (inflation), the mediation test satisfied all the conditions that should be met for a mediation relationship to be considered and therefore it can be concluded inflation mediate the influence of credit reference bureaus functions on financial Performance. The hypothesis that inflation

has an intervening effect on the relationship between credit reference bureaus functions and Financial Performance was therefore supported ($p > 0.05$).

In statistics significance testing the p-value indicates the level of relation of the independent variable to the dependent variable. If the significance number found is less than the critical value also known as the probability value (p) which is statistically set at 0.05, then the conclusion would be that the model is significant in explaining the relationship; else the model would be regarded as non-significant.

Table 4.36: Summary of Hypotheses

Obje ctive No	Objective	Hypothesis	Rule	p-value	Comment
1	Effect of Credit cost function on financial performanc e (FP) of SACCOs in Kenya.	H_0:Credit cost function has no significant effect on financial performance of SACCOs in Kenya	Reject Ho if p value <0.05	p<0.05	Credit cost function has a significant effect on financial performance of SACCOs in Kenya
2	Effect of Informatio n sharing function on financial performanc e of SACCOs in Kenya.	H_0: Information sharing function has no significant effect on financial performance of SACCOs in Kenya	Reject Ho if p value <0.05	p<0.05	Information sharing function has a significant effect on financial performance of SACCOs in Kenya

Obje ctive No	Objective	Hypothesis	Rule	p-value	Comment
3	Effect of Moral hazard function on financial performance of SACCOs in Kenya.	H_0:Moral hazard function has no significant effect on financial performance of SACCOs in Kenya	Reject Ho if p value <0.05	$p<0.05$	Moral hazard function has a significant effect on financial performance of SACCOs in Kenya
4	Effect of Risk assessment function on financial performance of SACCOs in Kenya.	H_0:Risk assessment function has no significant effect on financial performance of SACCOs in Kenya	Reject Ho if p value <0.05	$p<0.05$	Risk assessment function has a significant effect on financial performance of SACCOs in Kenya
5	Intervening effect of Inflation on the relationship between CRB functions & financial performance of SACCOs	H_0: Inflation have no significant intervening effect on the relationship between CRBs and financial performance of SACCOs	Reject Ho if p value <0.05	$P<0.05$	Inflation have significant intervening effect on the relationship between CRBs functions and financial

4.13 Model Optimization

Based on the results in Table 4.31 a model optimization was conducted and the aim of model optimization was to guide in derivation of the final model (revised conceptual framework) where only the significant variables are included for objectivity. Results in table 4.31 were arrived at through running multiple regressions. To obtain optimal model, the original conceptual framework was rearranged based on the influence of each of the independent variables on the dependent variable (financial performance of SACCOs).

4.14 Revised Conceptual Framework

The revised conceptual framework was found by rearranging the conceptual framework based on the strength of the coefficients values of the multiple regressions. The independent variables were also rearranged depending on their influence on the dependent variable. Results of the new conceptual framework are presented in figure 4.7.

Moral hazard function - Loan delinquency(PAR) - Turnover for loan application - Liability status		
Risk assessment function - Risk identification - Risk control - Risk monitoring	Inflation	**Financial Performance** - Profitability - Return on Assets - Asset Quality
Credit cost functions - Volume of loans - Timeliness of accuracy - Interest rates		
Information sharing function - Default rate - Lenders and bureaus response rate - Credit scoring		

Independent Variables   **Intervening Variable**   **Dependent Variable**

Figure 4.7 Revised Conceptual Framework

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CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter gives a summary of the findings in line with the specific objectives of the study, conclusions drawn and the necessary recommendations made for the study including suggested areas of further study to enrich relevant knowledge under the study.

5.2 Summary of the Findings

The general objective of this study was effect of credit reference bureaus functions on financial performance of SACCOs in Kenya. The specific objectives were effect of credit cost function, information sharing function, moral hazard function and risk assessment function on financial performance of SACCOs with inflation as an intervening variable. A descriptive research design was used. Primary data was collected through 128 self-administered questionnaires where 110 were correctly filled and returned. Cronbach alpha was above 0.07 indicating that the data was reliable.

Pearson correlation was used to establish the relationship between the independent variables and the dependent variable and it was found that CRBs functions had a relationship with financial performance of SAACOs; simple and multiple regression to test for the significance of the hypotheses indicated significance. Various tests conducted included test for normality, test for multicollinearity, stationary test,

heteroscedasticity test and autocorrelation test. It was found that the data was normally distributed, no multicollinearity was found, data was steady over time, homoscedasticity and no autocorrelation found respectively. Mediation analysis was also conducted to test the significance of the intervening variable and it was found to significant on financial performance of SAACOs.

5.2.1 Credit Cost Function

The first objective of the study was to establish effect of credit cost function on financial performance of SACCOs in Kenya. Correlation analysis showed that credit cost function and financial performance of SACCOs are positively related (r =0.115) and significantly (p=0.000). Regression analysis indicated that credit cost function have a positive and significant effect on financial performance of SACCOs. The hypothesis results indicated that there is a significant relationship between credit cost function and financial performance of SACCOs in Kenya.

5.2.2 Information Sharing Function

The second objective of the study was to assess effect of information sharing function on financial performance of SACCOs in Kenya. Correlation analysis showed that information sharing function and financial performance of SACCOs are positively and significantly associated. Regression analysis indicated that information sharing function have a positive relationship (r =0.083) and significant (p =0.000) effect on financial performance of SACCOs. The hypothesis results indicated that there is a significant relationship between information sharing function and financial performance of SACCOs in Kenya.

5.2.3 Moral Hazard Function

The third objective of the study was to determine effect of moral hazard function on financial performance of SACCOs in Kenya. Correlation analysis showed that moral hazard function and financial performance of SACCOs are positively and significantly associated. Regression analysis indicated that moral hazard function have a positive relationship (r =0.094) and significant (p =0.000) effect on financial performance of SACCOs. The hypothesis results indicated that there is a significant relationship between moral hazard function and financial performance of SACCOs in Kenya.

5.2.4 Risk Assessment Function

The fourth objective of the study was to establish effect of risk assessment function on financial performance of SACCOs in Kenya. Correlation analysis showed that risk assessment function and financial performance of SACCOs are positively and significantly associated. Regression analysis indicated that risk assessment function has a positive relationship (r =0.117) and significant (p =0.000) effect on financial performance of SACCOs. The hypothesis results indicated that there is a significant relationship between risk assessment function and financial performance of SACCOs in Kenya.

5.2.5 Intervening Effect of Inflation

The fifth objective of the study was to establish the intervening effect of inflation on the relationship between credit reference bureaus functions and financial performance of SACCOs in Kenya. The intervening test satisfied all the four

conditions that should be met for an intervening relationship to be considered and therefore it could be concluded that inflation intervene the influence of credit reference bureaus on financial Performance. The results indicated that inflation had an intervening a relationship between credit reference bureaus functions (r =0.001) and significant (p =0.000) on financial performance.

5.3 Conclusion

The results of the findings indicate that there is a significant and positive relationship between credit reference bureaus and financial performance thus the existence of credit reference bureaus was suitable for improving financial performance of SACCOs. The multiple regressions indicated that moral hazard function and risk assessment had the largest influence of financial performance, followed by credit cost function and finally information sharing function. However, all the four functions of credit reference bureaus were found to be suitable for improving financial performance.

The mediation test satisfied all the three conditions that should be met for a mediation relationship to be considered and therefore it could be concluded that inflation mediate the influence of credit reference bureaus functions on financial performance. The hypothesis that inflation has an intervening effect on the relationship between credit reference bureaus functions and financial performance was supported.

5.4 Contribution of the Study to Theory

The study made contributions to theory building. First, the study developed a conceptual framework for underpinning future research work on the relationship between credit reference bureaus functions and financial performance of SACCOs in Kenya. The study successfully tested hypothesis related to the original conceptual framework developed in chapter two. Based on research findings, it was found that future conceptual frameworks and theories should focus on particular aspects of credit reference bureaus functions.

The study also added value to theory building by itemizing the most important aspects of credit reference bureaus functions. In particular, this study was able to pinpoint particular aspects of credit cost function, information sharing function, moral hazard function, risk assessment function which were relevant to certain aspects of financial performance.

5.5 Management Recommendations

Based on the results of the findings and the conclusions drawn from the study, the various recommendations for the management were made. Lenders should reduce unnecessary transaction costs like high interest rates on provision of credits which may shy away borrowers or even make loans expensive thus reducing credit access to borrowers. Low borrowing costs will attract many borrowers thereby increasing the amount of interest charged on these loans which form part of their income earnings. There is also need to develop strategic plans to act as a road map for the

SACCOs future plans that would enhance timeliness and accuracy in credit access and performance improvement.

The Sacco management should focus on credit market participation; credit constraint and credit default in order to facilitate holistic integration of small enterprises in credit programs. In doing so, the SACCOs may ease restrictive credit requirements, strength prudential guidelines in regulatory systems, sensitizing borrowers, supporting a knowledgeable and growing entrepreneurial culture in developing credit markets, thus relaxing financial constraints and reducing default.

Credit information sharing should be addressed where lenders can have readily available both positive and negative credit information on the borrowers which would be shared across all lenders. This would include networking of all credit information amongst lenders. Lenders and CRBs should work closely to ensure that there is no information asymmetry and therefore ensure that credit flows to deserving borrowers which would enhance transparency and efficiency in credit transactions thus improving financial performance.

Lenders should ensure that they have accurate information before listing the unworthy borrowers to avoid unnecessary legal battles which may affect performance as a measure for customer rights protection. Information flow would lead to increased credit approval by the SACCOs. Information low between Credit Reference Bureaus and SACCOs will enable the documentation of borrowers' details, financial histories of all individuals and computing credit scores to determine the desirability of the borrower. The strategic taming of moral hazard cases could

mean that the rights of both lenders and borrowers are protected to guarantee fairness on credit transactions. This would result to timeliness and accuracy in granting loans as well as reducing borrowing costs.

The SACCOs can adopt the delinquency management methods institutional culture to minimize delinquency. This method involves cultivating an institutional culture that embraces zero tolerance of arrears and immediate follow up on all late payments. SACCOs can also remind clients who have had recent delinquency problems that their repayment day is approaching. Loan delinquency ensures that there is continuous strict implementation of the loan policy and project monitoring to ensure that borrowers do not divert funds; a condition that is common to most African countries because of high poverty levels.

The lenders should have regular review of their risk management techniques which have ability to manage risk in order to coup with the rapid changes in technological advances. The management should enforce current lending regulations and contracts available for the SACCOs. All lenders should ensure that they subject all their clients to the credit reference bureaus before granting a loan regardless of their status. Risk management process requires that SACCOs must have comprehensive risk management processes to identify, evaluate, monitor and control or mitigate all material risks and to assess their overall capital adequacy in relation to their risk profile to cope with the rapid increase in technology advancement.

The SACCOs can adopt the delinquency management methods institutional culture to minimize delinquency. This method involves cultivating an institutional culture

that embraces zero tolerance of arrears and immediate follow up on all late payments. SACCOs can also remind clients who have had recent delinquency problems that their repayment day is approaching. Loan delinquency ensures that there is continuous strict implementation of the loan policy and project monitoring to ensure that borrowers do not divert funds; a condition that is common to most African countries because of high poverty levels.

A SACCOs should have effective means of obtaining pertinent information to identify and measure its exposure to risks inherent in its core activities with CRBs handling those accessing credit in friendly manner. SACCOs should also review their risk management systems to ensure that risks are identified, controlled, monitored and where possible avoided. A Sacco should have effective means of obtaining pertinent information to identify and measure its exposure to risks inherent in its core activities.

Inflation may be favourable or unfavourable and so the management should have measures to mitigate any adverse effect. The study recommends that SACCOs should enhance their strategies to mitigate risk associated with inflation since this is unsystematic risk which cannot be eliminated by individual SACCO. This would include having insurance schemes for the unforeseen events which would have negative impact on performance. This will help in improving their financial performance. There is need for SACCOs to invent products that can attract new borrowers even with increasing inflation and base lending rates.

5.6 Policy Recommendations

The government should make policy guidelines to ensure that those supervisory authorities are given powers and adequate resources to effectively execute their responsibilities in regulating and overseeing credit reports. There should also be put measures to regulate the fee charged on access of credit information so that the CRBs do not turn out to be profit making organizations but instead stick to their roles. There is need to provide policy measures to increase the credit reference bureaus since the current three bureaus are overwhelmed by the increased demand for use of credit registries in the country. Further there is need to introduce public credit registries as the current ones are only private which could restrict access to credit information. There should be continuous review of credit policies, establish irrecoverable loan provision policies, and character of loan applicants; all these policies would ensure good access of credit.

The government should form a strong bureaus board of directors with various relevant professional skills to oversee credit policies and procedures so that there could be uniformity and fairness in all the parties involved. Credit information sharing should also be enhanced through other government institutions and conducting awareness to the public in form of barazas, workshops and other publications. However, this should be done with care so that the awareness may not threaten borrowers for fear of punishments from CRBs thus limiting SACCOs` profits targets. All people should be made to understand that it is their constitutional right to access credit information for the public interest. Sharing of customer credit

information between CRBs and SACCOs enables the SACCOs to decline loaning chronic defaulters. Including all credit history from other credit suppliers (positive information) would increase credit approval by SACCOs, while low default rate would result from lending to borrowers based solely on all credit suppliers' positive information which would increase credit approval by the SACCOs.

The government as the policy maker should develop clear and elaborate regulatory framework to ensure that consumer complaints are fully addressed with speed such that loan defaulters` rights are not infringed by frustrating them when repaying their loans. This would ensure that CRBs do not turn to be punishing institutions to defaulters. Moreover, guide the operations of the SACCOs to check their financial performance, including availing current financial reports to limit the occurrence of any financial crisis as has been recently witnessed in most of the financial institutions. The government should also develop policies to interlink financial institutions in other regions outside Kenya so that multi-loaning is monitored and controlled.

The government should establish more than one supervisory authorities in addition to the CBK, to exercise credit functions as a measure to oversee credit reporting systems since one oversight authority can be bias or overburdened by the increasing credit demand. The government should also make policies to protect both lenders and borrowers to avoid problem loans by borrowers and the `lemon effect` of lenders. Additionally, adopt the implementation of sound risk management practices, that there is appropriate credit risk policy in place, that there is appropriate risk-return

tradeoff policy, that there exists favorable internal business environment and that appropriate credit risk limits are set as they impact on the financial performance of the SACCOs.

The government should initiate collaboration for both local and prominent international supervisors which would cooperate with each other in promoting the safety and effectiveness of the credit reporting systems. The Central Bank of Kenya should also review the existing mechanism on inflation policies to ensure that they are efficient, effective and up to date in capping upward inflation. This may be done by ensuring that the inflation policies suit the dynamic macroeconomic environment of the country.

5.7 Suggested Areas for Further Study

Future researchers could also consider introducing different mediator other than inflation in testing for intervening or different independent variables instead of credit reference bureaus functions to establish their effect on financial performance. This is because as much as this study used this variable; there may be other factors like management competence, legal and regulatory environment which may influence the financial performance. Other researchers could be done in other countries located in other parts of Africa; or extend the research period from six years to ten years. Additionally, further researches could be done when the credit reference bureaus increase from the current three credit bureaus available. Researches could also be done on the effect of credit reference bureaus functions on the performance of mortgage finance institutions.

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APPENDICES

Appendix I: Letter of Introduction

Dear Sir/Madam,

RE: REQUEST TO COLLECT DATA FOR ACADEMIC THESIS RESEARCH PROJECT

I am a PhD student at Jomo Kenyatta University of Agriculture and Technology (JKUAT). I am doing a thesis research project titled "***Effect of credit reference bureaus functions on financial performance of SACCOs in Kenya***". Your participation in this study by responding to this questionnaire will be appreciated. All your responses will be treated with utmost confidentiality and the data collected will only be used for academic purposes.

Thank you.

Yours faithfully,

Jackson Mnago Ndungo

Appendix II: Research Questionnaire

RESEARCH QUESTIONNAIRE

Dear Respondent,

This questionnaire is aimed at establishing effect of credit reference bureaus functions on financial performance of SACCOs in Kenya. The questionnaire has been designed as series of statements where your views can be shown by putting a tick in the appropriate box. Kindly answer the questions as honestly as you can.

SECTION A: DEMOGAPHIC CHARACTERISTICS

1. Name of your SACCO …………………………………………..

2. Name the location of your SACCO:

…………………………………………………..

3. Indicate the type or category of your SACCO

Government based SACCO   ( )

Teachers based SACCO   ( )

Farmers based SACCO   ( )

   Private institutions based SACCO ( )

   Community based SACCO ( )

4. How many years has your SACCO been in existence?

5 - 10 years   ( )

Above 10 years   ( )

5. For how many years has your SACCO been licensed as deposit-taking?

2 to 5 years   ( )

More than 5 years   ( )

7. List the benefits your institution has received after it was registered with the credit reference bureaus:

………………………………………………………………………………………...

 ……………………………………………………………………………………......

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

SECTION B: CREDIT COST FUNCTION

This section seeks to examine the effect of credit cost function on financial performance of SACCOs in Kenya.

8. To what extent do you agree with the following statements?

STATEMENT	Strongly agree	Agree	Disagree	Strongly disagree	No idea
Credit reference bureaus help reduce borrowing cost in our SACCO					
Credit reference bureaus have led to					

increase in the volume of both secured and unsecured loans in our SACCO				
Credit reference bureaus have led to timeliness and accuracy for loans in our SACCO				
Credit reference bureaus have led to increase in the volume of good loan in our SACCO				
Credit reference bureaus have reduced cases of None performing loans in our SACCO				
Credit reference bureaus help members remove fear for access of credit in our SACCO				
Credit reference bureaus help reduce access to credit to unworthy borrowers in our SACCO				
Credit reference bureaus have enhanced access of personal properties to members in our SACCO				
Credit reference bureaus have led to conducive environment for credit transactions in our SACCO				
Credit reference bureaus have led to improved standards of living of the members of the SACCO.				
Credit reference bureaus have led to reduction in liquidity problems in our SACCO.				
Credit reference bureaus have led to				

increase in total assets in our SACCO					

SECTION C: INFORMATION SHARING FUNCTION

This section seeks to establish the effect of information sharing function on financial

performance of SACCOs.

9. To what extent do you agree with the following statements?

Statement	Strongly agree	Agree	Disagree	Strongly disagree	No idea
Credit reference bureaus have led to share of negative credit reports on in our SACCO					
Credit reference bureaus have led to share of positive credit reports on in our SACCO					
The listing of negative credit information for five years has reduced defaults in our SACCO					
Credit reference bureaus have led to improved default rate of borrowers in our SACCO					
Credit reference bureaus have led to improved lenders response rate on credit lending in our SACCO					
Credit reference bureaus information disclosed is sufficient in making credit decisions regarding good or bad credit ratings in our SACCO					
Credit reference bureaus have led to					

increase in total deposits in form of savings in our SACCO					
Credit reference bureaus access of credit information from other countries					
Credit reference bureaus have reduced privacy of borrowers credit history in our SACCO					
Credit reference bureaus have led to reduction of multi-loaning practices for borrowers in our SACCO					
Credit reference bureaus have led quality management of credit in our SACCO					
Credit reference bureaus have led to improved character of borrowers in our SACCO					

SECTION D: MORAL HAZARD FUNCTION

This section seeks to assess the influence of moral hazard function on financial

performance of SACCOs in Kenya.

10. To what extent do you agree with the following statements?

STATEMENT	Strongly agree	Agree	Disagree	Strongly disagree	No idea
Credit reference bureaus have led to good credit culture` in our SACCO					
Credit reference bureaus publish all					

assumptions & methods relevant to decision-making in loans issuance in our SACCO				
Credit reference bureaus have led to enhanced loan delinquency in our SACCO				
Credit reference bureaus reduce political influence on decisions you make on loans in our Sacco				
Credit reference bureaus have reduced liability status in our SACCO				
Credit reference bureaus have led to reduced bad "culture" on loan repayment				
Credit reference bureaus have enhanced turnover for loan applications in our SACCO				
Credit reference bureaus have led to assumption that borrowing is a right regardless of capabilities				
Credit reference bureaus have reduces undesired monopolistic actions of lenders				
Credit reference bureaus have led to increased customers rights in our SACCO.				
Credit reference bureaus have led to adequate loaning in our SACCO				

SECTION E: RISK ASSESSMENT FUNCTION

This section seeks to determine the effect of risk assessment function on financial performance of SACCOs in Kenya.

11. To what extent do you agree with the following statements?

STATEMENT	Strongly Agree	Agree	Disagree	Strongly disagree	No idea
Credit reference bureaus have led to improved credit risk assessment in our SACCO					
Credit reference bureaus have led to credit risk identification in our SACCO					
Credit reference bureaus have enhanced prevention of multi-loaning in our SACCO					
Credit reference bureaus have enhanced detection of loan frauds in our SACCO					
Credit reference bureaus have led to an adequate credit monitoring of borrowers characteristics in loan repayment in our SACCO					
Credit reference bureaus have led to use of credit information as evidence in conflict resolutions					
Credit reference bureaus help establish the score of credit applicants					

Credit reference bureaus help lenders fix maximum loan to be granted to a borrower in our SACCO					
Credit reference bureaus help lenders fix minimum loan to be granted to a borrower in our SACCO					
Credit reference bureaus have enhanced controls on loans provision in our SACCO					
Credit reference bureaus have enhanced relaxation of private Act previously enjoyed by borrowers.					

SECTION F: INLFLATION

This section seeks to establish intervening effect of inflation on the relationship between credit reference bureaus functions and financial performance of SACCOs in Kenya.

Year	Inflation
2010	4.0
2011	14
2012	9.4
2013	5.7
2014	6.9

SECTION G: FINANCIAL PERFORMANCE

14. Financial performance of SACCO.

Financial performance of the global Credit Union (SACCO) system

YEAR	SAVINGS (USD)	LOANS (USD)	RESERVES (USD)	ASSETS (USD)
2014	1,470,863,017,622	1,202,039,908,250	181,447,651,073	1,792,935,093,480
2013	1,433,306,753,702	1,135,173,182,582	171,626,687,474	1,732,945,830,628
2012	1,293,256,192,197	1,083,818,986,318	161,810,294,796	1,693,949,441,327
2011	1,221,635,067,920	1,016,243,687,593	141,314,921,922	1,563,529,230,923
2010	1,229,389,373,992	960,089,324,653	131,659,476,972	1,459,605,561,772
2009	1,145,851,168,440	911,752,609,007	119,738,181,488	1,352,608,897,477
2008	995,741,235,545	847,058,749,226	115,316,544,867	1,193,811,863,722

Source: WOCCU Statistical report (2014)

Trends in Financial Performance of DTSs in Kenya

MEASURE	2014	2013	% GROWTH
Assets (Millions)	KShs. 301,537	KShs. 257,368	17.2%
Deposits (*Millions*)	KShs. 205,974	KShs. 182,683	12.7%
Loans and Advances (Millions)	KShs. 228,524	KShs. 197,409	15.5%
Capital Reserves (Millions)	KShs. 43,086	KShs. 32,991	30.6%
Membership	3,008,497	2,609,300	15.3%

Source: SASRA Database (2014)

Appendix III: Licensed Deposit Taking SACCOs in Kenya

1	MWALIMU NATIONAL
2	HARAMBEE
3	STIMA
4	KENYA POLICE
5	AFYA
6	UNITED NATIONS
7	UKULIMA
8	UNAITAS
9	METROPOLITAN NATIONAL
10	IMARISHA
11	KENYA BANKERS
12	GUSII MWALIMU
13	KAKAMEGA TEACHERS
14	BANDARI
15	MAGEREZA
16	HAZINA
17	NYERI TEACHERS
18	BORESHA SACCO
19	IMARIKA
20	SHERIA
21	MENTOR

22	TOWER
23	KWETU SACCO
24	BINGWA
25	COSMOPOLITAN
26	SOLUTION SACCO
27	WAUMINI
28	NACICO
29	KITUI TEACHERS
30	WINAS
31	K-UNITY
32	MOMBASA PORT
33	OLLIN
34	SAFARICOM
35	NDEGE CHAI
36	JAMII
37	CAPITAL
38	CHAI
39	MURATA
40	TRANS NATION
41	CHUNA
42	TAIFA
43	NAKU
44	EGERTON UNIVERSITY

45	MAISHA BORA
46	YETU
47	ASILI COOPERATIVE
48	FORTUNE
49	KENPIPE
50	SHIRIKA
51	KENYA HIGHLANDS
52	UNISON
53	MOI UNIVERSITY
54	NGARISHA
55	ARDHI
56	WANANDEGE
57	KENVERSITY
58	UFUNDI
59	WARENG TEACHERS
60	TAI
61	WANANCHI
62	TEMBO
63	NATION STAFF
64	WANAANGA
65	WAKENYA PAMOJA
66	NASSEFU
67	TELEPOST

68	MWITO
69	KITE
70	QWETU
71	UKRISTO NA UFANISI
72	NAWIRI
73	ELIMU
74	TRANS-ELITE COUNTY
75	SUKARI
76	KENYA CANNERS
77	SIMBA CHAI
78	SOUTHERN STAR
79	SMARTLIFE
80	TRANSNATIONAL
81	JITEGEMEE
82	DIMKES
83	GITHUNGURI DAIRY
84	2NK
85	ORIENT
86	COMOCO
87	FARIDI
88	BIASHARA
89	ECO-PILLAR
90	KINGDOM

91	FUNDILIMA
92	UNIVERSAL TRADERS
93	TRANSCOM
94	NAROK TEACHERS
95	PRIME-TIME
96	MAFANIKIO
97	DAIMA
98	AIRPORTS
99	STEGRO
100	MUKI
101	SKYLINE
102	KWALE TEACHERS
103	MOSACCO
104	MAGADI
105	MARSABIT TEACHERS
106	TARAJI SAVINGS
107	DHABITI
108	THAMANI
109	PATNAS
110	NAFAKA
111	VISION POINT
112	NYAMIRA TEA FARMERS
113	CENTENARY

114	NDETIKA RURAL
115	KIMBILIO DAIMA
116	COUNTY
117	MWINGI MWALIMU
118	KENYA ACHIEVAS
119	LAINISHA
120	MAUA METHODIST
121	JUMUIKA
122	KMFRI
123	PUAN
124	WEVERSITY
125	TIMES U
126	BARAKA
127	DUMISHA
128	KONOIN TEA GROWERS
129	WAKULIMA COMMERCIAL
130	NANDI HEKIMA
131	IMENTI
132	VISION AFRICA
133	STAKE KENYA
134	SUPA
135	SIRAJI
136	LAMU TEACHERS

137	NYALA VISION
138	WASHA
139	TENHOS
140	NDOSHA
141	LENGO
142	NYAMBENE ARIMI
143	KENYA MIDLAND
144	SMART CHAMPION
145	JACARANDA
146	ELGON TEACHERS
147	MUDETE TEAFACTORY
148	UFANISI
149	RACHUONYO TEACHERS
150	KIAMBAA DAIRY RURAL
151	SOTICO
152	ENEA
153	NANDI FARMERS
154	NANYUKI EQUATOR
155	SUBA TEACHERS
156	BANANA HILL MATATU
157	FARIJI
158	AINABKOI RURAL
159	NUFAIKA

160	TRANSCOUNTIES
161	NYAHURURU UMOJA
162	AGROCHEM
163	BARATON UNIVERSITY
164	KIPSIGIS EDIS
165	MILIKI
166	ILKISONKO
167	UNI-COUNTY
168	KOLENGE
169	MWIETHERI
170	NEST
171	KORU
172	GOOD FAITH
173	UCHONGAJI
174	KATHERA
175	ALL CHURCHES
176	GASTAMECO
177	KAIMOSI
178	VIHIGA COUNTY
179	GOODWAY(TESCOM)
180	GREEN HILLS
181	MAONO DAIMA

SOURCE: SASRA (2014)