IMPACT OF PRUDENTIAL REGULATION ON FINANCIAL PERFORMANCE OF DEPOSIT TAKING SAVINGS AND CREDIT CO-OPERATIVE SOCIETIES IN KENYA

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Impact of Prudential Regulation on Financial Performance of Deposit Taking Savings and Credit Cooperative Societies in Kenya

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DECLARATION

This Thesis is my original work and has not been presented for a degree in any other University.

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DEDICATION

To all my family members, Jane, Carol, Esther, Helen, Charles and all men and women of goodwill working directly or indirectly in cooperative movement and particularly in SACCO Subsector. May this research thesis serve as an eye opener to all the benefits of protecting deposits with dedication, professionalism and integrity required in the SACCO sub-sector.

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ABBREVIATIONS AND ACCRONYMNS

ACCOSCA	African Confederation of Savings and Credit Associations
CAK	Cooperative Alliance of Kenya. It is the apex body for all cooperatives.
CAPR	Capital to total assets ratio
CARs	Capital Adequacy Ratios
CBK	Central Bank of Kenya
CCA	Core Capital to Total Asset ratio
DTS	Deposit Taking SACCOs.
GDP	Gross Domestic product
IAS	International Auditing Standards
ICA	International Cooperative Alliance
IFRS	International Financial Reporting Standards
KUSSCO	Kenya Union of Savings and Credit Cooperatives
MCR	Minimum Capital requirements.
MOIED	Ministry of Industrial and Enterprise Development.
PEARLS	An acronym where P represents Protection of assets, E stands for Effective capital structure, A represents Asset quality, R

	represents rate of returns, while L represents liquidity and S is signs for growth.
ROA	Return on assets
ROSCAS	Rotating Savings and Credit Associations
SACCO	Savings and Credit Cooperative
SACCOL	Savings and Credit Cooperative League of South Africa
SASRA	SACCO Societies Regulatory Authority
WOCCU	World Council of Credit Unions.
SPSS	Statistical Package for social sciences.

OPERATIONAL DEFINITION OF TERMS

Basel Standards Standards on banking practices as formulated by International Committee on banking, Saunders and Cournet (2011).

Camel standards It is a standard measure of SACCO's performance based on capital, asset mix, management quality, earnings ratio and liquidity. It is also an abbreviation where C represents capital adequacy, A represents asset mix, M represents management quality, E represents earnings ratio and L represents Liquidity, Mathuva (2016).

Capital Structure The mix of owners Equity and debt, Buch *et al* (2014)

Core Capital It means fully paid up members' shares, capital issued, disclosed reserves, retained earnings, grants and donations all of which are not meant to be expended unless on liquidation of the SACCO Society, Government of Kenya, the SACCO Societies (Deposit taking- SACCO Business) Regulations, 2010, Legal notice no 95

Financial Credit Penetration - The penetration rate is calculated by dividing the total number of reported credit union members by the economically active population, (McKillop & Wilson 2011).

Financial Distress Financial difficulties leading to firm's external borrowing. Firms with greater risk of experiencing financial distress will borrow more than the firms experiencing low risk of distress, Ross (1993) and Mathuva (2016)

Deposit Taking SACCO SACCOs that conduct business of savings and credit and in addition does business of accepting or withdrawing money on daily basis across the counter (Government of Kenya 2008).

Institutional Capital It means disclosed reserves, retained earnings, grants and donations all of which are not meant to be expended unless on liquidation of SACCO Society, the SACCO Societies (Deposit taking- SACCO Business) Regulations, 2010, Legal notice no 95

Liquidity Ability of the institution to own liquid assets. For the purposes of the regulations, liquid assets include, Notes and Coins, Balances held in banks, treasury bills and treasury bonds, deposits in other SACCO's, other assets as specified by the Authority (Government of Kenya 2008).

Pearls Standards These are abbreviations where P represents Protection of Assets, E represents Effective capital structure, A represents asset quality, R represents rate of returns, L represents liquidity ratios and S represents signs of growth, Berhane (2013).

Performance Financial results as measured by SACCO's income (Turnover) and the return on assets, (Olando 2013).

Prudential Regulations Standards provided to financial institutions to minimize risks and guarantee safety of members funds (Government of Kenya, 2008).

Regulations The guidelines that provide minimum operational standards required of a deposit taking SACCO Society (Government of Kenya, 2008).

Savings and Credit Cooperative (SACCO) A financial institution that is owned and controlled by its members and operated for the purposes of promoting thrift, providing credit at low interest rates and providing other financial services to its members (Makori,2013).

ABSTRACT

Savings and Credit cooperatives commonly known as SACCOs' are financial organizations formed by members with the same common bond to mobilize savings and later grant loans to the willing members. Prior to 2008 regulatory reforms which became operational in 2011, there were no conscious efforts made to regulate the subsector prudently because the organizations were not thought to pose any significant risk to the country's financial system. However, the organizations expanded financially and even started banking like services which were called FOSA in attempt to increase efficiency in services delivery but instead led to illiquidity, capital inadequacy, poor credit management and low confidence among members. In 2008, the government and the SACCO stakeholders formulated and legislated SACCO Societies Act 2008 and subsidiary deposit taking SACCO regulations of 2010. The null hypotheses sought to examine if Core Capital requirement, liquidity levels, allowance for loan loss and members retention had any significant impact on the deposit taking SACCOs' financial incomes. The relevant literature was reviewed to ascertain the knowledge gap left by earlier scholars. The methodology of data collection was mining secondary data from Sasra data base and the analysis tool was the statistical package for social sciences (SPSS) which either led to acceptance or rejection of null hypothesis. The study used comparative design and a linear regression model to establish the impact of prudential requirements on the SACCO's financial Performance. The data and the perceptions of the SACCO industry professions were able to show low performance before legislation and higher performance after legislation. Further analysis, compared the Betas of various independent and dependent variables before the regulatory reforms and after. On comparison, all the betas showed that the independent variables, namely core capital, credit management, membership growth and liquidity were not strong predictors of financial performance but after the prudential regulations they all became strong predictors. Thus, the study recommends that SACCOs should abide by prudential regulations to enable them enjoy benefits of increased volume of business. To achieve and sustain increased volume of business, the SACCOs must be prepared to employ

competent professionals to manage the large deposit taking SACCOs' businesses. The benefits of both economies of scale and economies of scope would definitely trickle down to members in form of increased efficiency in service delivery and increased returns to members. The study further recommends research on ascertainment if other optimal capital structure exists for SACCOs and divided policies to balance between stability of the institution and the returns to members. The study conclusion on the basis of findings reveals that the prudential regulations have positive impact on SACCO's financial performance.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The study seeks to analyze gains made by prudential regulations introduced by government in 2008 to grow and stabilize the SACCO sub-sector. This chapter covers the background of the study, the savings and credit cooperative societies (SACCOs) context and the concept of prudential regulations and its impact on financial performance. It also presents the statement of the problem, objectives of the study and research hypothesis. In conclusion of the chapter, justification, scope and limitations of the study are also covered.

Specifically, the study is about the impact of prudential regulation on financial performance of deposit taking SACCOs. The study's units of analyses are the 124 licensed deposit taking SACCOs as at 31st December 2012. The rationale for taking 2012 as the base year was based on the fact that SACCOs were still applying for licenses and hence the number kept changing from year to year. The second reason was the available of data for both periods of pre- licensing and post licensing. The variables included in the prudential regulations hypothesized to have an impact on financial performance of a deposit taking SACCO are; core capital, liquidity, credit management and membership growth. The prudential regulation in savings and credit cooperatives is a relatively new concept and hence few studies done in this area were considered.

Among the four independent variables identified, they were all studied using different theories. Core capital was studied through the pecking order theory. Liquidity is another independent variable and was studied through the cash management theories. The study evaluates the ratio provided by the regulator in the homegrown quasi banks called Front Office Services Activity (FOSA) and the cash management models to ascertain its impact on financial performance of the deposit taking SACCOs. Membership growth

and the associated behaviors were studied through the SACCO theories. Credit management is an independent variable in the study and a relatively new way of assessing loan quality. It was measured through allowance for loan loss to total assets. The concept of allowance for loan loss ascertains the provision chargeable in the comprehensive income statement and also accumulated losses attributable to the greatest asset in a financial institution, the loans to clients. Allowance for loan loss affects asset quality and also affects the profitability associated with the SACCO. Lastly, the financial performance was studied through parameters of measuring performance and was specifically measured through Return on Assets (ROA).

The moderating variable is the prudential regulations established by the government through the relevant legislation. To establish the variables impact warranted the research to become comparative and hence ascertaining the linear regression results before legislation and after legislation. Thus, this study is filling the knowledge gaps left by various research studies and answering an important ingredient if government prudential regulations were beneficial to the sector or not, which was not adequately addressed by previous studies on deposit taking SACCOs.

1.1.1 Savings and Credit Cooperative Societies

Savings and credit cooperative societies (SACCOs) are autonomous financial association of persons united voluntarily to meet the common economic, social and cultural needs of the group members, through a jointly owned and democratically controlled enterprise, Mirie (2014). In Kenya, cooperative movement has expanded significantly and can be grouped into six main sub categories namely; marketing cooperatives, multipurpose cooperatives, investment cooperatives, housing cooperatives, art and craft cooperatives and financial cooperatives commonly known as Savings and credit cooperatives (SACCOs) Mirie (2014). Manyara (2003) cited the evolution of cooperative movement through government initiative contained in the sessional paper No 10 of 1965. Currently (2015), Kenya has registered more than 5000 Saccos and still

more registration is taking place in the devolved units called counties. Ondieki, Okioga and Okwena (2011) acknowledged that SACCOs played and will continue playing a significant role in Kenyan financial sector due to their widespread networks throughout the country.

1.1.2 The Concept of Financial Performance in Deposit taking SACCOs

Globally, SACCOs are facing two major challenges as articulated by Cornforth *et al*., (1988) which he called the degeneration theory and competition. The theory explained that SACCOs are in intense pressure to operate like other financial institutions and particularly the banks. The competition aspect is the fact that all financial institutions are focusing on the same people called investors. Thus to deliver returns or benefits similar to the ones offered by other financial institutions and particularly the banks, the SACCOs had to change mode of doing businesses and thus increasing risks substantially.

WOCCU, the world credit union proposed before the Basel committee on Banking supervision, the essential prudential standards for credit unions. Basel is an international standards setting body that was established by the bank for international settlements to formulate policy on prudential standards and best practices among financial regulators globally (WOCCU, 2014a), which countries were expected to ratify and Kenya ratified and adopted. On adoption, it was discussed in parliament and resulted in new legislation currently known as SACCO Societies Act, 2008. The various parameters of gauging financial performance are well established in the act and it is on ratios provided that a SACCO can determine if it is performing well financially or not.

Kilonzi (2012) appreciated the fact that the eligible SACCOs applied to SASRA (SACCO Societies Regulatory Authority), a government body for regulating SACCOs for two reasons, namely: one to comply with the government regulations and two to benefit from the new confidence that public showed after Sacco legislation. For a SACCO to apply, it had to meet two conditions namely, presence of front office savings

activity (FOSA) and registration certificate from the concerned ministry. The eligible SACCOs were called deposit taking SACCOs, mainly because the quasi bank activities involved exchanging money across the counter. A view also shared by Njagi *et al* (2013) and Alukwe (2015). Thus, the increased risks warranted the government to come up with specific parameters of recognizing and measuring financial performance to avoid excessive appropriation of surplus to members as dividends and consequence of depleting capital. The identified variables that were hypothesized to have an impact on financial performance were core capital, credit management membership growth and liquidity. Each of the variables are discussed briefly.

Capital of any organization is very important especially during the startup process of the entity (Druly, 2000) and when extended to include capital and revenue reserves less investment in other businesses it is called core capital. Thus, core capital means fully paid up members' shares, capital issued, disclosed reserves, retained earnings, grants and donations all of which are not meant to be expended unless on liquidation of the SACCO society, Government of Kenya (2008). A concept widely studied especially in capital structure of an organization (Modigiliani & Miller,1958) and this study concentrates on its extension, the pecking order theory (Myers & Majluf 1984). A view shared by Wilson *et al* (2010) who summed up the importance of core capital as meaningful capital standards that are important in protecting the tax payers and the stability of financial systems.

Liquidity was defined as the ability of the institution to own liquid assets. For the purposes of the prudential regulations, liquid assets include, notes and coins, balances held in banks, SACCOs, other assets as specialized by the Authority [Government of Kenya 2008: regulations 2010]. Sanders & Cornett (2007), advocate for prudential planning of cash flows by matching maturities of assets against maturities of liabilities. Thus, liquidity in SACCOs serves like a car engine and is needed for managing SACCOs efficiently and effectively after combining it with the human capital. Membership Growth is a critical variable in that it adds both owners and customers at

the same time (Kuria 2011). Lastly and very important is Credit management variable which is the core business of any SACCO and all the revenue of SACCOs depends on how well this asset is managed.

1.1.3 Prudential Management of SACCOs

According to WOCCU (2012) on credit unions, North America with asset size of US dollars 1,331,720,878,771 and a financial penetration of 45.23% is leading, followed by Ocenia and Carribean with a financial penetration of 21.62% and 17.5% respectfully. In USA, prudential management has encouraged consolidation of small and unviable credit unions and thus reducing the number of credit unions but increasing the number of people being served by the credit unions (Bergie *et al*, 1995b). Similar views were shared by Goddard (2007) who observed that similar practices were in Canada, Australia, Brazil, Ireland and Mexico. Prudential regulation is still unknown in other parts of the world where SACCOs are not prevalent.

1.1.4 Capital Requirements for SACCOS in Africa

SACCOs are mainly prevalent in Kenya, Tanzania, Lesotho, South Africa, Malawi, Uganda, Nigeria, Ghana and to a minor extent in the other countries of Africa, WOCCU, (2012). WOCCU study provides that as at 31st December 2012, African SACCOs had a membership of 16,022,707, total assets of US dollars 5,600,465,483 and a financial penetration of only 6.43% which is quite small in comparison with North America with asset size of US dollars 1,331,720,878,771 and a financial penetration of 45.23%. Apart from Kenya which is using prudential standards and number 7 world - wide in SACCO network outreach, all the other African countries except South Africa have not yet legislated the prudential management into Law. The other African countries except South Africa have low SACCO outreach network and low penetration level, (Mac Pherson, 1999).

Thus, African countries would need to adopt the prudential standards to increase members' confidence and loyalty to avoid the situation in Northern Uganda where members of a SACCO deposit money in the evening and withdraw all of it the following morning to avoid likelihood of losing deposits, Vesperman (2013). In South Africa, WOCCU did a research in 1991 regarding the viability of prudential management among the SACCOs and found out that only three (3) out of existing forty seven (47) SACCOs were viable. The results persuaded the SACCO players to focus more on the business with a view of long term benefits to members. To consolidate the gains made and sustainability of profitable institutions in 1993, the savings and credit cooperatives leagues of South Africa (SACCOL), a self-regulatory body for all SACCOs in the country, was thus formed (SACCOL,2014). Globally, the registered credit Unions are about 50,000 with the asset base of US dollars of 1.7 trillion. Based on total assets ranking, Kenya is ranked 12th on SACCOs wealth accumulation. The other countries considered to be performing relatively well on savings mobilization are Senegal, Tanzania, Uganda, Ghana, Cameroon and South Africa.

1.1.5 Evolution of Prudential Regulations in Kenya

Manyara (2003) and Mirie (2014) cited the evolution of cooperative movement as having been started through a government initiative contained in the sessional paper No 10 of 1965. It encouraged Kenyans to form cooperatives to eradicate poverty and accelerate economic development. The institutions formed relied on government for guidance and support. The strong government presence and supervisorial powers by the implementing agencies led to delays of SACCO projects and hence the cooperatives (SACCOs included) sought autonomy. The regulated cooperatives lobbied strongly for Autonomy and in 1997 the sessional paper no. 6 led to revision of Cooperative Societies Act to embrace cooperative development in a liberalized environment and repealed the Cooperative Societies Act of 1966, Kobia (2011). Kobia (2011) further pointed out the challenges which emerged ranging from mismanagement by the boards, corruption on deals especially in procurement, unprofitable branches to outright embezzlement of

SACCOs' funds. Therefore the government in 2004 realized that the 1997 Act did not meet the intended objectives and revised the 1997 Act through the amended Act of 2004, namely: The cooperative Societies Act 2004 whose sole purpose was to facilitate growth in a semi liberalized business environment (Alukwe, 2015). Due to good savings environment which was created by 2004 Act, the SACCOs financial performance improved with big SACCOs opening banking like services known as front services activity (FOSA). Kilonzi (2012) stated that myriad problem encountered by large SACCOs were the increased risks and severe competition. Similar findings by FSD (2009), found similar problems and recommended prudential management which the government implemented by forming SACCOs specific act and the associated regulations. Thus SACCOs were officially recognized as financial institutions expected to be regulated by the Ministry of National Treasury. Currently the Financial system is very complex comprising of many different types of financial institutions including banks, insurance, SACCOs, pension and provident funds, dealers and brokerage firms (Frederick & Stanley, 2011). The Institutions face financial risks and various governments have created regulatory bodies to protect depositors. In Kenya banks are regulated by Central Bank, SACCOs by SACCO society regulatory Authority SASRA, insurance companies by Insurance regulatory authority (IRA), pension and provident schemes by Retirement Benefit Authority (RBA) while brokerage firms are regulated by the Capital markets Authority as illustrated in Figure 1.1.

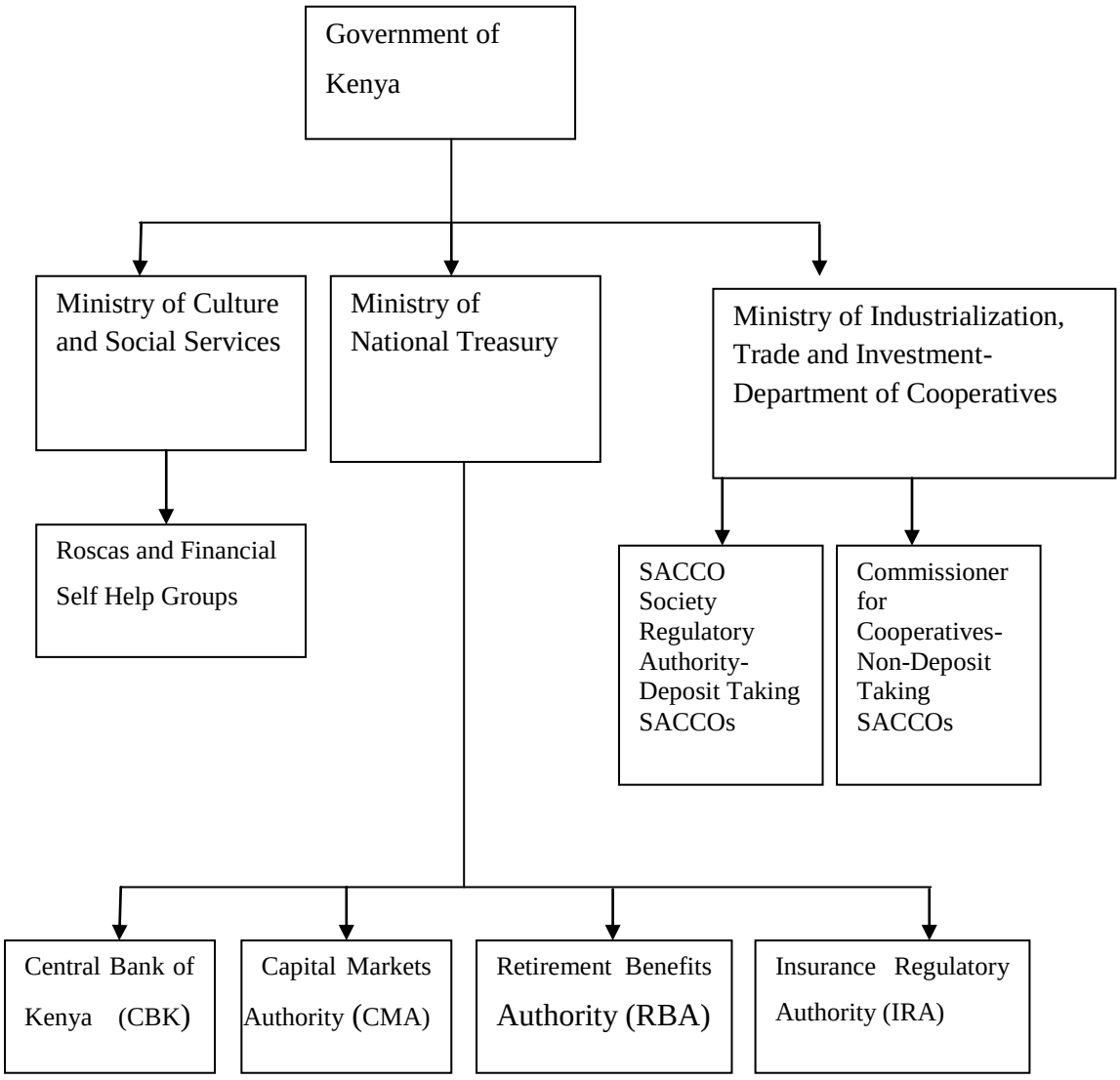


Figure 1.1: Framework for Financial Services in Kenya

Figure 1.1 explains the financial services model for Kenya government supervision and regulation and is similar to other models implemented by other African countries. However, other countries especially developed countries provide financial matters under a single government arm which is normally the national treasury or ministry of finance. According to Moyer (1990) risk management in bank operations include risk identification, risk measurement, risk assessment and corrective action to mitigate against the risks identified and all the five regulators provide parameters for controlling risks.

The risks which banks and SACCOs are particularly exposed to are; credit risk, liquidity risk, investment risk, systemic risk, operational risk, legal risk, strategic risk and more importantly reputational risks, Saunders and Cornett, (2007). SACCOs are particularly prone to credit risk because they advance loans on the strength of individual guarantees and hence the excessive coverage of credit risk assessment on the loans to members by the SACCO Act, Government of Kenya (2008).

A key part of SACCO regulations is to ensure that firms operating in the industry are prudently managed. The aim is to protect the firms themselves, the customers and the economy by encouraging rules that would ensure that the institutions hold enough capital. The regulations create a safe and efficient market to withstand any unforeseeable SACCO panic withdrawals and hence confidence in the market. Similar rules apply to banks to avoid bank run or bank panic withdrawals, Boyd (2008).

1.2 Statement of the Problem

Prior to the regulatory reforms in Kenya of 2008, SACCOs were not prudentially regulated and the already existing deposit taking businesses (FOSAs) posed several risks to the safety of members' deposits and the stability of financial sector (FSD, 2009). The

major problems were liquidity challenge (Manyara, 2003), capital inadequacy; credit management and membership growth which are key factors in enabling the SACCOs financial growth and protection of members' deposits.

The major theory contributing to the problem is the degeneration theory (Conforth *et al*, 1988). SACCOs way of managing competition was to offer services like banks and consequently offered to issue credit and debit cards like banks without laying the necessary infrastructure like strong rooms, safes, and treasury management manuals and cash management models. Since cash minimum level was not expressly provided in law, the results were no cash to needy customers, embezzlements, cash mismanagement and loss of cash to fraudsters and other related crimes.

Brunnermeir (2009) stated that increase in unsafe lending and risky investments led to financial turmoil in the world and was particularly severe in the US and European Union countries in 2007 and 2008, views shared by Knell and Stix (2009) and Guiso (2010). To avoid similar experiences in Kenya, credit management had to be addressed.

Olando (2013) recommended use of institutional capital to guarantee growth in SACCOs and thus this study seeks to answer if institutional capital which is part of core capital has any impact on financial performance. Karagu and Okibo (2014) carried a study to establish effect on SACCO financial performance of fund misappropriation, investment decisions, loan defaulting and membership withdrawals. As a result, members' confidence and loyalty kept diminishing and SACCO regulatory reforms which had an objective of protecting members' deposits and creating confidence in the SACCO Subsector saved the adverse situation.

On financial performance, there was a research gap according to FSD Kenya (2009) survey which showed that Sacco performance was declining while banking sector performance was rising. In 2006, both bank and SACCO usage by households were at 13.5% but by 2009, banks' usage had risen to 17.1% while SACCOs' performance had

declined to 9.3%. Thus, of great importance to this study is to ascertain if the prudential regulations assisted the subsector or not.

1.3 General Objective.

To determine the impact of prudential regulations on financial performance of deposit taking SACCOs' in Kenya.

1.3.1 Specific Objectives

1. To examine the impact of core capital on financial performance of deposits taking SACCOs in Kenya.
2. To examine the impact of liquidity management on financial performance of deposit taking SACCOs in Kenya
3. To examine the impact of credit management (allowance for loan loss) practices on deposit taking SACCOs' financial performance in Kenya.
4. To examine if members' growth had any impact on financial performance of the deposit taking SACCOs in Kenya.
5. To examine if the moderating effect of 2008 SACCO regulations had any impact on the relationship between core capital, liquidity, credit management and membership growth on financial performance for deposit taking SACCOs in Kenya.

1.4 Hypotheses

Ho: Core capital requirement has no impact on financial performance of deposit taking SACCOs in Kenya.

Ho: Liquidity management has no impact on financial performance of deposit taking SACCOs in Kenya.

Ho: Credit management has no impact on financial performance of deposit taking SACCOs in Kenya.

Ho: Membership growth has no impact on financial performance of deposit taking SACCOs in Kenya

Ho: The SACCO regulations (2008) have no moderating effect on core capital, liquidity, credit management and membership growth on financial income of deposit taking SACCOs in Kenya.

1.5 Justification of the Study

The study is beneficial to the following:

1.5.1 Policy Makers

The study examined the impact of prudential management on financial performance of deposit taking SACCOs in Kenya. The findings were able to establish that prudential management influences performance positively and hence need to be supported by all stakeholders. Thus, the findings of this study will be used to influence the policy makers when revising prudential requirements for deposit taking SACCOs. It is also anticipated that non deposit taking SACCOs will be considered and similar regulations formulated for them.

1.5.2 Investors

The first objective of the study was to determine if core capital levels had an impact on deposit taking financial performance. Core capital strengthens the deposit taking SACCOs by increasing the amount of money available for lending to members through profit retention. The practice guarantees members of loans at cheap interest rates and efficiency in services rendered by the SACCOs. The savers who are also investors will find the study particularly useful in determining whether to increase savings in SACCOs

or to obtain alternative institutions. Similarly, they will determine if SACCOs are the cheapest source of credit or other avenues existed.

1.5.3 Scholars, Researchers and Students

The study will enable researchers appreciate the impact of prudential standards on deposit taking institutions and also pursue the areas recommended for further research. By establishing the capital structure of ten percent (10%) core capital to total asset (CCA), sixty five or greater than (> 65%) of total deposit to total assets and external loans to total assets of less than twenty five (< 25%), the other researchers will compare the findings with capital structure theory of Miller and Modigiliani (1958). The researchers may want establish if better capital structure for SACCOs existed. The study will positively influence other researchers to do studies on prudential management SACCOs and hence enrich future research with relevant knowledge on SACCOs.

1.5.4 Deposit Taking SACCOs

The board of directors, management and staff will appreciate the study findings for advocating SACCOs' funds utilization in core business as opposed to excessive investment in other financial institutions. The increased revenue to the SACCO is eventually extended to members' in form of interest on members' deposits and dividends. The study findings would also increase members' confidence and loyalty to the SACCO subsector due to the safety of their deposits by establishing the adequate institutional capital levels. It also encourages pro-active management of risks as they are anticipated before occurrence by the early detection mechanisms by the SACCO when sending returns to SASRA.

1.6 Scope of the Study

The study will investigate 4 factors namely; core capital, credit management, membership growth and liquidity liability management influence on financial

performance of deposit taking SACCOs. The study covers all the 124 licensed SACCOs performing deposits taking business by the end of December 2012. The study is a census of all licensed deposit taking SACCOs as at December 2012.

1.7 Limitations of the Study.

The study is conducted under capital structure of 10% core capital and 90% liabilities. The study is not able to establish if the capital structure is the most optimal for the SACCOs and hence future studies will attempt if there exists a more efficient optimal capital structure for deposit taking SACCOs.

The other limitation is the likelihood of non-technical response from the respondents in SACCOs where CEO's or Chief Finance managers are not professionally qualified. This is possible where SACCOs employ staff on whims of clan associations, tribalism and other human prejudices that inhibit on professional recruitment of staff. However, when collecting primary data, the two SACCOs without professionally qualified C.E.Os were identified and other qualified officers were encouraged to fill the questionnaire.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter examines the theoretical and empirical literature covering the impact of prudential regulations on the deposit taking SACCOs. The research states the various theories supporting the variables. Also included in this chapter is the conceptual framework stating the relationship between variables and how they influence performance of deposit taking SACCOs. The chapter gives an in-depth background of the topic being studied; the empirical studies carried out in the area of research, the critique of existing literature, summary and research gaps.

2.2 Theoretical Review

A theory is a set of systematic interrelated concepts, definitions and propositions that are advanced to explain and predict phenomena (Cooper & Schindler, 2011). There are various variables that influence the level of earnings in a financial institution and are being considered in this study. In the study, the variables assessed are core capital, liquidity, credit management and membership growth. The financial theories supporting prudential regulations of deposit taking SACCOs include: SACCO theories, core capital theory (peking order), loanable funds theory, risk and financial disclosure theory, liquidity theory and signaling theory. Drawing from the theories, the study obtained the variables that have impact on financial performance and hence the linear regression model.

2.2.1 (a) The SACCO Theories.

The theories explain the evolution of SACCOs from initiation in the early 19th century to the present position. The original mode of existence is supported by the shareholders theory where members unite with a view of solving a certain economical problem and then benefit from their efforts, Freindman (1970) and Coolho *et al* (2003). The SACCO's corporate governance is in the hand of the "invisible hand" the AGM where the joint principals (members) guide the destiny of the SACCO and delegate some responsibilities to the management Committee. Most small SACCOs with total asset size below Ksh 1,000,000 are in this category.

The agency theory is similar to shareholders theory which states that the SACCO exists to maximize shareholders wealth, Olando *et al* (2013). The theory is an efficient market model (Blair 1995; Keasey *et al*, 2004), which stresses that the firm value is determined by the firm's short term performance and thus sacrificing long term investments. However, the neo-classical growth theory (Gatner, 2006) recognizes the importance of long term investments and capital growth.

As the SACCO expands both in membership and total assets, the need to hire a manager arises who acts as the steward responsible for protecting and maximizing shareholders value and hence the stewardship theory, Davis *et al* (1997). The steward is satisfied when the organizational objectives are achieved, Donaldson and Davis (1991). Olando, Jagongo and Mbewa, (2013) extended it and called it financial stewardship which is meant to increase and sustain SACCOs' value while satisfying the needs of the members at the same time. Davis *et al* (1997) propounded that stewards are satisfied and motivated when organizational objectives are achieved. The theory recognizes the importance of governance structures that empower the steward and offers maximum autonomy built on trust (Donaldson & Davis, 1991). At registration, the SACCO board performs all the responsibilities and only later employs a manager to take responsibilities on extended tasks. The managers are the stewards and success is attained

when SACCO objectives of receiving deposits and granting loans to members is achieved.

Abdullah and Valentine (2009), advanced "stakeholders theory" which acknowledged that all the stakeholders' interests in the SACCO need to be addressed adequately for the success of the institution and overall membership. The theory asserts that satisfying shareholders only is only beneficial in the short term while satisfying all stakeholders is more sustainable and benefits shareholders more in the long term.

Jagongo *et al* (2013) proposed the Solow-Swan class growth theory which focuses on capital and labour with major findings that capital is added when SACCOS invest but is lost due to depreciation. The indication is that there is capital growth in wealth only when the investment exceeds depreciation (Gatner, 2006). He asserted that increment in total assets only increases if the monetary value of investments exceeds the monetary estimate of assets loss in value through depreciation. The theory is strongly supported by Damar (1946) which explains growth rate in terms of savings and productivity of capital. It explains that increase in investments leads to accumulation of capital.

However, the degeneration theory can largely explain the diversity in the SACCOs objectives among the existing SACCOs. Cornforth *et al* (1988), appreciates the change in paradigm by the SACCOs due to pressure it receives from other market forces and amplified by members' demands for higher returns. The capitalistic attitude driven by expected returns on investments by members compromised the original principles of SACCOs. SACCOs are subcategories of cooperatives dealing with savings and loans and are guided by distinct principles. Cooperatives are guided by cooperative principles, namely; voluntary and open membership, democratic member control, member economic participation, autonomy and independence, education, training and information, cooperation among cooperatives and concern for the community (Mirie, 2014).

The principles aforementioned are compromised and hence degeneration theory. As the SACCOs expand to become financial institutions like banks, they often respond to market pressures to operate like other financial institutions. Unlike the initial objective of saving with a major objective of obtaining credit, the shareholders start demanding more immediate services using the current technology like ATMs and higher returns on their investments among others. The change in paradigm leads to increased risks and hence the prudential regulation on the deposit taking SACCOs by the government. Thus, the importance of SACCO theories is to narrate how SACCOs have evolved over time and how the government regulations have changed over time. Particularly, at the current time where degeneration theory practices are prevalent, the government introduced prudential regulations to guarantee safety of members' deposits. Thus, membership is a critical variable.

2.2.1 (b) AgencyTheory

According to Jensen and Meckling (1976), agency theory defines an agency relationship as a contract that arises when one or more persons (principals) engage another person (agent) to perform certain service on their behalf, which may involve delegating some decision-making authority to the agent. Aboagye-Otchere *et al.* (2014) argued that the basic agency conflict in modern firms arises due to separation of ownership and management. The theory maintains that managers (agents) do not always act in the best interests of owners (principals). Instead, managers further their own self interests. This is further aggravated by the incomplete and asymmetric information between the principal and agent (Urquiza *et al.*, 2010). This leads to agency costs such as costs of monitoring managers, costs of preventing managers from harming owners' interests and residual loss - the difference in wealth due to actions not being carried out by the principals themselves. The principals themselves may harm the managers by advocating for policies and laws which only strengthens the shareholding and not employees' interest. This is attributable to membership growth objective where more members join the Sacco due to ever growing dividends policy.

2.2.2 (a) Loanable Funds Theory.

Wilson *et al* (2011) and Goddard *et al* (2010) summed up the importance of capital base as "meaningful capital standards that are important in protecting the taxpayers and the stability of financial system". Since retained earnings form a key component of core capital, it forms an important source of loanable funds in SACCOs. Saunders and Cornett (2007) acknowledge Loanable funds theory as the amount of money available to borrowers due to changes in interest rates and other government laws. However, in SACCOs, it is the amount of money available to borrowers as mobilized by SACCOs. The funds retained in the SACCO business have assisted the ever growing membership and the incessant demand for loans.

Saunders and Cornet (2007) stated that most regulators acknowledge the owners contributions (core capital) as important component primarily because it is the amounts available to stakeholders in the event of insolvency and liquidation. The financial institutions particularly fix high capital ratios in order to cushion depositors against any probable loss and the undesirable banking impact of panic funds withdrawal which may create destructive panic runs on other solvent but illiquid banks or SACCOs, (Bhattacharya & Thakor, 1993).

SACCOs are exposed to many financial risks but the three direct ones are: credit, systemic and liquidity risks. In credit risk, the lender is uncertain if the loan provided will be repaid as per the contractual documents. It includes the default risk which states that the lender is unlikely to recover both the principal and the interest rate payable by the client. For the protection of deposits, the regulator must be assured that the organization can at least be able to pay a proportion of shareholders' funds in the event of insolvency and liquidation, (Mishkin & Eakins, 2011).

To be specific, the regulator may ask for a specific proportion to be deposited in the deposit Guarantee fund with a separate board of trustee for use if the business continuity is halted. Since all the stakeholders, rely on the owners funds for compensation in the event of financial difficulties, risk based supervision with identical reporting format must be implemented by all deposit taking SACCOs or credit unions, Andrews (2012). Croteau (1956) study utilized financial ratio analysis to suggest that US credit unions are characterized by increasing merger and growth due to compliance with capital requirements which was greatly contrasted by Koot (1978). To support increasing return to scale similar to Croteau (1956), Dran (1971), Taylor (1972,1977 & 1991), Wolken and Navratil (1980) and Fry *et al*. (1982) appreciated the importance of capital requirements in management of financial institutions. The prudential measure for loans granted to members is the allowance for loan loss.

In Kenyan SACCOs Scenario, capital requirements are provided for in law, Government of Kenya (2008), the SACCO Societies Act 2008, Kenya Gazette supplement No. 98. Core capital means the fully paid up members' shares, capital issued, disclosed reserves, retained earnings, grants and donations all of which are not meant to be expended unless on liquidation of the SACCO society. Government of Kenya (2008), SACCO Societies Act, section 29 is supported by regulation 9 which states that SACCOs must maintain core capital of not less than ten million (10,000,000) and core capital to total assets of not less than ten percent (C. C. A) = C.C/total assets=10%). Furthermore on capital, an institutional Capital to Total Assets of not less than eight percent ((I. C.A = I.C/total assets= 8%) to strengthen the capital base of the SACCO while cushioning other stakeholders against losses. Thus to show that capital must grow at similar rate with deposits, the prudential capital ratio provided a core capital of not less than eight percent (8%) of the total deposits (C.C.D = C.C/total deposits = 8%).

Similar bank requirements were provided by Barrios and Blanco (2002) while the ones for credit Unions were provided by Hawken, Bake and Davis (2005). From the above definitions, it implies that the component of equity is only 2%, meaning SACCOs should devise a way of sustaining capital from own funds (retained earnings, capital reserves, grants and donations). Therefore, SACCOs are expected to make policies on dividends and interest on members' deposit that would ensure enough retained earnings are left in the SACCO to sustain core capital. Thus the change in paradigm for Kenyan SACCOs is to avoid distributing surplus on the whims of populism that would give leaders votes to join SACCO directorship boards or other elective SACCO bodies. Klinedinst (2012) noted that with proper policies, SACCOs can become alternative to banks in providing funds to citizens.

The capital adequacy theory and protection of deposits supports the agency conflict theory because the shareholders are ordinarily interested in dividends. However, the capital ratio of core capital (which includes profit retention) must be increased any time the total assets change for the ratio to remain constant or above 10%. The practice deters profits from being distributed and hence conflict with the shareholders interest (Jensen & Meckling, 1976).

2.2.2(b) Signaling Theory

Signaling theory originated from Spence (1973) and advanced by Watts and Zimmerman (1986) who stipulate that the asymmetric information surrounding an organization and investors causes adverse selection. In credit management, the lenders must acquire the correct information to avoid adverse selection and moral hazard problem. The loans disbursed must be recovered according to the loan contractual documents and if not allowance for loan losses must be provided. According to Harvey (2012) analyses, it is a valuation allowance to offset credit losses specifically identified in the quick cash portfolio. It is the management's best estimates of probable losses in the remainder of the portfolio as at the balance sheet date. Allowance for loan loss is a provision or

reserve estimated showing the amount of loans made past due and likely to continue in default. The weaknesses in loans repayment led to the financial turmoil of 2007 and 2009 US financial crisis. Brunnermiar (2009), Berger, Herring and Szego (1995) noted that inability to make loan losses provision lead to depletion of capital and hence losses in US banks in 1980's and similar findings were made by Peek and Rosengren (1995 a). Olando *et al* (2013) recommended that SACCOs should review credit policies continuously and also develop loan loss provision policies to benefit from the loan portfolio held by SACCOs.

Management estimates the allowance balance required using past same day loan experience, an assessment of the financial condition of individual borrowers, a determination of the value and adequacy of the underlying collateral, the condition of the local economy and an analysis of the levels of trend of the portfolio and a review of delinquent and classified loans. Actual losses could differ significantly from the amounts estimated by the management.

The most critical asset in any financial institution (especially banks & SACCOs) is loans to members (Monteverde, 2000). Two characteristics that make SACCOs' loans to members critical is the materiality of the earning asset and the assets exposure to credit and default risk. Legally loans to members form the core business of the SACCO and for it to continue to be in operations, the SACCO must sustain all activities surrounding savings and credit. This is supported by the loanable funds theory, (Mishikin & Eakins, 2012). For a SACCO to be successful, it must be able to disburse loans and collect loan repayments from the members, (Plachka, 1989). The impact of not collecting loan repayments are: direct reduction on SACCOs' liquidity and direct reduction on profitability. When provision for loan loss is not deducted from the comprehensive income, the income statement will be overstated and if the entity (credit Union) pays dividends it will be paying from capital which is illegal, Leventis, Dimitropoulos, Anandarajan (2012). If it is done periodically over a number of years, it can lead to insolvency, Saunders and Cornet (2007).

In Kenya, credit management is regulated by law, specifically in Government of Kenya (2008), the SACCO Societies Act; section 33 provides how loans are disbursed by the SACCO societies and placed emphasis on policies and limitations on loans disbursements. The regulation 41(3) further directs SACCOs to do provisions depending on the number of days that the loans remained delinquent. Loans paid on time and as per contractual terms are categorized as performing. The loans which are well documented and without any unpaid instalment have a provision for loan loss of 1%, while loans in arrears and unpaid instalments for a period ranging between 1 – 30 days are provided at 5% and categorized as watch. Substandard categorization is for a period between 31 – 180 days and is provided for 25% while doubtful provision is for a period between 181 days to 360 days and is provided for at 50%. In excess of 360 days it is considered a total loss and the total value of both the principal and interest is provided in full.

The international standard for WOCCU is 35% for delinquency loans to the total loan portfolio while the charge off collections should be strengthened as a standard practice. The recommended international best practice is a proportion equal to or greater than ≥75 % as demonstrated hereunder:-

$$\text{Recoveries of Charge offs} = \frac{\text{Accumulated charge offs recovered}}{\text{Accumulated charge offs}} \geq 75\ \%$$

Therefore provision for loan losses, may appear to reduce surplus for a short period but because of the pressure it puts on management on loan recoveries, the SACCOs eventually improves on liquidity and profitability, Leventis *et al* (2012). The other prudential measures are provided in table 2.1.

Table 2.1 Comparison of Prudential Standards Between Canada Credit Union Ratios and Sasra-Kenya

	Canada	Kenya
Ratio	**Pearls in percentage**	**Sasra ratios in percentage**
$\frac{\text{Net loans}}{\text{Total assets}}$	70-80	**Not provided**
$\frac{\text{Liquid investment}}{\text{Total assets}}$	>15	**Not provided**
$\frac{\text{Liquid investment}}{\text{Short term deposit + short term liabilities}}$	Not provided	**>15**
$\frac{\text{Savings deposit}}{\text{Total assets}}$	70-80	**Not provided**
$\frac{\text{External credit}}{\text{Total assets}}$	5	**<25**
$\frac{\text{Member share capital}}{\text{Total assets}}$	20	**2**
$\frac{\text{Institutional capital}}{\text{Total assets}}$	10	**8**
$\frac{\text{Non - earning assets}}{\text{Total assets}}$	Not provided	**≤10**

Source: SACCO Societies Act, Second Schedule

Table 2.1 compares the prudential standards in Kenya with the one in Canada to demonstrate that parameters may be the same but the ratios are computed differently to suit different environments. It is explicit from the table 1 that SACCO Societies Act encourages capital contribution from retained earnings, donations and reserves as

opposed to direct contribution from members. Thus table1 show the key ratios that SACCOs are expected to compute to remain complaint and hence retain self-governance status.

2.2.3 Pecking Order Theory

Sources of capital are very important items to any organization and most organizations prefer the sources with the cheapest cost of capital, (Myers & Majluf, 1984). This is the rationale behind the pecking order theory which states that companies will start with the cheapest cost of capital and upon exhaustion seek the next cheaper source until all the financing requirements are met (Brealey & Myers, 2008). The core capital law borrows heavily from this theory, because it advocates for use of institutional capital at 8% while the equity capital is restricted to only 2%. The institutional capital comprises of retained earnings, other revenue reserves, capital reserves, donations which are cheap sources of funds less any money invested outside the main business like investments in subsidiaries or other related enterprises (Government of Kenya, 2008). The core capital theory requires SACCOs to maintain reasonable disclosures to cushion stakeholders against any unforeseen losses. Deegan and Rankin (1997) and (Mathuva 2015), studies noted that financial disclosures are very important to the different stakeholders in various industries and particularly for transparency and accountability reasons. Gordon (2004) further strengthened the transparency by showing relevancy of related party transactions and insider lending. Government of Kenya (2008), SACCO Societies Act, section 52 establishes the documents required on monthly basis namely: the statement of financial position, Statement of income and expenditure and insider lending in a specific format as set out in forms 6, 7, 8 in the second schedule. SACCO Societies (Deposit taking Business) also gives other monthly returns of capital adequacy, liquidity returns and deposit returns in regulation 9, 14 and 24 respectively. A template on standardized chart of accounts is provided in Sasra website. The financial disclosures especially on core capital act as early warning signals for SACCOs in financial distress and hence corrective actions are prescribed by the Authority. As a gauge, any SACCOs' core

capital lower than 10% of core capital to total assets ratio should receive prohibitive action from SASRA (Government of Kenya, 2008). Similar disclosure views were shared by Rizk, Dixon, and Woodhead (2008) in a survey of disclosure practices in Egypt. Thus, core capital is an important variable in the study.

2.2.5 Liquidity Management theory

Saunders and Cornett (2011) advocate for the prudential planning of cash flows by matching maturities of assets against maturities of liabilities. For an organization to operate in a positive cash flow the maturity of asset must be earlier than the maturity of liabilities. Government of Kenya (2008), SACCO Societies Act advocates for 15% Liquidity ratio which is computed as total cash and cash equivalent divided by the summation of short term deposits and short term liabilities. The ratio encourages SACCOs to be liquid always to enable them meet daily cash requirements for the members and a similar view was shared by Ruth (2001).

Thus matching different maturities of assets (loans to members) and maturities of liabilities is critical to both profitability and liquidity. This requires measurement of sensitivity to different interest rates of both assets and liabilities through income Gap analysis commonly known as Gap analysis, Mishkin and Eakins (2011). Thus calculation of Gap can be rewritten as:

GAP = RSA – RSL where RSA is a rate sensitive assets and RSL is the rate sensitive liabilities. If liability loans like cooperative bank loans to SACCOs are maturing faster than repayment of loans by members, then the SACCO concerned will continue with loan dependence. Thus SACCOs are expected to compute changes in income as: Change in income = Gap × Net change in interest rates. As a result, SACCOs are expected to submit liquidity position on monthly basis referred to as form 2 in SACCO societies deposit Taking regulations.

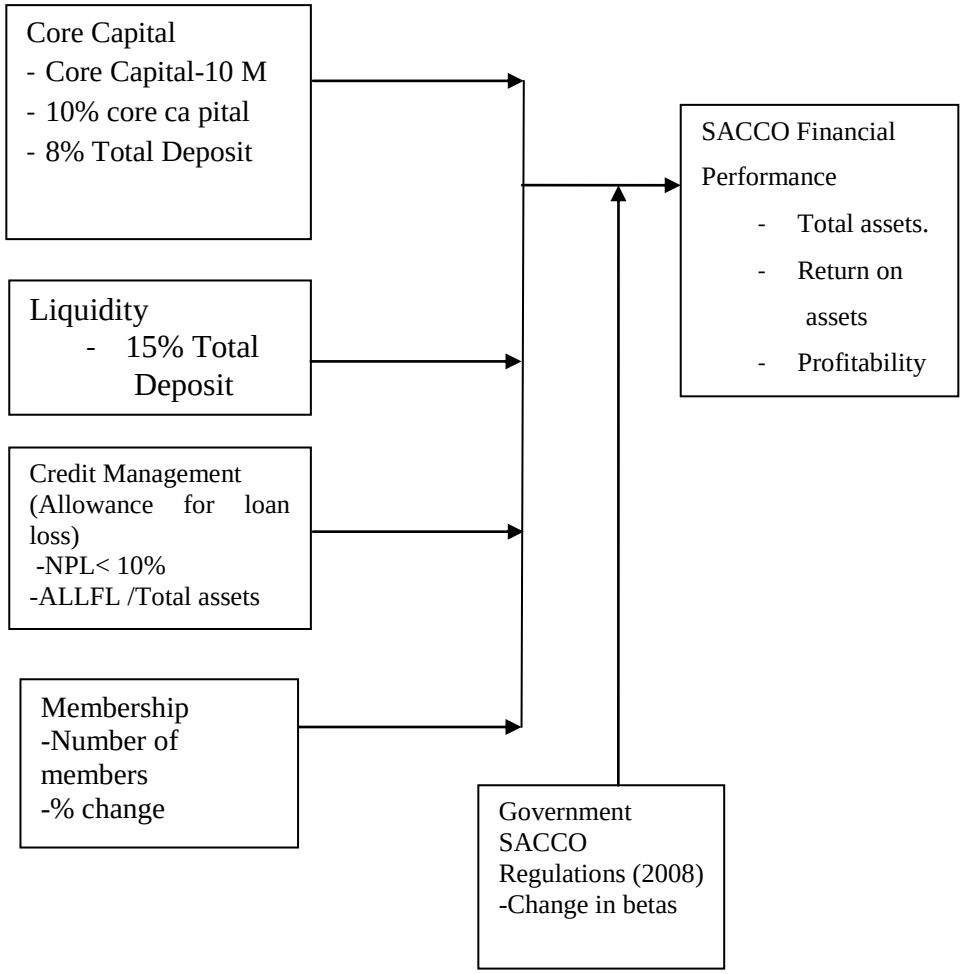
2.3 Conceptual Framework

The conceptual framework provides a concise description of the phenomenon being studied accompanied by graphic or visual depiction of the major variables of the study (Mugenda, 2008). It is a basic structure that consists of certain abstract blocks which represent the observational, the experimental and the analytical aspects of a process or systems being conceived (Bogdan & Biklen, 2007). The conceptual framework usually explains the possible connection between the variables and answers the why question of the research. It is a tentative explanation of a phenomena that a researcher is investigating relating to a conception or model of the study and items usually covered by questions such as what is going on with these things and why (Smyth, 2004).

Dodge (2009) stated that an independent variable is an item which is presumed to affect or determine a dependent variable. It can be changed as required and its values do not represent a problem requiring explanation in an analysis, but are simply taken as given. The dependent variable in contrast responds to independent variable (Everitt, 2009). It shows what a researcher measured in the experiments and what is affected during the experiment. The dependent variable is the financial income which is affected or influenced by the independent variables being core capital, liquidity, loan management and membership. Regulation acts as the moderating variable between financial incomes the dependent variable and the four independent variables.

The moderating variable is one that has a strong contingent effect on the independent-dependent variable relationship (Dawson, 2013). A moderating variable can either be qualitative or quantitative. It has an interaction effect with the independent variable on the variance of the dependent variable and can change the strength and/or direction of a direct relationship. An intervening variable is one that surfaces between the time the independent variables start operating to influence the dependent variable and the time their impact is felt on it (Sekaran & Bougie, 2013).

The diagram of conceptual framework shows the unique relationship between the independent variables and the dependent variables as illustrated by figure 2.2.



Independent variable Moderating variable Dependent variable

Figure 2.2 The Conceptual Framework

The above diagram shows the conceptual framework with the dependent variable on the right hand side and the independent variable on the left hand side. The dependent variable (Y) was measured using return on asset ratio while membership is measured by membership changes between subsequent years. The impact of SACCO regulations was

measured by differences between betas of the different periods of pre – licensing and post licensing linear regression results.

Table 2.2: Operationalization of Key Variables in the Study

Variable	Type	Measurement	Source	Supporting theory
dependent variables				
Profitability measures				
Net interest margin	Continuous	Ratio of (interest income less interest expense) divided by the value of gross loans.	Evans and Branch (2008)	Signaling
Operating profit margin	Continuous	Ratio of (total revenue less operating expenses) divided by total revenue.	Quayes and Hasan (2014)	Signaling
Return on assets	Continuous	Ratio of net income (after tax) divided by total assets.	Evans and Branch (2008), Quayes and Hasan (2014) (2008)	Signaling
Independent variables				
Membership	Continuous	Change in membership divide with current month data.	Evans and Branch (2008)	SACCOTheory, agency,
Credit Management				
Allowance for loans loss	Continuous	Ratio of Allowance for loan loss divide by total Assets.	Peria and Schmukler (2001), Muasya (2008) and Spiegel and Yamori (2004).	Signaling and Loanable funds
Core capital	Continuous	Core capital divide by total assets	Saunders & Cornett (2011)	Pecking order
Liquidity	Continuous	Cash and cash Equivalent divide by summation of short term liabilities and short term deposits	Government of Kenya (2008)	Liquidity

The study's variables were operationalized as shown in Table 2.1. Operationalization of the variables is important as it helps to measure the variables quantitatively thus allowing the hypotheses to be tested. Sekaran (2003) posited that operationalization is useful in giving meaning to a concept that specifies the activities or operations necessary to measure it. Sekaran and Bourgie (2013) argued that a study's constructs must be operationalized to allow for the relationships among them to be tested. The research variables included measure of performance which was the dependent variable while core capital, credit management, membership growth and Liquidity were the independent variables.

2.4.1 Core Capital and Liquidity Requirements.

Barrios and Blanco (2002) justified the presence of core capital regulation on avoidance of bankruptcies and the negative externalities on the financial system. Negative externalities emanates from the likely panic withdrawals from other solvent but illiquid banks due the collapse of a known financial institution, Bergie *et al* (1995). To illustrate the importance of capital regulation, they used two banks at different times illustration, bank at time zero t = 0 and t = 1. The model at t = 0, total assets can be given as A0 = K0+ D0 while at t =1 A1= K1 + D1. Where t= 0 is the time Zero and represents the start of the period and t = 1 represents time at the start of year two. A0 and A1 are the total assets at year 1 and year 2 respectively.

At the beginning time zero, the bank invests A0 in the portfolio of assets with a gross rate of return, net of loan losses (1+rf). Eventually, the different times t =0 and t=1 models, total assets can be computed as:

t =0

Bank

survives if

$N\hat{W}_0 > 0$

Balance sheet **Net worth**

$A_0 = K_0 + D_0 \longrightarrow N\hat{W}_0 = (1+\check{r}_{ao})A_o - (1+r_{do})D_o - C(D_o) - Zo$

$K_o, D_o = K_O + \tilde{u}$

Bank

defaults if

$N\hat{W}_0 < 0$

t=1

If bank survives at time t=0

Balance Sheet **Net worth**

$A_1 = K_1 + Q + \check{D}_1 \longrightarrow N\hat{W}_1 = (1+r_{a1})A_1 - (1+r_{d1})\check{D}_1 - C(\check{D}_1) - Z_1$

$K_1 = K_O + Q + \tilde{u}$

$\check{D}_1 = A_1 - K_O\, Q - \tilde{u}$

Figure 2.3 The Market Model

Source: Journal of banking and finance: retrieved from www.elsevier.com

Time and investment choices if banks (note that the nature of randomness changes between two periods: Earnings are stochastic in the first period and non-stochastic in the second, while the case of capital this assumption is the opposite). Ao and A1 is total Assets at time Zero and time1 respectively, Ko and Ki is capital at time zero and time 1 respectively, while Do,D1 is deposits at different times, time zero and one respectively. r_{ao} and ra1 is the rate of return net of loan losses at time Zero and time 1 respectfully, Zo and Z1 is insurance premium at time zero and time 1 respectively. C represents other operational costs. To show eventually that where market is mature all the market ratios will be more than the regulated and hence do not need regulatory regime but in most cases regulatory model is required. The model did not specify the relationship between variables. Figure 2.4.1 shows how Barrios and Blanco emphasized the importance of core capital and liquidity in a financial institution which is applicable to SACCOs.

2.4.2 Membership Growth.

Crapp (1983) acknowledged that technology is made up of discoveries in science, loan product development and improvements in machinery processes, automation and information technology. Similar views were shared by Manyara (2003). Technology being very important as membership increased over time. Karagu and Okibo (2014) carried a study to establish effect of fund misappropriation, investment decisions, loan defaulting and membership withdrawal on financial performance. Thus, they concluded that membership retention and growth is an important component of financial performance. Over time the cooperative membership in SACCOs has grown as demonstrated by table 2.3 drawn from SACCO supervision reports (SASRA 2011 & 2012).

Table 2.3 Compiled from Sasra Annual 2011 and 2012

Time in Years	Membership	Growth in percentage
2008	1,061,348	
2009	1,538,993	45
2010	1,646,966	7
2011	2,092,946	27
2012	2,544,001	

As evidenced in table 3, the growth in membership led to higher demand for financial services, more loan products, and automation and information technology, Kobia (2011). Increased services and membership led to automation of services through computers and hence the complication in analyzing accounts particularly the loan book was greatly reduced. Due to increased volume of business and the risks posed by the large SACCOs, with the largest having total assets of 23 billion shillings as at 31st December 2013, the government had to adopt risk based approach for managing deposit taking SACCOs. The practice is similar to assertion by Saunders and Cornet (2007), who appreciated that Congress, had to introduce risk based approach to limit the excess risks posed by the depository organizations through qualified thrift lender (QTL) test. The QTL test required regulators to close down a saving institution if it's Equity to total ratio assets fell below 2%. Increased membership in SACCOs has made SACCOs enjoy the economies of scale, economies of scope and increased efficiency (Mirie 2014).

2.4.3 Credit Risk and Allowance for Loan loss.

McKillop and Wilson (2011) defined credit risk as the inability to repay loans in accordance with the contractual agreement due to unsafe lending practices. The Concept was similarly defined by Levintis, Dimitropoulos and Anandarajan (2012) who further added that the true value of loans as an asset can be computed by establishing the total loans and deducting allowance for loan losses.

Allowance for loan loss is a provision or reserve estimated showing the amount of loans made past due and likely to continue in default. The weaknesses in loans repayment led to the financial turmoil of 2007 and 2009. Brunnermiar (2009), Berger, Herring and Szego (1995) noted that inability to make loan losses lead to depletion of capital and hence losses in US banks in 1980's and similar findings were made by Peek and Rosengren (1995 a). Therefore, to avoid the capital depletion, the U.S regulators tightened examination criteria and loan reserve policies Bizer (1993) and accepted other voluntary measures to reduce risks by bank managers Hancock and Wilcox , (1993,1994 b). However, Berger *et al* (1995) evidence appear to suggest that the risk based capital does not lead to reduction in lending but leverage capital was responsible for the significant portfolio change.

2.4.4 Liquidity Requirements.

Ross, Westerfield and Jordon (1995) defined liquidity as the ability to settle liabilities when they fall due. Therefore any entity must be concerned with cash inflows and cash outflows. Ross *et al* model for the cashflow:

Net cash inflow = Cash outflows for paying creditors + cash outflows for paying stockholders. Therefore, entities including SACCOs must prepare cash budgets which were defined as estimated cash inflows and outflows over the planning horizon, Leung (2009). Miller and Orr (1966) developed a mathematical model with minimum and maximum cash balances to assist the entity meet its cash requirements with minimum costs by ascertaining the desired cash level. Desired cash level (z), can be computed as:

$z = (\sqrt{3}F\sigma^2/4r)^{1/3} + L$

Where

z = desired cash level

F = fixed transaction cost of buying and selling marketable securities

σ^2 = variance of daily cashflows (which indicates randomness)

r = daily interest rates on marketable securities

L = minimum cash balance

The upper limit = 3z-2l.

The computation of upper limit is important because firms will always invest the idle cash in profitable enterprises until the cash is needed by the firm, Davidson *et al*, (1999) and Pandey (2007). The excess cash is usually invested in marketable securities to earn incomes. The practice is possible due to the ease of conversion back to cash or cash equivalents when cash is needed back by the enterprise, Hampton (2001). Deller, Hoyt, Hueth and Sandaram (2014) carried out a study on economic impact of cooperatives in United States of America. The research report described and quantified the magnitude of economic impact in United States of America owing to Cooperative investments and accessibility of cash by depositors on need basis.

2.4 Empirical Literature Review

In this section, a discussion on the prior studies done on impact of prudential regulations on credit unions or SACCOs in general is considered. Gual and Clemente (1999) carried out a study on efficiency and size in the Spanish Cooperative banking between 1988 and 1996. The study used a sample of 697 cooperative banking institutions using stochastic

Frontier methodology. The result is that there existed economies of scale on large SACCOs. Results were criticized by Ralston *et al* (2001) who stated that there was no relationship between size and efficiency.

Effect of size, adoption of technology and branch network on efficiency of credit unions in Canada was assessed by Murray and White (1980). They used Cobb – Douglas production function and linear regression for analysis. The main finding of the study was that efficiency increased in size. They also stated that for smaller SACCO efficiency decreased with the use of technology.

A study of Chowdhury (2003) assessed the impact of information, communication and technology on efficiency. The study used Cobb – Douglas production function where firm output was a function of ICT, capital and expenses among other determinants. Firm output was represented by return on assets. The sample was 327 commercial banks in Australia, Hongkong, Japan, Malaysia, New Zealand, Singapore, South Korea, Taiwan and Thailand. Data used was for the year 1999 in the institutions of the respective countries. The results were that investments in ICT had a significant and positive relationship with efficiency. Since the specified cost efficiency between inputs and outputs were determined using rigorous technical evaluation, the results obtained were susceptible to model misspecification errors.

Machauer and Schiereck (2004) studied the church based credit cooperatives in Germany with regard to the strength of the bond, size (Total Assets),asset/liability structure and profitability. The study used ratios for fifteen institutions for the year 1997 and compared these with the industry averages. The results of the study showed that the church based credit cooperatives appeared to be large and were profitable. The profitability and sustainability appeared to have been supported by moral behavior (less opportunistic behavior) among members. Results could have been more improved if it had used a statistically robust model.

The determinants of merger and acquisition transactions in Australian Cooperative deposit taking SACCOs were studied by Worthington (2004). The study considered the period 1992/1993 – 1994/1995. Data Envelopment analysis (DEA) was used to obtain efficiency scores for all CUs. The DEA input variables were share capital, call deposits, notice of withdrawal deposits, interest expenses and non-interest expenses. Outputs were personnel loans, investments, commercial loans, residential loans, interest incomes and non interest incomes. Subsequently a logit model was used to predict the likelihood of a credit union being acquired or acquiring another. Managerial competencies, regulatory and financial factors were used as the moderating variables. The key finding was that efficiency was significantly positively related to CUs acquisition of another. An aspect that would have improved the study is if it considered how the performance affected the performance of the acquirer.

A study to assess the relationship between financial performance and selected determinants for SACCOs in Nairobi, Kenya was carried out by Njoroge (2008). Sample size considered comprised of 30 SACCOs for the period between 2002 -2007. Financial performance was measured using return on assets (ROA) and return on Equity (ROE). Factors used for regression against ROA were size of the SACCO, loans to total Assets, liquidity to total loans, operating expenses to total assets and growth rate of loans. Asset Size, loans to total assets, liquidity to total assets and growth rate of loans were positively correlated to financial performance. Operating expense ratio was negatively related to performance. Capital ratio was also positively correlated to ROA.

Kilonzi (2012) carried out a study to establish the impact of SASRA regulations on the financial performance of SACCOs in Kenya. Sample size was 30 SACCOs for the period between 2008 – 2011.Financial performance was measured between ROA and ROE. Factors used for regression against ROA and ROE were capital to total assets, liquidity and management efficiency (Earning Assets/ Total Assets). Regressions were run for 2008 – 2009, 2010 – 2011and coefficients compared for differences which may have been caused by the regulations being applicable from 2010. The findings were that

ROE, capital ratio, liquidity and management efficiency improved in the second period in comparison to the first. The sample size was biased as it included SACCOs in one region.

The relationship between agency and financial performance of SACCOs was assessed by Njenga (2012). The Study used three SACCOs with FOSA in Githunguri Division of Kiambu district in Kenya. The data collected was for five years period commencing from 2007 – 2011. Financial performance expressed through ROA was regressed against agency costs (total Director's expenses/Total expenses), Marketing expenses and size (measured by two variables loan and total members funds). The results were that ROA was weakly positively related to agency costs, positively related to marketing expenditure and weakly negatively related to size.

Karanja (2013) carried out a study to determine the relationship between size and cost efficiency of SACCOs in Kenya for the period 2008 – 2012. Efficiency ratio (operationalised as the ratio between non-interest expense and the sum of non-interest income and net interest income) was regressed against total assets, capital adequacy, management quality (Salaries plus benefits to average assets), ROE and liquidity.

More efficient SACCOs were in the category of large and had more capital and higher ROE than the small ones.

Njagi *et al* (2013) studied the effect of a SACCO operating a FOSA on financial performance. They used three SACCOs in tharaka Nthi County, Kenya for the period 1995 – 2003. For the measurement of financial performance the study used ROE and compared three years before and three years after the commencement of FOSA operations. A sample of three SACCOs is too small for the researcher to draw generalized conclusions about deposit taking SACCOs.

In a study to establish the effect of credit risk management on financial performance of deposit taking SACCOs, Nyambere (2013), used a sample of 30 SACCOs in Kenya for

the three year period 2010 – 2012. Financial performance of ROE was regressed against capital adequacy, asset quality, management efficiency, earnings and liquidity. The results were that ROE was positively related to all variables.

Karagu and Okibo (2014) carried out a study to establish the effect of fund misappropriation, investment decisions, and loan defaulting and membership withdrawal on SACCO financial performance. The sample size was 34 SACCOs with FOSA in Nairobi County, Kenya for year 2013. The study was an opinion survey of employees working on the respective SACCOs. The results were that the employees believed that all the four variables adversely affected financial performance. However, the study never quantified the variables and hence none of the variables were statistically measured thus lacking precision.

In a study to assess the effect of operating costs on the financial performance of SACCOs, Kiaritha *et al* (2014) used a simple linear regression for six years. Operating costs were negatively related to financial performance, implying the higher the costs, the lower the performance. The methods of assessing the financial performance and operating costs were not specified. McKillop and Ferguson (1998) investigated the relationship between borrower orientation on one hand and age and asset size on the other hand for 283 UK CUs for the year 1994. The results were that older CUs had less borrower orientation than the relatively newer CUs. CUs in large category were more efficient than the ones in the small category. The study would have been more appropriate if data of several years was used.

An assessment of the diversification and financial performance of US credit unions for the period 1993 to 2004 using 5784 CUs was carried out by Goddard *et al* (2008). They regressed return on assets (ROA) and also return on Equity (ROE) against some variables with key ones being scope (Non – interest income/Operating Income) and extent of penetration (actual members to potential members of the common bond). The findings of the study were that performance was positively related to increase in

diversification for CUs in large category. The relationship was however negative for smaller CUs. There was no discernible relationship between performance and degree of penetration.

The study greatly relies on the work done by Hyndman *et al* (2004) on credit unions in Ireland, Spiegel and Yamouri (2004) and credit associations in Japan, McGrath (2008). Other studies on higher capital requirements are supported by the core features of Basel III framework like the independent commission report in United Kingdom (2011). The Basel recommendations document is the main international effort to establish rules and capital requirements for banks, published by Basel committee on banking supervision housed at the bank for international settlements, (Saunders and Cornett 2011). This sets a prudential framework on how banks and depository institutions' ratios would be calculated, Prieto (2014).

Studies by Mckillop and Wilson (2011) stated specifically, that banks were expected to maintain a capital ratio of 10% on its risk-weighted assets. Basis of computation for core capital Weights were given under the relevant Basel accord while the SACCO capital ratios are given expressly in SACCO societies regulations as core capital to total Assets (CCA) of 10% and Core capital to total Deposits (CCD) of 8%. Cournett (2011) proposed that credit Unions in United States were allowed to set their own standards. The distribution of credit unions is strong evidently in countries which have adopted prudential standards as demonstrated by McKillop and Wilson (2011) in table 2.2.

Table 2.2 Summary of World SACCOS Financial Performance Per Continents.

Name	Membership	penetration	Shares and Savings	Loans	Total Assets
Africa	16,022,707	6.43%	4,817,446,825	4,944,970,128	5,600,465,483
Asia	41,322,925	2.74%	127,964,917,293	106,744,361,419	176,239,051,246
Caribean	3,055,826	17.50%	4,595,263,638	3,663,943,923	5,591,221,406
Europe	8,571,745	3.67%	22,586,992,079	12,025,566,327	26,452,528,857
Latin America	20,834,517	6.39%	35,045,913,094	31,887,018,302	57,344,533,528
North America	105,289,307	45.23%	1,025,779,331,619	851,049,299,652	1,331,720,878,771
Oceania	5,146,814	21.62%	72,466,327,647	73,503,826,568	91,000,762,037
Totals	**200,243,841**	**7.72%**	**1,293,256,192,194**	**1,083,818,986,319**	**1,693,949,441,328**

Source. WOCCU, Http:/www.org.statistics pdf

The table demonstrates widespread credit Union membership in Asia 41 million, Latin America at 20 Million and North America with 105 million. Oceania is also worth noting because although membership is at 5 Million, the total assets are 91m, which is more than 5 times the size of African SACCO Assets and thus the likely conclusion that capital requirements are responsible for growth.

In Kenya, few studies have been done in the Deposit Taking SACCO Subsector primarily because the licensing of deposit taking SACCOS is still a new phenomenon. Macharia (2013) did a study on effect of licensing requirements on the performance of savings and credit cooperatives in Nakuru County. Most SACCOs according to the study, reported improvements in their performance both in membership, portfolio and

efficiency. Mbui (2010) carried out a study on the business opportunities for stima SACCO society limited in a new regulatory environment. The study concludes that the new regulatory environment provided more structured and clear guidelines on the operations of stima SACCO. Musumbi (2012) carried out a research on performance management in the SACCO societies regulatory Authority (Sasra). He found out that performance management was critical to financial organizations. The researcher adopted a case study and the data collected was qualitative in nature from only one organization.

Odhiambo (2011) researched on relationship between working capital management and financial performance by deposit taking SACCOs licensed in Nairobi County. Findings of the study indicated that efficient working capital management leads to better financial performance of a SACCO hence positive relationship existed between efficient working capital management and financial performance.

Okwee (2011) carried out research on corporate governance and financial performance of SACCOs in lango sub region of Northern Uganda. The research sought to establish the level of compliance with corporate governance guidelines, determine the relationship between corporate governance and risks, examined the relationships between corporate governance and financial performance. A sample of 63 SACCOs were drawn from a population of 75 SACCOs and a questionnaire distributed to each of the SACCOs. The questionnaires were then collected, vetted and analyzed. The findings revealed that majority of SACCOs were found to comply less with corporate governance guidelines, risk was found to be weakly and negatively correlated with corporate governance and financial performance.

However, corporate governance and financial performance were found to be strongly positively correlated. The study concluded that less compliance with corporate governance as well as high risk levels may explain the relatively poor performance of the SACCOs in Uganda. The study recommends further research in corporate governance guideline implementation and lending models among SACCOs in Uganda.

Olando (2013) study was on assessment of financial practice as a determinant of growth of SACCOs wealth in Kenya, a case study of Meru County. This study used a comparative design in soliciting information among forty four (44) SACCOs. The research data methodology tool used was a questionnaire and the questionnaires were distributed to the forty four SACCOs in the county. The study found out that SACCOs which inadequately complied with their Bylaws and did not have incomes from their investments were unable to adequately cover their costs. The study recommended that the government should review legal framework to ensure that institutional capital was used to grow SACCOs wealth. Owino (2011) reviewed the competitive strategies adopted by SACCOs in Mombasa county of Kenya to enable sustainability of operations.

The researcher's findings indicated that government policies and resistance to change were the greatest challenges to strategy formulation and implementation. Other challenges faced were lack of financial resources and absence of good management to drive competitive strategies in the right direction. For further research it recommended that a study be carried out to determine the influence of Sasra on the SACCO movement. Ademba (2012) reported on cash management and stated that cash management was the most important item in the operations of a SACCO. He asserted that financial institutions should manage cash adequately to avoid panic withdrawals by depositors. The SACCOs therefore should maintain cash and cash equivalents of 15% ratio to short term deposits and short term liabilities, as provided by the SACCO societies Act in Kenya (Government of Kenya, 2008). The empirical literature reviewed shows the gaps left by various authors and hence this study attempts to fill in the gaps.

2.5 Critique of the Relevant Literature.

Moyer (1990), Boyd (2008) and Berger *et al* (1995) suggested that prudential management and capital adequacy are important for protecting deposits and maintaining stability in a financial system. Buch *et al* (2014) stated that increased capital led to

decreased loans and hence reduction in income. However, Buch *et al* (2014) claim is only true under the environment where capital funds are strictly restricted from being loaned to members. However, Kenyan SACCOs, capital is utilized for expansion programs and the rest utilized for loaning to members and hence not likely to draw the same conclusion made by Buch (2014). Thus the assertion by Makilop and Wilson (2014), Blanco and Barrios (2011), that capital adequacy regulation is effective in safeguarding deposits and stability of financial system is supported by Vesperman (2013), who supported prudential regulations to SACCOs.

Kilonzi (2012) used a casual research design targeting a sample of 30 SACCOs registered by Sasra, to study the impact of Sasra regulations on the financial performance of SACCOs in Kenya. This study was limited in scope as it only sought secondary data from the financial performance reports for SACCOS in Kenya and hence missed the rich experience from the professional officers working in the SACCO subsector. The data collected was for four transitional years and therefore did not provide good trend evidence to support his findings.

Macharia (2013) did a study on the effect of licensing requirements on the performance of co-operative societies in Nakuru County. He specifically used three deposit taking SACCOs in Nakuru county which is a very small sample to form any generalized conclusions for all deposit taking SACCOs in Kenya. The study sample of 3 SACCOs makes the results unreliable and biased because larger sample size may lead to different conclusions. Mbui (2010) carried a research on the business opportunities for Stima SACCO society limited in a new regulatory environment. The study used a case study and hence specific to that organization alone and it is not conclusive that the results could apply to others.

Similar conclusion can be made for Muigai (2013) who carried out a research on the challenges of strategy implementation faced by Sasra. Further Musumbi (2012) carried out a study on the performance management at sasra which was a case study in nature.

Sasra is not a deposit taking organization and hence the results can hardly be applied on the deposit taking organizations regarding prudential regulations.

Ndung'u (2013) examined the relationships between risk management practices and financial performance of Sasra regulated SACCOs in Nairobi. To use SACCOs in only one county is biased in that the results may not apply to deposit taking SACCOs in other counties. Okwee (2011) study was on corporate governance and financial performance of SACCOS but only concentrated in one region, Lango in Uganda. Generalizing the case study of one sub region to the whole country was therefore biased. The study also did not examine the actual implementation of corporate guidelines within the SACCOs in Uganda. In addition, the study was on SACCOs which were not using prudential guidelines in the management of their operations and the results may not be applicable for deposit taking SACCOs.

Crapp (1983) carried out a study to determine the effect of size and adoption of technology on efficiency of CUs in south west Wales, Australia. The relationship between inputs and outputs were not established and thus making results deficient due model specification errors. Similarly, Gual & Clemente (1999) carried out a study on efficiency of 697 credit unions using stochastic cost frontier methodology. Just like Crapp (1983), the results were susceptible to model misspecification weaknesses.

Machauer and Schiereck (2004) studied the church based credit cooperatives in Germany using ratio analysis. The study findings would have been more appropriate if it had used robust statistical model. A study to assess relationships between financial performance and selected determinants of SACCOs in Nairobi, Kenya was carried out by Njoroge (2008). Sample size used was 30 SACCOs for the period of five years 2002 – 2007. Financial performance was the dependent variable and the independent variables were operating expenses and profit before tax among others. The relationship between profit before tax and operating expenses is mathematically inverse and hence there is no need in including the latter in ROA and ROE regression analysis.

Karanja (2013) carried out a study to determine the relationship between size and cost efficiency of SACCOs with FOSAs. Efficiency ratio was regressed against total assets, capital adequacy, management quality, ROE and Liquidity. The results are not adequate, because two identical SACCOs can issue dividends differently because dividends and interest on members' deposits are discretionally items. Consequently, including dividends or interest on members' deposits computations as a measurement of efficiency, results in model specification errors.

Karagu and Okibo (2014) carried a study to establish effect on SACCO financial performance of fund misappropriation, investment decisions, loan defaulting and membership withdrawals. Financial performance and independent variables were not measured. McKillop and Ferguson (1998) investigated a relationship between a borrower orientation on one hand and the independent variables of age and size on 283 UK Credit Unions on the other hand for the year 1994. The study conclusions would have been more informative if several years averages were used instead of only one year.

Olando (2013) carried a study on the assessment of financial practice as a determinant of growth for SACCOs' wealth in Kenya. The Study was a case study for SACCOs in Meru county and hence bias of results applicable in only one county. Moreover, the study obtained information from 44 SACCOs and did not distinguish which were deposit taking SACCOs and which ones applied to non-deposit taking SACCOs.

According to SASRA (2012), the SACCO societies' regulatory framework aims at enhancing transparency and accountability in the management of deposit taking SACCOs. For transparency and accountability to be achieved, two important ingredients need to be present; maturity of the market which can self-regulate itself or presence of a regulator who provides basic minimum prudential standards to be observed by all the players in the market (Barrios *et al* 2003).

Therefore the literature reviewed included the SACCO theories, core capital theory loanable funds theory, loan portfolio management theory, liquidity theory and membership recruitment, retention and growth approaches. These theories were found applicable to the research as they provided a background on the variables supporting financial performance in a depositing taking SACCOs. In addition, the theories supported the conceptual framework which is the core basis and fundamental base for this research. Thus the study shall contribute to the theories of finance on the importance of the hypothesis postulated and tested on core capital, liquidity, loan quality and membership growth impact on financial performance. In conclusion, this chapter has reviewed theoretical, conceptual framework and empirical review on impact of prudential regulation on financial performance of Deposit taking SACCOs. Thus this study fills in the gap left by the previous authors.

2.6 Research Gap

A review of literature available is mostly on impact of prudential regulations for banks in United States and European Union and very few on SACCOs and hence limited knowledge. This study appreciates the role played by the important sector which contributes 31% of national savings and the greater contribution it can achieve if prudential guidelines are followed. Available researches on SACCO prudential guidelines were based on a sample of SACCOS in certain counties. The study by Kilonzi (2012), Macharia (2013), Ndung'u (2013), Ngaira (2011), Odhiambo (2011), Olando (2013) and Owino (2011) focused on case studies for certain counties and hence reflected situations in the specific counties mentioned. This research focused on the whole population to provide insight on the findings that can be generalized for the whole country.

Ondieki *et al* (2011) revealed major challenges inherent in Kenyan SACCOs and includes: limited transparency in SACCO management, poor corporate governance and lack of human resource capacity in SACCO management. Deller, Hoyt, Hueth and

Sandaram (2014) carried a research on economic impact of Cooperatives in United States. Costantino (2012) considered the impact of financial services macro- prudential and micro prudential supervisory reforms in the European Union (EU). The study highlighted the revamped and complicated nature of the reforms architectural strengths and limitations. All the studies did not indicate the relationships between variables and hence lacked the statistical precision. This study is specific about variables and their relationships and hence more precision and accurate about the findings.

Zoubi *et al* (2007) made an empirical testing on the provision for loan losses on Banks in Gulf Cooperation regions and the major finding was that managers in GCC region used loan loss to smooth earnings and achieved the organizational objectives. Hence, there is a gap to study influence of prudential regulations which includes loan loss provisioning on financial performance of SACCOs in Kenya. To avoid the bias mentioned in case studies, the researcher therefore covered all the 124 SACCOs licensed by SASRA by 31st December 2012 which are widespread in the whole country. Olando *et al* (2013) had identified such as a study as a likely area of further research and hence the study attempts to close the wide knowledge gap which existed on deposit taking SACCOs prudential management.

Thus the study contributes to the existing knowledge by offering solution to the survival of SACCOs whose going concerns are threatened on daily basis. Without adequate capital, the SACCOs financial base continuously weakens. The study also offers special insight on importance of proper policies on all key areas to guide staff on prudential practices and its benefits. This research will therefore add to the existing body of knowledge on the impact of regulation on financial performance of deposit taking SACCOs in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides a discussion on the design and methodology that was used to carry out the study. It comprises of research design, population, sampling frame, sample size, sampling techniques and data analysis techniques that were utilized for the completion of this study.

3.1.1 Research Paradigm

A research paradigm is a basic set of beliefs that guides action and is a function of how researchers think about development of knowledge. It's a combination of two ideas that are related to the nature of the world and the function of the research. It helps researcher conduct research in an effective manner. Research paradigm includes the research methods and research philosophies. This combination in research helps researcher to develop the understanding and knowledge about topic research.

This research was guided by the following characteristics of research paradigm; ontology, which was the researchers view of the nature of reality based on the assumptions made about the way in which world works, secondly epistemology which defines the nature of knowledge and the researcher's view on what constitutes acceptable knowledge and the relationship between researcher and the respondent (Sekaran, 2006). Lastly, axiology, which is the researchers view on the role of value or ethics in the research methodology and how the researcher found out knowledge based on these ethics (Mackenzie & Knipe, 2006).

3.1.2 Research Philosophy

The philosophy of the study was positivism which dealt more with units that were observed and tested. There was emphatic use of scientific data in numeric terms as stated by Ramenyi & William 1998. Thus data was collected from both primary and secondary sources to provide information on independent and dependant variables for the period before the statutory reforms 2006 - 2009 and after the statutory reforms 2010 – 2013.

Due to triangulation, the study also included phenomenology, which argues that understanding of the social world is possible from the point of view of the people being studied. Therefore, the study obtained qualitative data from respondents on prudential management practices and quantitative data from secondary sources.

3.1.2 Research Design

The study used comparative research design. The census Survey was carried out using SACCOs empirical data from SACCOs audited accounts. The comparative design is of descriptive nature as it compared two periods between pre-licensing and post licensing period data. The relevant secondary data was analyzed and inferences made about the relationships between capital adequacy, liquidity, credit management and members retention on one hand and Income Levels on the other. The data had longitudinal element in that it involved time series and cross sectional attributes and to remove bias whether the intercepts had random or fixed effects, the data period of eight years was subdivided into two; pre-licensing period 2006 - 2009 and post licensing period of 2010 – 2013.

3.2 Population

The target population of the study comprised of 124 licensed SACCOs in Kenya as at 31st December 2012, classified as indicated in table 3.1.The population size was determined by the number of licensed SACCOs as per SASRA's register which was 124

SACCOs. For primary data collection, the study targeted the chief executive officers, chief finance managers and internal auditors who had professional information on prudential compliance by individual SACCOs in the study. Any of three categories of officers could respond and in most cases the Chief executive officers responded.

Table 3.1 Population

Type of SACCOS	**No. of members**
Government	22
Private	14
Teachers	29
Farmers	42
Community	17
Total Licensed SACCOs	124

Source: SACCO Societies Regulatory report 2012.

3.3 Sampling Frame

The study used comparative design which was descriptive in nature that enabled the researcher to gather more information in analysis and ascertainment of accurate results. The studied population of 124 SACCOs represented the whole population of the licensed SACCOs as 31 December 2012. Thus the sampling frame was the whole population of the 124 licensed deposit taking SACCOs as at 31st December 2012.

3.3.1 Sample and Sampling Technique

Regarding SACCOs as the unit of analysis, no sampling technique was necessary as the study collected data from all elements in the sampling frame which was equivalent to the target population. However, regarding primary data collection, purposive Sampling method was used. The importance of using the non-probabilistic method of sampling emanated from the technical nature of the research study whose questions could only be

answered adequately by few people in the SACCOs establishment. Specific employees and particularly the CEO's , chief finance managers and internal auditors where CEO's and chief finance managers were absent or busy, answered the questionnaires in all licensed SACCOs in the forty seven Counties by the year 2012.

3.4. Research Instruments.

The research questionnaire was used to collect primary data. Questionnaires were sent to all licensed SACCOs and chief executive officers; either the Chief finance managers or internal auditors where CEOs were unavailable in all the targeted SACCOs were expected to respond. Questionnaires were used to enable the study reach a large group of respondents within a short time and less costs. To succeed in getting the expected data, closed and semi structured questions were designed in line with the research objectives. The questionnaires were distributed to all the targeted population of licensed SACCOs as at 31st December 2012 either physically for SACCOs in Nairobi County or electronically via email for the SACCOs situated outside Nairobi. For secondary data, data collection templates were designed covering both the independent variables of core capital, liquidity, allowance for loan loss, membership growth and dependent variable which is SACCOs financial Performance as indicated in appendix A.

3.5 Data Collection Procedures

The research questionnaires were sent to all individual SACCOs comprising of the 124 licensed SACCOs as at 31st December 2012. The intention was to obtain response from knowledgeable staffs who were either the CEOs or other accounting professionals comprising of chief finance mangers or internal auditors. The study maintained care and control to ensure all questionnaires issued to the respondents were returned. To achieve the goal, the study maintained a register on questionnaires issued and questionnaires received. One research assistant maintained the register.

Data was also collected from secondary sources and specifically from audited accounts from individual SACCOs either from Sasra's database or from the Ministry of industrialization and enterprise development's registry. The data was vetted, analyzed and manipulated to make generalized conclusion about the whole population.

3.6 Pilot Testing

In this study the reliability of instrument was tested using Cronbach Alpha on the pilot study respondents. To obtain the sample size Babie (2004) recommendation of N/10 +K was used. Where N is 124and K is 10. The result obtained a sample of 22 respondents. A total of 22 questionnaires were distributed to 22 SACCO CEOs with an intention of pre-testing the questions. Pilot testing was done to determine the flaws, limitations or other weaknesses within the interview design and made corrections of the errors possible.

Babie (2004) indicates that a pilot study is conducted when a questionnaire is given to just a few people with an intention of pre-testing the questions. To test for reliability, the study used the internal consistency technique which was assessed using Cronbach Alpha Coefficient. Internal consistency of data was determined by correlating the scores obtained from one time with the scores obtained at other times using the same research tool. The coefficient obtained was 0.8 and the rule is that the absolute value greater than 0.7 is acceptable as adequate for the data being examined.

3.6.1 Data Validity

The researcher enhanced validity by discussing the questionnaires with the respondents before distributing them in line with Creswell (2003) assertion that validity is strength of qualitative research and it exists when the knowledge sought is arrived at thorough descriptions that make possible an understanding of the meanings and essence of experience, Castillo (2009). Consistency refers to the ability to obtain results that can be duplicated by another researcher when using same method. In the study, all information

was at 31st December of a given year as represented in Audited accounts and stamped by the relevant offices to enable consistency throughout the study.

3.7 Data Processing and Analysis

Collected data were checked for errors of omission or commission before being keyed into the computer. Descriptive statistics such as mean and standard deviation were used to perform data analysis. Data was processed using Statistical Data Processing for Social Sciences to obtain results for linear regression model earlier established. To determine that linear regression model was the most appropriate for the study, reseach done by Kilonzi (2012), Ndung'u (2013), Olando (2013) and Mirie (2014) influenced the decision because of the similarities in the study. The use of classic linear regression model was preferred due to its ability to show relationships between the independent and the dependent variables, Castillo (2009). The study being comparative in nature compared results of pre-licensing period with that of post licensing period. As stated by Gujarati (1995), causation models are best explained by linear regression analysis and thus, the study obtained linear regression results for each variable before pre-licensing period and post licensing period.

$Y = \beta o + \beta_1 X_1 + \varepsilon$ …….before regulation of 2010 and after regulation 2013…….(i)

$Y = \beta o + \beta_2 X_2 + \varepsilon$ …….before regulation of 2010 and after regulation 2013……..(ii)

$Y = \beta o + \beta_3 X_3 + \varepsilon$ …….before regulation of 2010 and after regulation 2013……..(iii)

$Y = \beta o + \beta_4 X_4 + \varepsilon$ …….before regulation of 2010 and after regulation 2013……..(iv)

Moderating Effect

$Y = \beta o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$ ……..for period 2006 - 2013 before moderating effect of SACCO societies Act……...(v).

$Y= \beta o+ \beta_1 X_1 * X_5 + \beta_2 X_2 * X_5 + \beta_3 X_3 * X_5 + \beta_4 X_4 * X_5 + \varepsilon$ ……. for period 2006 - 2013 after moderating effect of SACCO societies Act…….(vi)

Where the dependent variable Y = Financial Income levels,

βo = intercept (represented by entrance fee and minimum capital),

β_1 = coefficient of core capital,

β_2 = coefficient of liquidity,

β_3 = coefficient of credit (measured by a ratio of allowance for loan loss to total assets)

β_4 = coefficient of membership growth

X_1 = Core capital

X_2 = Liquidity

X_3 = Credit Management (allowance for loan loss)

X_4 = Membership growth.

ε = Error term

The study used comparative design which is descriptive in nature to establish how the data results (betas) were before legislation (2006-2009) period and compared with data results (betas) of (2010-2013) after legislation period.

NB:

β is the symbol for Beta and beta represents the coefficients of independent variables. To test for hypothesis, the two simultaneous equations were used. Thus, the research is a comparative study for the financial performances for the periods before and after the

prudential regulatory laws of 2010. The differences between the coefficients of the two equations showed the influence of prudential management. The rule is either acceptance of null hypothesis or rejection of the null hypothesis and acceptance of the alternative hypothesis. Gujarati (2004) stated that the ordinary squares method show the relationship between variables and the econometrics model was widely used.

3.7.1 Hypothesis Testing

Davis (2006) defined hypothesis as a guess or an assumption about the distribution of a random variable. Mearsheimer (2012) hypotheses testing procedure requires a researcher to construct two hypotheses, Null hypothesis (Ho) and alternative hypothesis (Ha) for the measurable variables. Two sets of hypothesis were formulated for each variable, one stating the null hypothesis while the other one stated alternative hypothesis.

(i)

(ii) Ho: $\beta = 0$

While

Ha: $\beta \neq 0$

If $\beta = 1\ 2\ 3\ 4$……values you reject the null hypothesis

(i) Calculation of ANOVA statistics and p-values.

(ii) Compare the P-value against 0.05 and if p-value less than 0.05 then the variable is significant.

(iii)Reject or fail to reject the null hypothesis.

The stated hypotheses are essential to illustrate methodology of accepting or rejecting the null hypothesis. By concluding on hypothesis, the study demonstrates the relationships between variables or lack of it.

3.7.2 Test for Multicolinearity

To avoid misleading results the linear regression assumption tests were conducted. Among the tested were multicolinearity, hetroscedasticity, autocorrelation and normality. Multicolinearity means that there is a linear relationship between explanatory variables which may cause the regression model to be biased (Gujarati 2004). When there is strong correlation between variables it becomes difficult to identify the impact of individual independent variables. Thus, in order to examine the possible degree of multicollinearity among the explanatory variables, correlation matrixes of the selected explanatory variables were used. Usually, the multicollinearity exists if the correlation between two independent variables is more than 0.75 (Malhotra 2007).

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter represents the empirical findings and the results of the application of the variables using techniques mentioned in chapter 3. The unit of analysis was a SACCO as the study targeted all 124 licensed SACCOs as at 31st December 2012. Specifically, the data analysis was in line with specific objectives, hypothesis formulated and inferences made on the results obtained.

4.2 Response Rate

From the data collected, out of 124 questionnaires administered, 108 were filled and returned which represents 87% response rate. The response rate is considered adequate to make conclusions for the study as observed by Mugenda (2003), who noted that 50% response rate is sufficient, 60% good and any rating above 70% is considered very well done. The recorded high response rate can be attributed to data collection procedures, where the researcher pre-notified the potential participants who were CEO's, chief finance managers and internal auditors of all the 124 licensed SACCO societies as at 31st December 2012. The respondents were also called to check on questionnaires completion for the purpose of collection either physically from the premises or to organize on other means of submission. Secondary data response rate was 100%, since it was collected and keyed into the computer by research assistants.

4.3 Reliability Analysis

The reliability of any instrument refers to its ability to produce consistent and stable measurements. Bagozzi (1994) explains that reliability can be seen from two dimensions: reliability (to the extent of accuracy) and unreliability (to the extent of

inaccuracy). A total of 22 questionnaires were obtained from the targeted large deposit taking SACCOs. The reliability measure which was used by the researcher is Crobanch's Alpha which estimates the internal consistency. Internal consistency is determined by the relationship between variables and the total test – referring to internal coherence of the data. The reliability is expressed as a coefficient between 0 and 1. The higher the coefficient, the more reliable is the test. In this study, Cronbach's Alpha was used to ensure reliability of the construct.

All the constructs depicted a value of Cronbach's Alpha of 0.8 which is above the suggested value of 0.5, thus implying that the study was reliable (Nunnaly1974, Nunnaly & Beinstein, 1994). Further Bartlett's tests of sphericity have been applied to test whether the relationship between variables has been significant or not as shown in Appendix N. As shown in Appendix N Cronbach's Alpha for dependent variable was 0.841 while the ones for dependent variable were 0.783 core capital, 0.802 liquidity, 0.793 allowance for loan loss and 0.814 for membership.

4.4 Demographic Characteristics of Respondents

The study sought to establish the demographic pattern of the respondent's data by examining the age distribution, gender, professional and academic experience of the respondents. The study targeted 124 participants in regard to prudential management of SACCOs and 87% of the targeted primary information was obtained from the respondents themselves while the secondary data was obtained from SACCO societies Authority's registry and recorded by the research assistants.

4.4.1 Gender Distribution

The demographic characteristics of the statistics indicated that eighty four (84) of the respondents were men represented by (77.8%) seventy seven point eight percent, while twenty four (24) were women signifying (22.2%) twenty point two percent as indicated in the table 4.1

Table 4.1 Gender Distribution

	Frequency	Percentage (%)
MALE	84	77.7
FEMALE	24	22.3
TOTAL	**108**	**100**

4.4.2 Age Bracket of the respondents

In the Survey, the respondents' ages were analyzed using the fit and proper test forms submitted to SACCO Societies regulatory Authority which had been filed in compliance with the statutory requirement. Table 4.2 represents the age distribution of the respondents reached.

Table 4.2 Age categories of respondents

Age categories of respondents	Frequencies	Percentages
16 - 25	0	0
26 – 35	4	4
36 – 45	43	40
Above 45	61	56
Total	**108**	**100%**

Out of the 108 SACCO CEO'S / Chief finance managers interviewed, 4 respondents representing 4 percent were between the age of 26-35, 43 respondents representing 40 percent were between the age of 36 – 45 years while 0 representing 0 percentage were between 16 – 25 years of age and the rest 61 respondents, representing 56 percent were above 45 years of age as demonstrated by table 4.2.The results indicate that SACCO's management is generally in hands of relatively old CEO's in their late forties and above. They thus had adequate experience to comment on technical issues affecting the SACCOs.

4.4.3 Academic Qualifications of the Respondents

The study sought to obtain the perceptions of the professionals working in the subsector concerning the impact of the statutory reforms on financial incomes. Upon classifications from O levels and other professional qualifications the following results were obtained as shown in table 4.3.

Table 4.3 Qualifications of the Respondents

Qualifications category	Number of respondents	Percentage of the total Respondents
'O' Level but below Diploma	9	8.34
Diploma and other professional qualifications	39	36.11
First Degree and other professional qualifications	40	37.03
Post graduate and other professional qualifications	20	18.52
Total	108	100%

From the descriptive statistics shown in table 4.2, 39 representing 36.11 percent were diploma holders and other professional qualifications,40, representing 37.03 percent were first degree holders with other professional qualifications, 20 representing 18.52 percent had post graduate degree and other professional qualifications while 9, representing 8.34 percent had 'O' level education and other professional qualifications.

Previous empirical studies appear to be in agreement with the results especially Marten (2005) in a study on the success of small businesses in Canada. The Study found out that the education of the owner or manager had a positive effect on the growth of the business. The success of SACCOs as profitable institutions in a prudential regulation

environment requires professional employees with high skills in SACCO business management as stated by King & McGrath (2002) in relation to business management. King & McGrath (2002) indicated that education is an important factor in the ever changing business environment.

4.4.4 Qualitative Results

The study sought to find out the managers' perceptions on the effects of core capital, liquidity, allowance for loan loss and membership as independent variables on financial income which is the dependent variable. The study sought to achieve the objectives by collecting primary data from the professionals in the various SACCOs using questionnaires attached in appendix A. The perception of the professionals is important in order to ascertain if data results collaborates with the professional perceptions.

4.4.5 Financial Performance

The survey involved respondents comprising of Ceo's and finance managers and the analyses of their responses revealed results as portrayed by figure 4.1

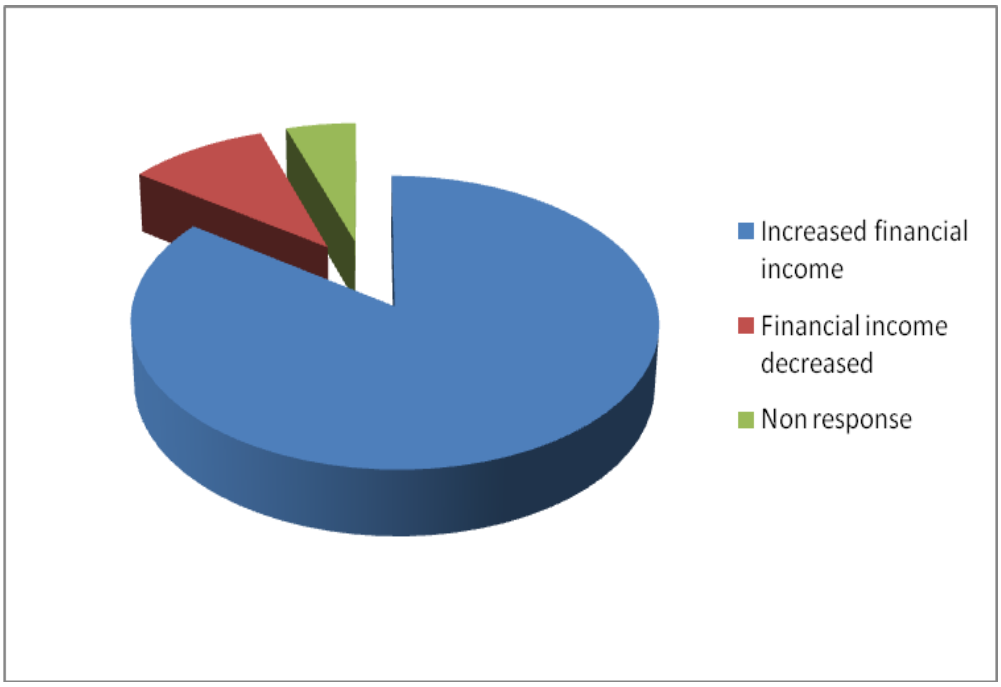


Figure: 4.1 Responses on effects of regulation on financial income.

According to the figure in appendix F, 85% of the Ceo's and financial managers were of the opinion that financial income increased as a result of prudential management, while 10% thought prudential management did not contribute and 5% did not respond. The implication is that the practitioners were also of the opinion that prudential management brought positive changes.

4.4.6 Core capital

The study sought to obtain the manager's perceptions on whether core capital as an independent variable had any impact on financial income as the dependent variable. Respondents who were knowledgeable on the subject agreed with the objective as demonstrated by the table 4.4.

Table 4.4 Responses on the Impact of Regulation on Core Capital.

	Responses in Percentages			
Statements	**Yes**	**No**	**N/A**	**Total**
Was the core capital above 10m before 2009	6	80	14	100
Was the core capital above 10m after 2010	87	0	13	100
Was CCA above 10% before 2009	5	82	13	100
Was CCA above 10% after 2010	77	10	13	100
Were you indebted to banks before 2009	85	2	13	100
Were you indebted to banks before 2010	39	48	13	100
Were you indebted to other financial organizations before 2009	27	60	13	100
Were you indebted to other financial organizations after 2010	6	81	13	100

Table 4.4 shows the results obtained from the primary data analyzed. As indicated in table 4.4, 87% of the respondents believed that core capital increased in excess of 10 million in comparison with only 6% for the period before 2010 – 2013 and thus 81% change. Notably the level of indebtedness also went down. For the period between years 2006 – 2009, 85% of the respondents said that SACCOs were indebted to banks in comparison to only 2% who disagreed. The level of indebtedness also improved from 27% to 6%.

4.4.7: Liquidity

The study sought to show if liquidity had any impact on financial income as the dependent variable. Majority of the Respondents (86%) who were knowledgeable on the subject agreed with the objective as demonstrated by the table 4.5

Table 4.5 Qualitative statistics – Liquidity

	Responses			
Statements	**Yes**	**No**	**N/A**	**Total**
Was your liquidity ratio above 15% of short term deposit and short term liabilities before 2009?	5	82	13	100
Was your liquidity ratio above 15% of short term deposit and short term liabilities after 2010?	85	2	13	100
Did you have designated FOSA managers before 2009?	2	85	13	100
Did you have designated FOSA managers after 2010?	86	1	13	100
Did tellers operate with a teller manual before 2009?	52	35	13	100
Did tellers operate with a teller manual after 2010?	86	1	13	100
Did you have designated Internal Auditor before 2009?	3	84	13	100
Did you have designated Internal Auditor after 2010?	86	1	13	100
Did tellers operate with a specific cash limit before 2009?	52	35	13	100
Did tellers operate with a specific cash limit after 2010?	86	1	13	100

As indicated in table 4.5, 85% of the respondents believed that liquidity increase to 15 percent or greater during the period of 2010 -2013 led to increased incomes in comparison to only 2% who felt that liquidity did not contribute. The fact that only 5% had a liquidity ratio of 15% during the period of 2006 – 2009 and that 85% of the deposit taking SACCOs encountered increased income when they increased liquidity to 15% is enough evidence that liquidity had a major role in determining income of a deposit taking SACCO. Notably the level of cash management and internal controls increased as witnessed by 86% of SACCOs who hired FOSA managers, hired internal Auditors and observed specific cash limits for tellers. For the period between 2006 – 2009, 52% of the respondents said that SACCOs operated with Teller manuals and therefore 48% operated without teller manuals in comparison with 86% who operated with teller manuals in the period of Law compliance 2010 – 2013 and hence reduction in cash fraud related issues. In general, 86% of the respondents interviewed said that businesses generally improved due to the strict cash management practices prescribed by the law.

4.4.8: Allowance for Loan Loss

The study sought to show if allowance for loan loss as an independent variable had any impact on financial income as the dependent variable. Majority of the Respondents (82%) felt that loan recovery improved substantially as a result of legal reforms implemented from 2010 demonstrated by the table 4.6

Table 4.6 Qualitative statistics – Credit Management

	Responses			
Statements	**Yes**	**No**	**N/A**	**Total**
Are loans being paid as per contractual documents – loan policy for period (2010 – 2013)?	82	6	13	100
Were loans being paid as per contractual documents – loan policy for period (2006 – 2009)?	37	50	13	100
Were you making provisions for loan losses from 2006 – 2009?	2	85	13	100
Do you make provision for loan losses from 2010 - 2013?	86	1	13	100

As indicated in table 4.6, 82% of the respondents believed that loans recovery increased as a result of legal reforms on non performing loans. Notably the practices of serious loan repayment were brought by the provision for loan losses on the respective revenues of a given year as demonstrated by 86% respondents who alluded that the SACCOs were making provisions for loan losses in comparison with only one respondent who differed.

4.4.9: Membership

The study sought to show if membership as an independent variable had any impact on financial income as the dependent variable. Majority of the Respondents (86%) believed that prudential management brought awareness on customer focus and hence most SACCOs operated with member recruitment and member retention policies as demonstrated by the table 4.7

Table 4.7 Qualitative statistics – Membership

Statements	Responses Yes	No	N/A	Total
Were there members who were leaving the SACCO 2006 – 2009?	82	5	13	100
Were there members who were leaving the SACCO 2010 – 2013?	37	50	13	100
Had SACCO formulated member recruitment strategy during the period 2006 – 2009?	2	85	13	100
Had SACCO formulated member recruitment strategy during the period 2010 – 2013?	86	1	13	100
Had SACCO formulated member retention strategy during the period 2006 – 2009?	2	85	13	100
Had SACCO formulated member retention strategy during the period 2010 – 2013?	86	1	13	100

From table 4.7, it is evident that the deposit taking SACCOs increased customer focus in the period of 2010 - 2013 as indicated by the 86% of the respondents who asserted that SACCOs formulated member retention and member recruitment strategies in comparison to only 2% of the deposit taking SACCOs who had no such Strategies.

4.5 Descriptive Statistics

The whole period data summary is provided for the total research period in table 4.8 for years 2006 to 2013. The descriptive statistics for the two periods, pre-licensing and post licensing data are in table 4.9 and 4.10 respectively for ease of comparison. In all the three tables, EBIT means earnings before interest and taxes and was extensively used to compute values for the dependent variables. Other variables are represented by the error term and are assumed not to affect the results.

Table 4.8 Descriptive Statistics for the Whole Period. 2006 – 2013

Variable	N	Total	Mean	SD
Total Assets	124.00	147,690,323,337.00	1,191,050,995.00	2,453,336,930.00
EBIT	124.00	2,816,693,578.00	22,715,271.00	41,930,480.00
ROA	124.00	0.02	0.02	0.02
AFLL	124.00	2,605,641,806.00	21,013,240.00	153,908,326.00
Liquidity	122.00	17.40	0.14	0.12
Core capital	124.00	27,383,901,758.00	245,020,725.00	449,020,725.00
Members	124.00	1,607,907.00	12,967.00	2,453,336,930.00

The results of table 4.8 indicate that ROA is 0.02 which is lower than post reform period one of 0.03 and higher than pre-reform period of 0.01. The average core capital for the whole period is higher than the pre-reform period because SACCOs were not properly capitalized. However, the average for the whole period is the same as post reform period because balance sheet items are cumulative in nature.

Table 4.9 Descriptive Statistics for the Pre- Reform Period 2006 – 2009

Variable	N	Total	Mean	SD
Total Assets	124.00	36,764,899,001.00	296,491,121.00	1,386,965,458.00
EBIT	123.00	482,732,238.00	2,054,734.00	7,661,672.00
ROA	122.00	0.01	0.01	0.01
AFLL	122.00	3,704,092,900.00	30,361,417.00	293,514,301.00
Liquidity	121.00	10.40	0.09	0.17
Core capital	123.00	3,411,611,955.00	27,736,683.00	45,455,093.00
Members	123.00	485,891.00	3,950.00	18,207.00

The ROA in the pre-reform period is 0.01 and comparatively lower than post reform period of 0.03 and thus showing the importance regulation in the subsector.

Table 4.10 Descriptive Statistics for the Post Period 2010 – 2013

Variable	N	Total	Mean	SD
Total Assets	124.00	147,690,323,337.00	1,191,050,995.00	2,453,336,930.00
EBIT	124.00	3,891,077,654.00	31,379,659.00	61,588,496.00
ROA	124.00	0.03	0.03	0.09
AFLL	124.00	2,605,641,806.00	21,013,240.00	153,908,326.00
Liquidity	124.00	24.90	0.20	0.13
Core capital	124.00	27,383,901,758.00	245,020,725.70	449,020,725.70
Members	124.00	731,983.00	5,903.00	17,899.00

The average ROA for post reform period is higher than both pre-licensing period and ROA for the whole period. It shows the positive impact regulation had on deposit taking SACCOs. The implication is that when specific proportion of capital is provided in law, the deposit taking SACCOs, will have more cash and cash equivalent at their disposal and thus increasing both lending and interest income as demonstrated by tables 4.11 and 4.12.

4.5.1 Core Capital

Table 4.11 The standard deviation of Core capital 2006 - 2013

	Core Capital	Valid N (listwise)
N	124	**124**
Minimum	-79,099,343.00	
Maximum	3,687,476,042.00	
Mean	245,137,804.34	
Std. Deviation	449,020,725.70	

As can be seen in table 4.11 the standard deviation for Core capital is 449,020,725.8 which portrays that the deviation from the mean is quite large considering the diverse sizes of various SACCOS in the study. However, the standard deviation increased substantially from 45,455,093 of pre- reform period to 457,881,343.28 of post reform period of 2010 – 2013, implying a substantial growth in asset sizes.

Table 4.12 The standard deviation of Core capital 2010 - 2013

	Core capital	Valid N (listwise)
N	89	**89**
Minimum	-203,411,500.00	
Maximum	3,687,476,042.00	
Mean	220,010,849.96	
Std. Deviation	457,881,343.28	

Table 4.12 indicates the standard deviation for the period 2010 - 2013 data and show a standard deviation of 457,881,343.3 in comparison with 449,020,725.8 for the entire period 2006 – 2013. The change in standard deviation is 8,860,617 which represent 1.97% change. The implication is that as SACCOs struggled to comply with the law, the amount of money available for lending in various SACCOs increased and hence more lending to members, leading to increased incomes. The pattern on increase in capital is demonstrated by table 4.13

Table: 4.13 Growth in core capital over the Years

Time in years	Core capital	Yearly change	Percentage growth
2006	1,489,816,978.12	608,516793.9	40.85
2007	2,098,333,772.00	842,183,704.5	40.14
2008	2,940,517,476.50	471,094,478.5	16.02
2009	3,411,611,955.00	11,218,374,008	328.8
2010	14,629,985,963.00	3,244,738,886	22.18
2011	17,874,724,849.00	8759,083,633	49.00
2012	26,633,808,482.00	750,093,276	2.8
2013	27,383,901,758	27,383,901,758	-

As can be observed in table 4.13 on growth of core capital, the core capital stabilized at 40.14% in 2007 in comparison 40.85% in 2006 and reduced up to 16.02 % in 2008, however when the deposit taking SACCOS got information on the proposed SACCO legislation, they all increased their core capital and hence the gigantic increase of 328.8 % in 2009. The huge leap in 2009 was important to enhance licensing of deposit taking SACCOs which commenced in 2010 as illustrated in figure 4.2.

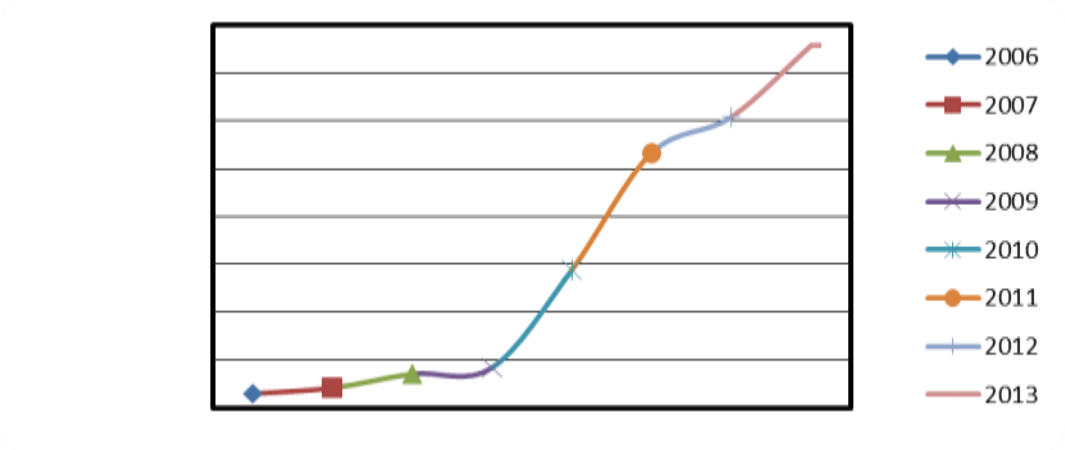


Figure: 4.2 The Growth in Core Capital over the Years

Figure 4.2 shows a pattern of low growth between the period of 2006 to 2008 and a pattern of steady growth between period of 2009 – 2013. The growth was fundamentally large in 2009 as SACCOs prepared for license applications in 2010. The law requires that all deposit taking SACCOs should apply for licenses annually for them to remain in operation for a given year of trading and reapplication of licenses in subsequent years. The increased government regulations have ensured that deposit taking SACCOs are operating their businesses prudentially, fully cognizant of the legal consequences on non adherence.

The findings are similar to Croteau (1956), Dran (1971), Taylor (1979), Wolken and Navratil (1980), Fry *et al* (1982) and Mckillop *et al* (2011), who stated that capital adequacy ratios were important in expansion, merger and growth in deposit taking SACCOs. Mckillop & Williamson (2011) recognized the importance of capital management as an important ingredient in achieving optimal utilization of resources in an economy and also the improvement in quality of life. They also asserted that credit Unions capital raised through retained earnings was tax exempt and hence that gave credit unions a comparative edge over banks and other mutual fund providers. Jackson (2007) appreciated the growth of SACCOs for a period of 17 years (1990- 2006) due

capital adequacy while Goddard *et al* (2010) attributed the economic growth in US to the great financial performance among credit Unions after implementation of capital adequacy legal framework in year 2000.

4.5.2 Liquidity

Table 4.14 Standard deviation of liquidity ratio 2006 - 2013

	Liquidity	Valid N (listwise)
N	124	**124**
Minimum	-.59	
Maximum	.12	
Mean	.0181	
Std. Deviation	.05886	

As can be seen in table 4.14 the standard deviation for liquidity ratio is 0.05886 which portrays the deviation from the mean of 0.0181. However, the standard deviation increases substantially during the statutory period of 2010 – 2013 as demonstrated in table 4.15 to 0.1972 from 0.058. Thus, the mean of 0.0181 or 1.8% for the whole period is low because of pre-licensing period data. The contribution for the post licensing period is 0.1272 or 12.72 % which is close to 15% liquidity provided for in law.

Table 4.15 Standard deviation of liquidity ratio 2010 - 2013

	Liquidity	Valid N (listwise)
N	115	**115**
Minimum	-.22	
Maximum	.88	
Mean	.1272	
Std. Deviation	.19779	

Table 4.15 indicates the standard deviation for the period 2010 - 2013 data and show a standard deviation of 0.1979 in comparison with 0.058 for the entire period 2006 – 2013. The change in standard deviation is 0.14 which represent 241 % change. The implication is that as SACCOs struggled to comply with the law, the amount of money available for lending in various SACCOs increased and hence more lending to members, leading to increased incomes.

The findings are similar to Saunders and Cornett (2011) who advocated for the prudential planning of cash flows by matching maturities of assets against maturities of liabilities. They further asserted that for an organization to operate in a positive cash flow, the maturity of assets must be earlier and higher than the maturity of liabilities. All the SACCOs in the study implemented the Kenyan SACCO Societies Act. The Act advocates for 15% Liquidity ratio which is computed by dividing total cash and cash equivalents with the summation of short term deposits and short term liabilities. The practice has the impact of encouraging SACCOs to maintain liquidity for meeting daily cash requirements for the members and a similar view was shared by Ruth (2001).

The findings are similar to Miller and Orr (1966) as they advocated for establishment of desired cash levels that optimizes usage of available cash and limiting the likelihood of insolvency risk. Davidson *et al* (1999) and Pandey (2007) also had similar findings which stated that computation of desirable cash level was important to enable firms invest in excess funds.

4.5.3 Allowance for loan losses.

Table 4.16 Standard Deviation for allowance of loan losses – 2006 – 2013.

	AFLL	Valid N (listwise)
N	124	**124**
Minimum	.00	
Maximum	428,788,801.00	
Mean	30,906,547.25	
Std. Deviation	52,968,406.83	

As can be seen in table 4.16, the standard deviation for allowance of loan losses is 52,968,406 which portray large deviation from the mean of 30,906,547. However, the standard deviation increased substantially during the statutory period of 2010 – 2013 as demonstrated by table 4.17.

Table 4.17 Standard Deviation for allowance of loan losses – 2010 – 2013.

	AFLL	Valid N (listwise)
N	123	**123**
Minimum	-335,259,334.00	
Maximum	428,788,801.00	
Mean	24,729,054.03	
Std. Deviation	61,786,074.76	

Table 4.17 indicates the standard deviation for the period 2010 - 2013 data and shows a standard deviation of 61,786,074 in comparison with 52,968,406 for the entire period 2006 – 2013. The change in standard deviation is 8,817,668 which represent 16.6 % change. The implication is that as SACCOs struggled to comply with the law which

states that non performing loans must be less than 5%, the amount of money available for lending in various SACCOs increased and hence more lending to members, leading to increased incomes.

Table: 4.18 Growth in Allowance for Loan losses over the Years

Time in years	Allowance for Loan losses	Change in subsequent years	Percentage growth
2006	527,660,017	79,448,573.7	15.06
2007	607,108,590.7	75,888,573.9	12.50
2008	682,997,164.6	75,888.573.4	11.1%
2009	758,885,738	84,320,638	11.00%
2010	843,206,376	1,148,170,166	136.12%
2011	1,991,376,542	1,038,008,070	52.13%
2012	3,029,384,612	803,027,248	26.5%
2013	3,832,411,860	-	-

As can be seen from table 4.18, the allowance for loan loss increased mildly from 2006 – 2009, primarily because the SACCOs were basically not concerned with the quality of loans and credit management was haphazard. However, between 2009 and 2010 the year of transition when there was no law and the implementation of legal reforms, the growth was monumental at 136.12 %. Since the practical implication was for SACCOs either to reduce on dividends allocation to members or to increase on loans recovery and reduce on loan delinquency, the various SACCOs opted to improve on loan recoveries. The reduction in the mean for allowance for loan loss figures from 30 million to 24 million implies increased in recovery of loans. With increased loans recoveries and repayments, SACCO got more money for lending and hence increased incomes.

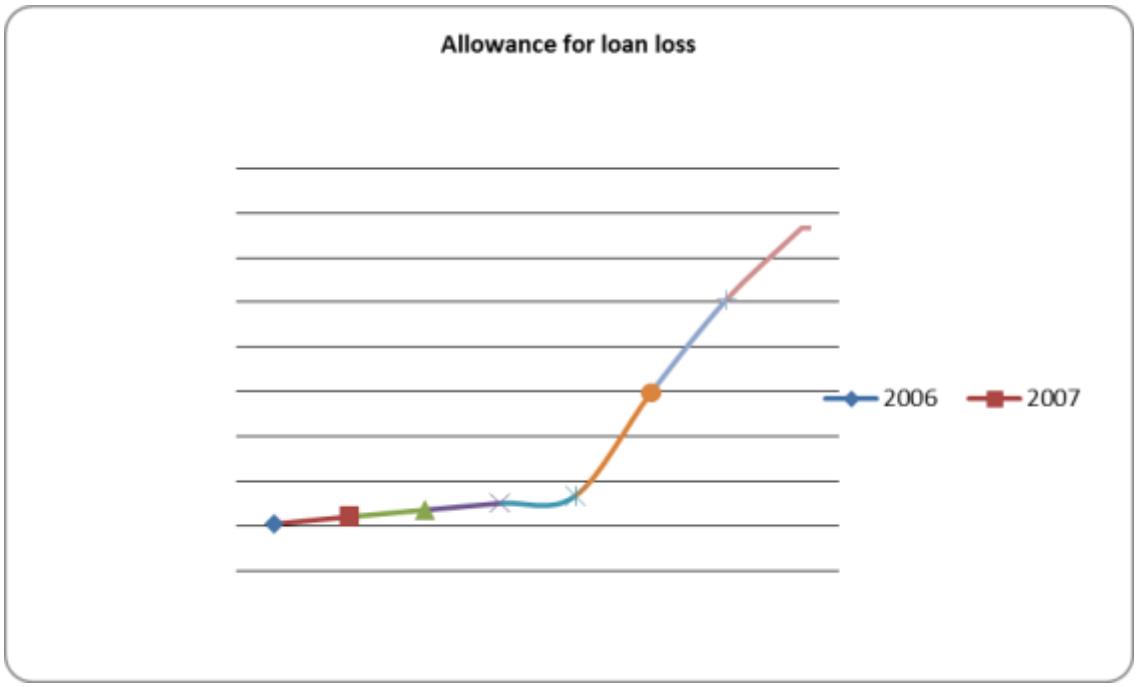


Figure: 4.3 The growth in allowance for loan loss over the years

As can be seen from figure 4.3, the growth in allowance for loan loss in the first four years of 2006 to 2009 was constant, but after the law became operational in the period of 2010 to 2013, the curve increased steadily representing the period that the SACCOs were struggling to comply with the law and hence the increase in allowance for loan loss. Evidently, the curve rose sharply in the years of 2010 and 2011, but after that started increasing at a decreasing rate, implying that SACCOs opted to devise effective methods of loan recoveries instead of provisioning on loans indefinitely. The findings tally with earlier findings by similar studies conducted by Mckillop & Wilson (2011) who defined credit risk as the inability to repay loans in accordance with the contractual agreement due to unsafe lending practices which SACCOs should avoid. They further asserted that as loan recoveries improved, the incomes earned from the loans also increased. Findings by Brunnermiar (2009), Berger, herring and Szego (1995) further supported the study findings and added that increased allowance for loan loss depletes the capital.

4.5.4 Membership

Table 4.19 Standard Deviation for Membership – 2006 – 2013.

	Members	Valid N (listwise)
N	124	**124**
Minimum	942.00	
Maximum	148,381.00	
Mean	19,174.30	
Std. Deviation	28,316.09	

As can be seen in table 4.19, the standard deviation for membership is 28,316 demonstrating that the deviation from the mean of 19,174 is quite large. However, the standard deviation increased substantially during the statutory period of 2010 – 2013 as illustrated by table 4.20.

Table 4.20 Standard Deviation for Membership – 2010 – 2013.

	Members	Valid N (listwise)
N	98	**98**
Minimum	616.00	
Maximum	90,843.00	
Mean	28,269.5918	
Std. Deviation	33,717.97637	

Table 4.20 indicates the standard deviation for the period 2010 - 2013 data and show a standard deviation of 33,717 in comparison with 28,316 for the entire period 2006 – 2013. The change in standard deviation is 5,401 which represent 19.1 % change. The mean changed positively from 19,174 to 28,629 implying that membership must have increased during the period. The implication is that as SACCOs struggled to comply with the law, the members' loyalty and patronage increased. Thus the membership

retention increased, more members joined the deposit taking SACCOs and hence increment in capital and volume of business. The increased volume of business and membership led to increase in the funds available for lending in various SACCOs and hence increased incomes as shown by table 4.21.

Table: 4.21 Growth in Membership over the Years

Time in years	Membership	Change	Percentage growth
2006	767,707	(30,070)	-3.9
2007	737,637	71,982	9.76
2008	809,619	439,388	54.3
2009	1,249,007	396,624	31.8
2010	1,645,631	174,553	10.6
2011	1,820,184	347,266	19.6
2012	2,167,450	210,164	9.7
2013	2,377,614	-	-

As indicated in table 4.21, the membership increased mildly in year 2006 and 2007, but increased substantially in 2008, 2009, 2010, 2011 and 2012. Therefore, as members heard of statutory changes they developed more confidence and loyalty while new members joined to reap benefits of the newly organized financial market as demonstrated by figure 4.4.

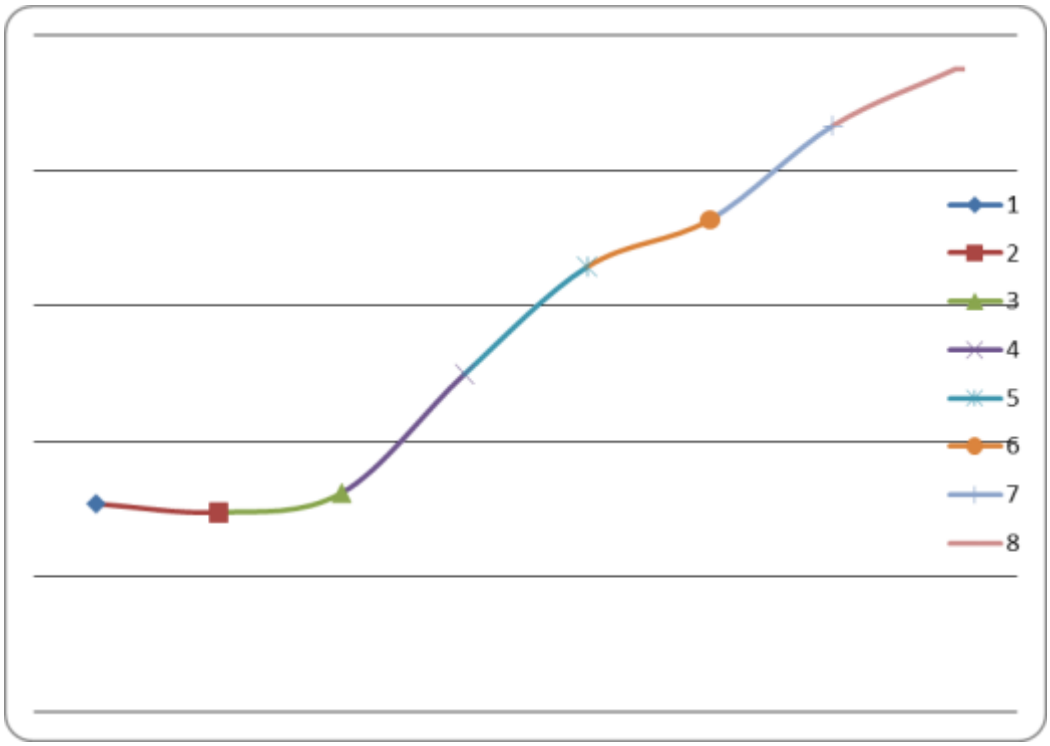


Figure: 4.4 The growth in membership over the years.

Figure 4.4 shows a curve on membership over the years and as can be seen the gradient is sharpest in years 2008, 2009, 2010 and 2011. These years represent years of transition between mild laws and stringent laws among deposit taking SACCOs in Kenya. The findings are similar with Manyara (2013) and Kobia (2011) who asserted that increased membership led to increased incomes due to increased volume of business.

4.6 Impact of Statutory Reforms.

To show the impact of the study the researcher established the pattern over the period of eight years on the financial performance as demonstrated in figure 4.5. It shows pattern of growth from 2006 to 2013.

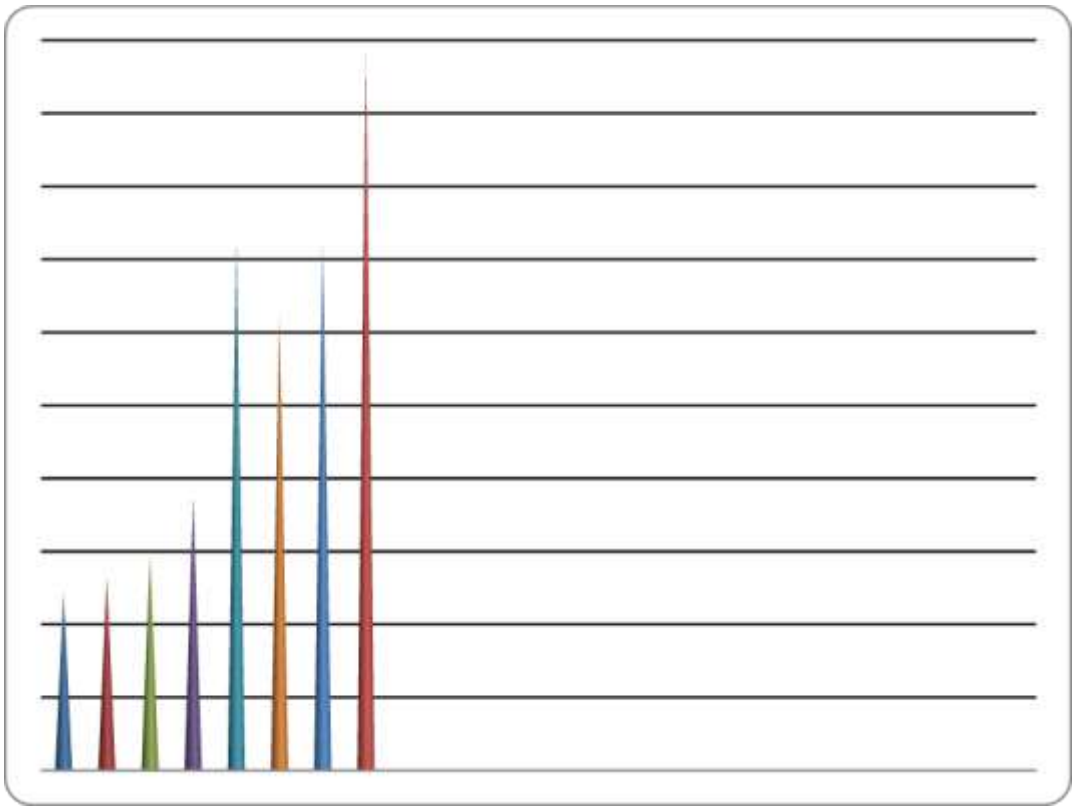


Figure 4.5 The Trend of Income for the period 2006 – 2013

As can be seen in figure 4.5 the total financial income for the 124 SACCOs had a range of 1 billion (2006) to 1.9 billion (2009) while the growth rose to 3.4 billion in 2010, clearly showing low financial incomes in the period of non adherance to prudential regualtions and higher growth in the period of post reforms period of 2010 – 2013.

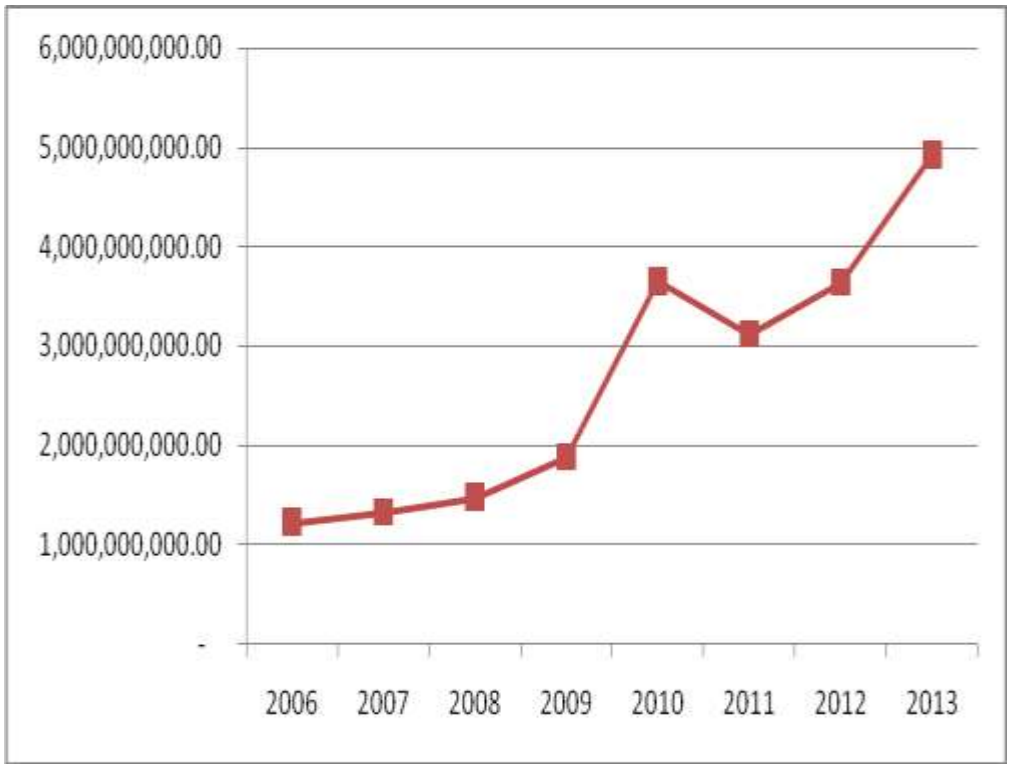


Figure 4.6 The Trend of Income for the period 2006 – 2013.

As can be seen in figure 4.6 the highest gradient is between 2009 and 2010 as the income grew from 1.9 billion to 3.4 billion representing 78.9% percentage growth. The finding is similar to Ooko (2013) which indicated that improved stewardship and increased institutional capital led to higher growth in incomes.

4.7 Regression Analysis

The study used classic linear regression model due to its ability to show relationships between the independent and the dependent variables, Castillo (2009). Classic linear regression model has important underlying assumptions that must be tested before it can be utilized as a model of data analysis and hence the researcher embarked on the exercise. The key assumptions affecting the study are discussed herein.

4.7.1 Multicollinearity.

As stated by Gujarati (2004) and Brook (2008), collinearity exists when there is a high degree of association between independent variables. Druly (2000) defined multicollinearity as a situation where independent variables are highly correlated with one another making it very difficult and sometimes impossible to separate the effects of each of these variables on the dependent variable. Practically, this occurs when there is a simultaneous movement of two or more independent variables in the same direction and in the same rate.

Table 4.22 Multicollinearity Tests

Model		**Collinearity Statistics**	
		Tolerance	**VIF**
1	(Constant)		
	CCA	.681	**1.468**
	LIQUIDITY	.704	**1.420**
	AFLL	.982	**1.019**
	MEMBERS	.946	**1.057**

According to collinearity Table 4.22, the tolerance value and VIF (variance inflated factor) among all independent variables were more than 0.10 and 10. The cut-off value was a tolerance value of 0.10, which corresponds to a VIF of 10 (Sekaran&Bougie, 2010). The Variance inflation factor (VIF) ranged from 1 to 4 and hence was not a cause of concern since it was greater than the cut-off of 0.1. According to Myers (1990) a VIF greater than 10 is a cause of concern as that would mean presence of multicollinearity among independent variables. Therefore there was no multicollinearity among the independent variables in the study.

4.7.2 Test for Normality

As stated by Gujarati (2004) and Brook (2008), for classical linear regression model to be the best estimator, the residuals must be normally distributed, with an expected mean

value of zero (E(Ui) = 0, variance of zero ($E(U^2i)=0$ and a covariance of zero between error terms (Cov (Ui,Uj) = 0. The variables tested for normality were core capital, liquidity, allowance for loan loss and membership growth. Thus Shapiro-Wilk test revealed the following:

Table 4.23 Normality test

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
Unstandardized Residual	.088	117	.200*	.981	117	.763

According to Table 4.23 of normality, the statistic of Shapiro-Wilk test is 0.981 with a significance of 0.763. If the Significance value of the Shapiro-Wilk Test is greater than 0.05 then the data is normal, if it is below 0.05 then the data is not normally distributed (Lund Research Ltd, 2012). Therefore the results show that the data collected was normally distributed. The distribution of standardized residual graph against the dependent variable was plotted to show normality as illustrated by figure 4.7. This is further evidence to show that data is normally distributed.

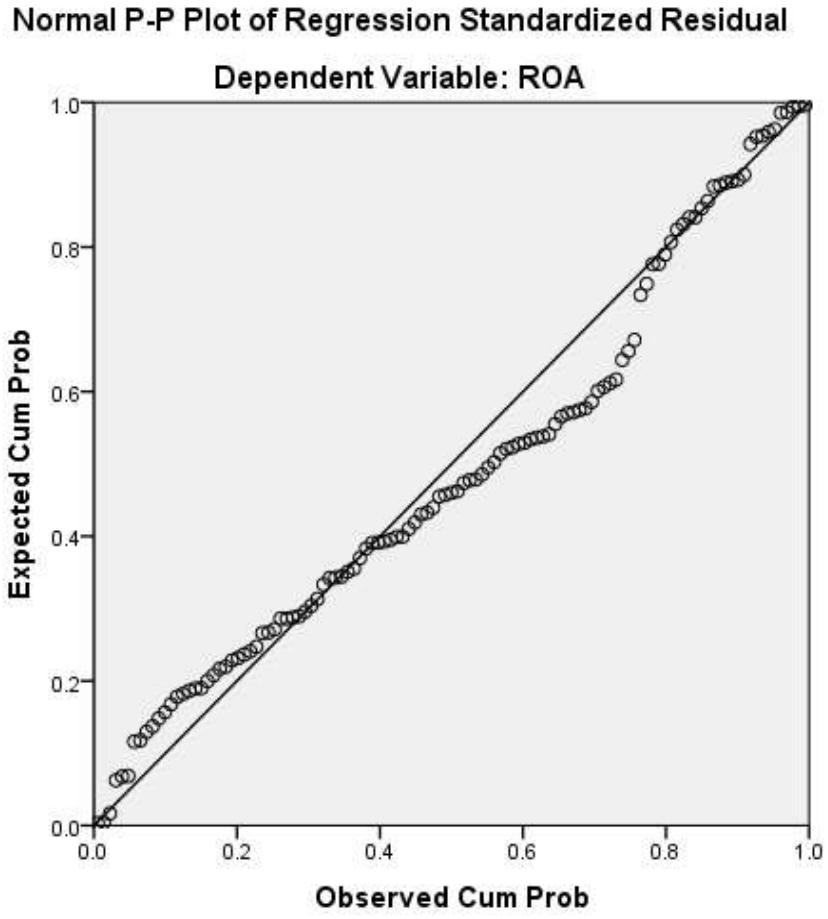


Figure: 4.7 Distribution of Regression Standardised Residual Dependent Variable – ROA.

The distribution of plotted points of residuals for the dependent variable in figure 4.8 show a normal distribution of data and hence compliance with the classical linear regression assumption of normality of data.

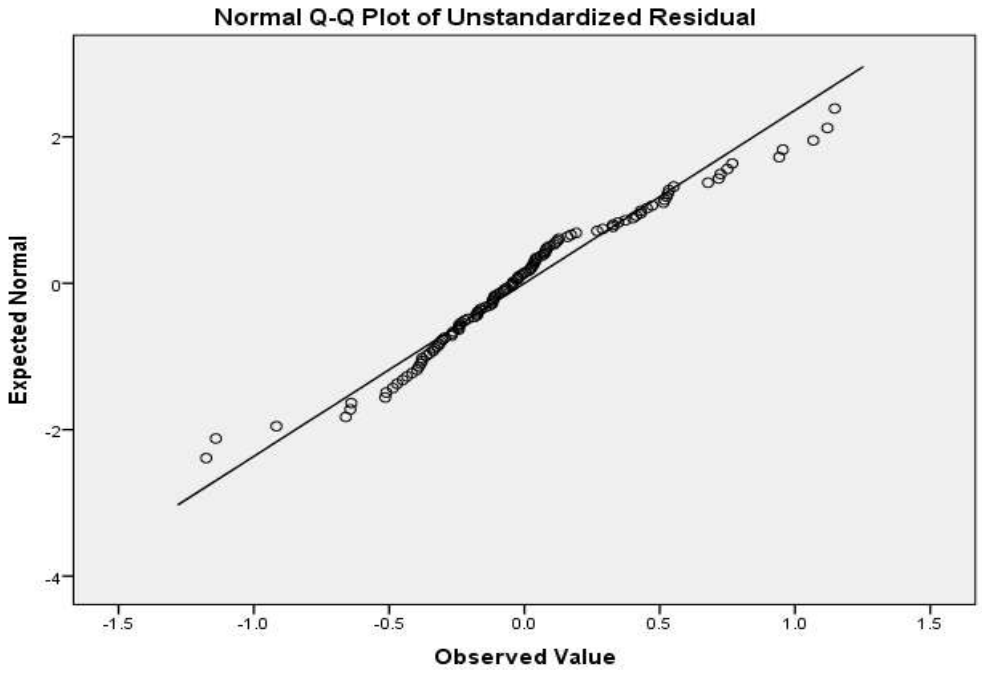


Figure: 4.8 Distribution of Regression Unstandardised Residual Dependent Variable – ROA.

Checking the Normal Probability Plot points, they lie in a reasonably straight diagonal line from bottom left to top right. They show that there are no major deviations from normality.

Table 4.24 Skewness and Kurtosis Results.

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Unstandardized Residual	117	.367	.224	.844	**.444**
Valid N (listwise)	117				

Further test for normality is such that Skewness and kurtosis more than twice their standardize errors (SE) indicate non-normality (Gajarati 2004). The values of skewness of .367 with a standard error of .224 and kurtosis of 0.844 and standard error of 0.444 indicate that they are not more than twice their standard errors and hence indicate normality.

4.7.3 Heteroscedasticity

As stated by Gujarati (2004) and Brook (2008), heteroscedasticity is the violation of homoscedasticity. Homoscedasticity is an assumption stating that the error terms have constant variance and hence they cannot influence each other.

Table 4.25 Heteroscedasticity test

Regression SS	Residual SS	Total SS	Sample N	Breusch-pagan test	sig
28.526	294.151	322.677	117	14.263	0.1001

Table 4.25 represents the results of breush-pagan test for heteroscedasticity. Breusch-pagan test shows a chi-square value and a significance value for the tested variables (membership, core capital, allowance for loan loss and liquidity). A p-value less than (<) 0.05 indicates that there is heteroscedasticity while a p-value greater than 0.05 indicates heteroscedasticity does not exist. The breush-pagan test value 14.263 in table 4.25 show a p-value of 0.1001 > 0.05 indicating that heteroscedasticity does not exist and thus the assumption has not been violated.

4.7.4 Test for Fixed or Random effects Among Coefficients.

The data comprised of both time series and cross sectional elements and thus required testing for both fixed and random effects of coefficients. Fixed effects models allows the intercept (constant which is Bo) to differ cross sectionally but not overtime; while all the

slope estimates (Betas) are fixed both over time and cross sectionally. Random effects on the other hand suggested different intercept terms for each entity and the intercepts constant overtime while relationship remained the same between variable of x and y.

The Hausman test showed an insignificant difference between coefficients for the fixed effects and random effects model. Therefore the researcher used random effect model. Rho is the proportion of variation due to the individual specific term. We had a small proportion (Rho) of 14.6% as explained by the individual specific term and the rest due to idiosyncratic error. Since the equations differed in every year and cross sectionally, thus there was no fixed effect. However, when data was aggregated for 2006-2009 and 2010-2013, the fixed effect became applicable.

4.8 Discussion on Core Capital Results.

The study sought to investigate the impact of core capital on financial performance of deposit taking SACCOs. The study demonstrates the impact of core capital on financial performance by comparing the coefficients of core capital before the statutory reforms in years 2006 - 2009 and after the implementation of prudential requirements as contained in SACCO Societies Act and the accompanying regulations 2010 - 2013. The regressed results for the four years before reforms show a consolidated balance sheet (statement of financial position) from 2006 to 2009 and the results are compared with consolidated Balance sheet for the period 2010 to 2013.

The independent variable is measured by the ratio of core capital to total assets (CCA) while the dependent variable is measured by return on assets (ROA) ratio which is specifically computed by earnings before interest and taxes divided by the total assets. The study used regression analysis and correlation analysis between variables as regression showed the relationship while correlation quantified the extent of relationships between variables.

4.8.1 Core Capital (CCA) and financial performance (Return on Assets) During Pre – Reform Period (2006 – 2009).

Regression summary Table 4.7 indicates that the correlation coefficient between CCA and ROA is 0.457 with p-value of 0.012 < 0.05. There is a weaker positive relationship between CCA and ROA in comparison with the post reform period. This is in line with studies made by Nair & Kloeppinger – Todd (2007) which shows that SACCO growth depended on financial stewardship, capital structure and funds allocation. Buch and Prieto (2014) further supported the findings that prudential regulations particularly core capital increases financial incomes.

Table 4.26 Regression Summary for core capital 2006 - 2009

R	R Square	Adjusted R Square	Std. Error of the Estimate
.457	.209	.202	**.452**

The independent variable is CCA. The R square is .209 which is lower than 0.5 implying that CCA is not a strong variable in determining financial income as indicated in table 4.26 because core capital was haphazardly maintained before the statutory reforms of 2010. The results show that core capital has a low influence in comparison with post-legislation period where the relationship is very strong. The implication is that when core capital is very low, the cash available for business is very low and hence reduced financial incomes (Kilonzi 2012).

Table 4.27 ANOVA for Core Capital 2006 - 2009

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	.076	1	.076	8.510	**.012**
Residual	.884	99	.009		
Total	**.960**	**100**			

The independent variable is CCA.

As indicated in table 4.27, the F_ Value is 8.510, with a p value of 0.012 < 0.05. Hence the overall model is significant. The implication is that the model supports income generation in the financial institutions due to practical relationship between revenue reserves, capital reserves, owners' equity and financial income in deposit taking SACCOs. Reserve is the amount of money set aside for returning back into the business instead of distribution to owners as dividends or retention of predetermined cash in the business that supports sustainability of lending business. The findings are similar to the study by Barrios & Blanco (2003) whose findings stated that although capital formed a small percentage of a bank's wealth it nevertheless played a critical role in long term finance, solvency and public credibility of the institution.

Table 4.28 Regression Coefficients for Core capital 2006 – 2009.

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	**Std. Error**	**Beta**		
CCA	.423	.145	.271	2.917	**.012**
(Constant)	.009	.011		.866	**.388**

The individual regression results show that for an increase in CCA by one unit, ROA increases by 0.423 units.

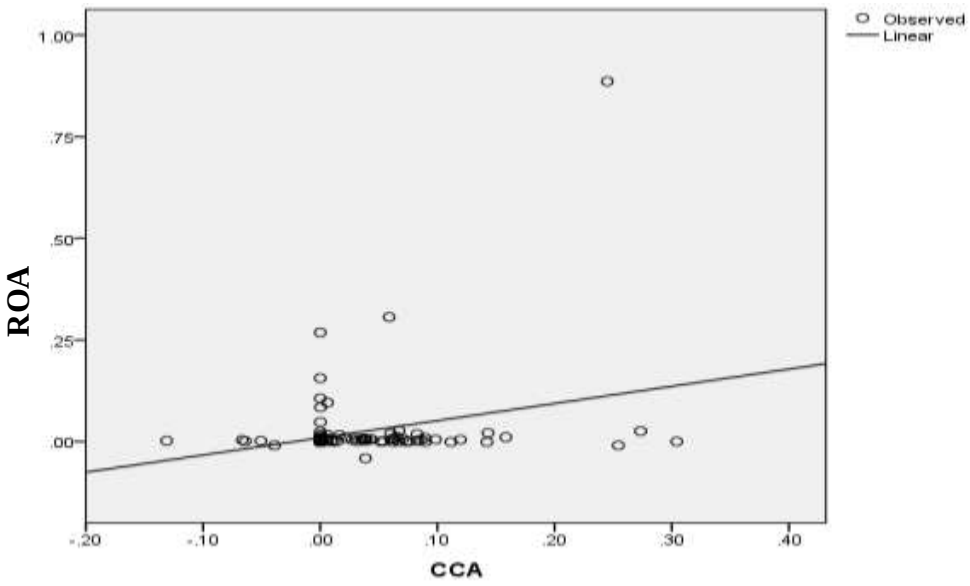


Figure 4.9 CCA vs ROA

The diagram in figure 4.9 shows the relationship between core capital and financial performance. The individual regression results show that for an increase in CCA by one unit, ROA increases by 0.423 units. The core capital directly increases financial income because the reserved revenue increases the amount of money available for lending and hence the strong relationship. In summary, figure 4.9 and the significance value of 0.012 shows that core capital is an important variable in influencing financial performance of a SACCO.

4.8.2 Core Capital and Financial Income (Post – reform period 2010 – 2013)

The study sought to compare the regression results between the pre- reform period and post reform period to ascertain if the statutory reforms brought any impact on deposit taking SACCOs' financial income.

Regression Table 4.28 indicates that the coefficient of determination between CCA and ROA is 0.710 in post reform period, with p-value of 0.000 < 0.05. The interpretation is

that there is high positive relationship between CCA and ROA. In comparison with the period before reforms of 2006 - 2009, with a coefficient of determination (R squared) of 0.209, the coefficient of determination after implementation of law is 0.710, which is 239 % increase and a pasche index of 339% if the period of 2006 – 2009 is taken as the base year. The pre – reform relationship is weak in comparison with post reforms period results. The implication is that a strong core capital is essential for the operation of smooth lending business as evidenced by the coefficient correlation of 0.843 in table 4.29.

Table 4.29 Regression Summary For Core Capital 2010 – 2013.

R	R Square	Adjusted R Square	Std. Error of the Estimate
.843	.710	.708	.543

The coefficient of determination (R^2) of 0.710 and correlation coefficient (R) of 0.843 show the high degree of association between ROA and CCA as shown in table 4.29.

Table 4.30 ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	.019	1	.019	103.590	.000
Residual	.017	96	.000		
Total	**.036**	**97**			

Table 4.30 shows the results of Anova test which reveal that the core capital have a significant impact on financial income. The inference is derived from the fact that p-value is 0.000 which is lower than 5% level of significance. Therefore the linear regressions line that $Y = \beta_0 + \beta_1 X_1 + \varepsilon$ where X_1 is the core capital and Y represents return on assets is significant.

Table 4.31 Regression Coefficients for Core Capital 2010 - 2013

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
CCA	.701	.015	.620	10.178	.000
(Constant)	-.006	.002		-2.652	.009

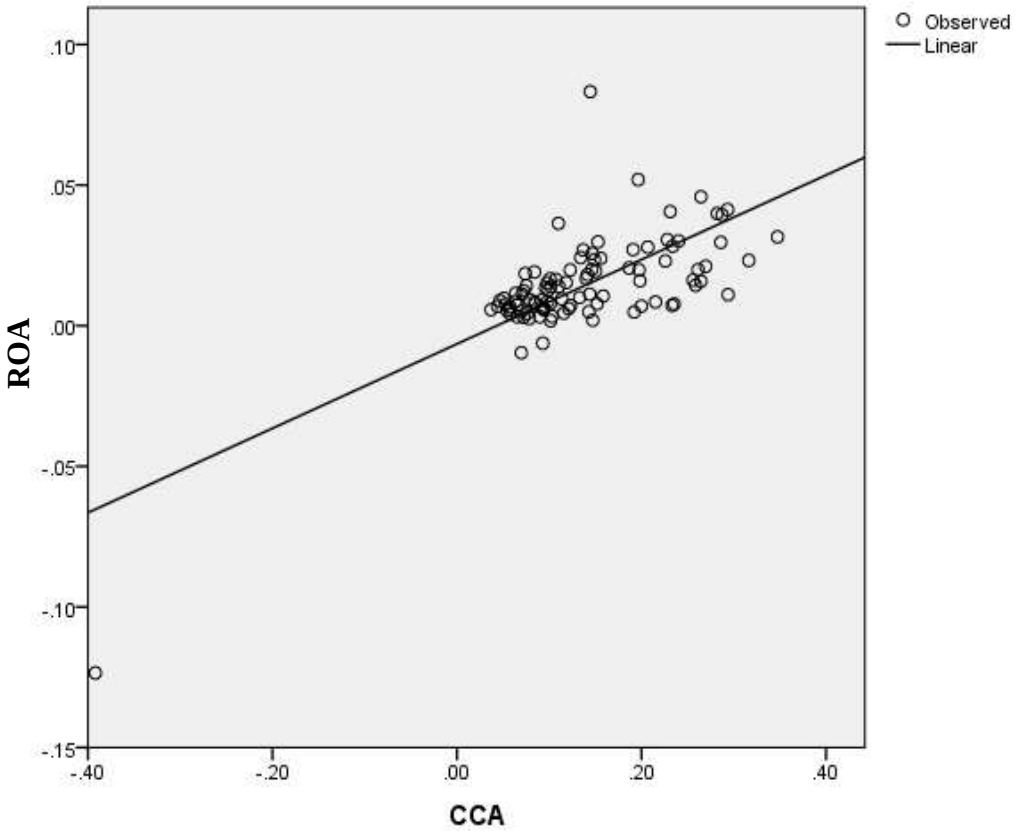


Figure 4.10 Line of best fit

The figure 4.10 shows the regression line between the core capital to total asset CCA (ratio) and the return on assets (ROA). It shows a straight line with points normally scattered along the linear regression line implying a positive linear relationship between financial income and core capital. Table 4.31 shows a core capital beta of 0.701 which is much stronger than 0.423 exhibited by pre – licensing data.

Table 4.32 Regression Summary For Core Capital for the period 2006 – 2013

R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
0.501.	.404	.3428	2.051

The R squared value is 0.501 which clearly suggests that there is a strong relationship between CCA and ROA. In comparison with pre-legislation period of 0.423 and 0.701 of post licensing period, it is evident that regulation has influenced core capital positively to improve the R^2 from 0.423 to 0.501for the whole period 2006 - 2013.

Table 4.33 ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.088	1	5.088	43.289	.000[b]
	Residual	12.460	106	.118		
	Total	17.548	107			

a. Dependent Variable: ROA

b. Predictors: (Constant), CCA

The F-test value reveals 43.289 with a p-value of 0.000 which is less than 0.05 level of significance and thus satisfying the rule that if the p-value is less than 5%, it is a good model. Therefore a significant relationship is present between the independent variables (CCA) and the dependent variable (ROA). In other words the entire model is a good fit.

Table 4.34 Coefficients of the variables for data of 2006 – 2013.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.089	.033		2.708	.008
	CCA	.554	.039	.538	6.579	.000

The established linear regression equation becomes

$$ROA = 0.089 + 0.554\ CCA$$

The regression coefficient of CCA is 0.554 with a t-value 6.579 with a p-value=0.000 which is less than 0.05 level of significance .The rule is that if p-value is less than 5%, then the model is significant.

This is an assertion similar to the findings made by Costantino (2011) where he stated that prudential regulation and particularly capital adequacy is essential for managing financial crises. The findings are also in tandem with Verhelst (2011), Deubner (2011), Carvelis (2010), Carmassi *et al* (2010), Jackson (2010), Konoe (2010) who postulated that financial regulatory regime on capital adequacy was critical.

4.8.3 Liquidity.

The study sought to investigate the impact of liquidity on financial performance of deposit taking SACCOs. The study demonstrates the impact of liquidity on financial performance by comparing the coefficients of liquidity before the statutory reforms for the period of four years 2006- 2009 and after the statutory reforms in years 2010 - 2013.

The regressed results for the four years before reforms show a consolidated balance sheet (statement of financial position) from 2006 to 2009 and the results were compared

with consolidated Balance sheet for the period 2010 to 2013. The independent variable is measured by the ratio of liquidity to the summation of short term deposits and short term liabilities. Liquidity in absolute terms is represented by cash and a cash equivalent contained in statement of financial performance and includes the balances held in other SACCOs', apex bodies like KUSSCO, while the independent variable is measured by return on assets (ROA) ratio which is specifically computed by earnings before interest and taxes divided by the total assets. The study uses regression analysis and correlation analysis between variables as regression shows the relationship while correlation quantifies the extent of the existing relationships between variables.

4.8.4 Liquidity and Financial Income (2006 – 2009)

During the pre – reform period cash management level was haphazardly set by respective SACCOs and the study seeks to establish if setting of specific ratio at 15% of liquidity to deposits had any impact on SACCO's financial income.

Correlation Table 4.35 indicates that the correlation coefficient between Liquidity and ROA is 0.003 with p-value of 0.979 > 0.05. The model is not significant as the p-value is greater than 5% and thus violating the rule that if p- value is less than 5%, the model is not relevant. Thus, the haphazard maintenance of cash and cash equivalents in the period of 2006 - 2009 before reforms posed a significant risk in depositors' funds and hence the need for legal guide on cash management.

Table 4.35 Regression Summary of Liquidity 2006 – 2009 Data.

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.003	.000	0.00	.098

Table 4.36 ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	.000	1	.000	.001	.979
Residual	.960	99	.010		
Total	.960	100			

The independent variable is Liquidity.

The F Value is 0.001, with a p value of 0.979>0.05. Hence the overall model is not significant because the liquidity levels were haphazardly kept before statutory reforms of 2010.

Table 4.37 Coefficient of Liquidity

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Liquidity	.004	.164	.003	.026	.979
(Constant)	.023	.012		1.825	.071

The coefficient for liquidity is not significant as indicated by 0.979 value but the

model ROA = 0.023 + 0.004 liquidity is established.

The value of R is 0.003 and R^2 is 0.000 implying liquidity as measured by Liquidity to deposits (LOD) ratio has no significance on a firm's Return on assets (ROA). However, prior to legislation of 2010, the SACCOs were not having a distinct legal requirement to maintain liquidity of 15% and hence kept cash haphazardly. Strict cash management is required in a deposit taking SACCO to avoid depletion of cash when customers require immediate cash for use. However the results for post reform period of 2010 – 2013 show that liquidity is significant as demonstrated by table 4.26 with R squared of 0.701 and R^2 of 0.526. Normally, the R^2 of 0.5 signifies strong relationships between variables.

Findings are similar to Miller & Orr (1966) who stated that certain desired level of cash is essential for running business and businesses must avoid a cash balance which cannot meet customers' needs. The balance also must not be too high to avoid keeping idle cash that would generate further income through lending or investments instead of remaining in the cash tills. Thus a maximum cash holding should be set to avoid holding funds needed for lending or other investment purposes in idle capacity.

4.8.5 Liquidity and Return on assets in post Reform Period (2010 - 2013)

The study sought to show relationship between liquidity and return on assets with a view of establishing if there was any impact of liquidity management on the profitability of business or not. The comparative analysis of coefficients between pre- reform period data of 2006 – 2009 and post reform period data 2010 – 2013 was compared.

Correlation Table 4.38 indicates that the correlation coefficient between Liquidity and ROA is .701 with p-value of 0.013 < 0.05. There is a positive relationship between liquidity and ROA. The individual regression results show that for an increase in liquidity by one unit, ROA increases by 0.24 units.

Table 4.38 Regression Summary for Liquidity 2010 - 2013

R	R Square	Adjusted R Square	Std. Error of the Estimate
.701	.526	.501	.019

The independent variable is liquidity.

The R and R square is 0.701 and 0.526 respectively implying a strong relationship between liquidity and ROA. In comparison with the pre – reform period, where the coefficient of determination (R^2) is 0.003 and R^2 is 0.000 implying non existence of any relationship, the post reform period shows a strong relationship.

Table 4.39 Anova for Liquidity 2010 - 2013

	Sum of Squares	df	Mean Square	F	Sig.
Regression	.002	1	.002	6.387	.013
Residual	.033	92	.000		
Total	**.036**	**93**			

The independent variable is LIQUIDITY.

Table 4.39 shows the results of Anova test which reveal that the liquidity has significant impact on financial income. The inference is derived from the fact that p- value is 0.013 which is lower than 5% level of significance.

Table 4.40 Coefficients For Liquidity 2010 – 2013.

	Unstandardized Coefficients		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
LIQUIDITY	0.24	.010	.701	9.178	.013
(Constant)	.019	.003		-2.652	.000

Table 4.40 shows the linear regression line that $Y = \beta_0 + \beta_2 X_2 + \varepsilon$ where X_2 is the liquidity and Y represents return on assets signifying the equation is significant. Specifically when the values are inserted, the equation becomes ROA = 0.019 + 0.24 liquidity. Thus the improved liquidity levels from haphazard practice to organized maintenance of 15% liquidity improved the significance level from 0.979 to .013 as depicted by the table 4.39 and table 4.40 respectively.

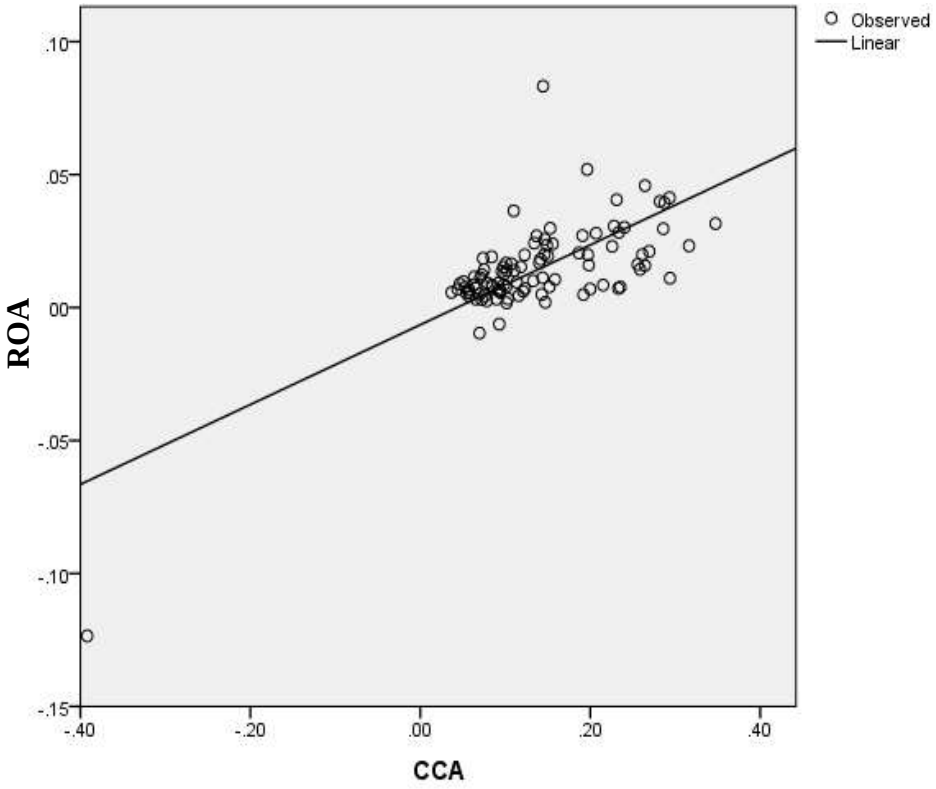


Figure 4.11 Scatter Diagram on Liquidity's effect On Financial income (2010 – 2013)

Thus, liquidity and financial income have a positive relationship as illustrated by the scatter diagram figure 4.11. Ideally, deposit taking SACCOs should manage cash well and hence tendency to increase incomes. The scenario for whole period shows the contribution of the regulations as shown by tables 4.41 to 4.42.

Table 4.41 Regression Summary for Liquidity 2006 – 2013

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.617	.502	.032	.410498011	2.016

a. Predictors: (Constant), LIQUIDITY

b. Dependent Variable: ROA

The R square value in this case is 0.502 which clearly suggests that there is a strong relationship between liquidity and ROA. This indicates that the liquidity share a variation of 50.2 % of ROA. The pre-licensing period has R^2 of 0.000, the post licensing period R^2 of 0.526 and the whole period has R^2 of 0.502 implying that regulations contributed positively to the fitness of the model.

Table 4.42 ANOVA for 2006 – 2013

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.724	1	.724	4.295	.041[b]
	Residual	16.514	98	.169		
	Total	17.238	99			

a. Dependent Variable: ROA

b. Predictors: (Constant), LIQUIDITY

The F-test value result reveals 4.295 with a p-value of 0.041 less than 0.05 level of significance. Therefore a significant relationship is present between the independent variable (liquidity) and the dependent variable (ROA). In other words the entire model is a good fit similar to post reforms model of 2010 – 2013.

Table 4.43 Coefficients of variables 2006 - 2013

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.101	.042		2.421	.017
	LIQUIDITY	.104	.050	.205	2.073	.041

The established linear regression equation becomes: $ROA = 0.101 + 0.104\ liquidity$

Which compares favorably with post regulation model of ROA = 0.019 +0.24 liquidity. The regression coefficient of Liquidity is 0.104 with a t-value =2.073 and p-value of 0.041which is less than 0.05 level of significance implying liquidity is a significant variable .This shows that one unit change in Liquidity results in 0.104 unit increase in ROA.

4.9 Credit Management.

The parameters used to measure credit management specifically checked on the loan quality. In this study, Allowance for loan loss was used in establishing quality of loans where good quality represented good credit management and vice versa. Allowance for loan loss is a contra asset account on the balance sheet used for offsetting losses on loan assets. In other words, it is reduction in the loan asset by a provision estimated based on loan installments unpaid on due dates (Harvey 2012).

4.9.1 Allowance for Loan Losses

The study sought to investigate the impact of allowance for loan loss on financial performance of deposit taking SACCOs. The study demonstrates the impact of allowance for loan loss on financial performance by comparing the coefficients of allowance for loan loss before the statutory reforms in year 2010 and after the implementation of prudential requirements from 2010 – 2013.

The regressed results for the four years before reforms show a consolidated balance sheet (statement of financial position) from 2006 to 2009 and the results were compared with consolidated Balance sheet for the period 2010 to 2013. The independent variable is measured by the ratio of allowance for loan loss to the total assets. Allowance for loan loss in absolute terms is the difference between gross loans and net loans as contained in statement of financial performance. The ratio is that difference divided by total assets while the independent variable is measured by return on assets (ROA) ratio which is specifically computed by earnings before interest and taxes divided by the total assets. The study uses regression analysis and correlation analysis between variables as regression shows the relationship while correlation quantifies the extent of the existing relationships between variables.

4.9.2 Allowance for loan losses (AFLL) and ROA (Period 2006 – 2009)

Table 4.44 indicates that correlation coefficient between Allowance for loan loss to total assets (AFLL) and financial income (ROA) is 0.014 with p-value of 0.910 which is greater than 0.05 implying that the model is not significant.

Table 4.44 Regression Summary of Allowance for loan Loss 2006 – 2009.

R	R Square	Adjusted R Square	Std. Error of the Estimate
.014	.000		.113

The independent variable is AFLL.

The value of R is 0.014 and R^2 is 0.000 implying that credit management as measured by allowance for loan loss to total assets has no significance on a firm's Return on assets (ROA). However, prior to legislation period of 2010, the SACCOs were not having a distinct legal requirement to ascertain the allowance for loan loss or any measure to ascertain the loan quality and hence kept on depleting capital without any knowledge or awareness as shown in table 4.44 to 4.45.

Table 4.45 ANOVA for allowance on loan losses 2006 – 2009.

	Sum of Squares	df	Mean Square	F	Sig.
Regression	.000	1	.000	.013	.910
Residual	.863	68	.013		
Total	**.863**	**69**			

The independent variable is AFLL.

The F_ Value is 0.013, with a p value of 0.910 which is greater than 0.05 and hence the overall model is not significant, as demonstrated by table 4.45 and table 4.46

Table 4.46 Coefficients for Loan loss Allowance 2006 – 2009.

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
AFLL	0.0059	.000	-.014	-.113	.910
(Constant)	.025	.014		1.773	.081

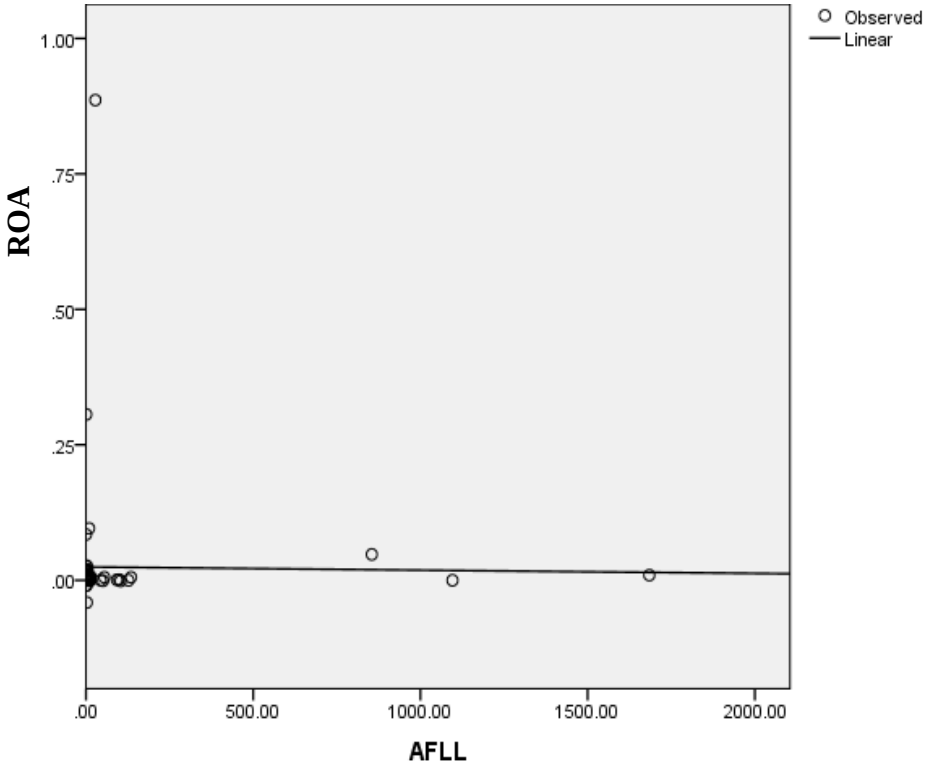


Figure 4.12 Relationship between Allowance for loan loss and financial income

The figure 4.12 show the regression line between allowance for loan loss and the return on assets (ROA). It shows a straight line perpendicular to X axis with points normally scattered along the linear regression line implying a very weak relationship between financial income and allowance for loan loss. The overall equation of ROA = 0.025 +0.0059AFLL supports the relationship demonstrated by the line in figure 4.7

4.9.3 Allowance for loan losses (AFLL) and Return On Assets (ROA) - Period 2010 – 2013.

The study sought to establish whether there was a relationship between allowance for loan loss (AFLL) and financial income as measured by Return on assets (ROA). On establishing relationship, the results were compared between pre-licensing period and post licensing period. Table 4.28 indicates that the correlation coefficient between Liquidity and ROA is .612 and R^2 of 0.494 which shows that there is a positive relationship between liquidity and ROA.

Table 4.47 Regression Summary of Allowance for loan Loss 2010 - 2013

R	R Square	Adjusted R Square	Std. Error of the Estimate
.612	.494	.369	.242

The independent variable is AFLL.

The results of the linear regression $Y=\beta_0+\beta_3X_3+ \varepsilon$ indicate that R^2=494 and R= .612, an indication that there is a linear relationship between AFLL and ROA.

Table 4.48 shows the results of Anova test which reveal that allowance for loan loss has a significant impact on financial income. The inference is derived from the fact that F

value is 69.385 and a p- value of 0.000 which is lower than 5% level of significance. The rule is that a p-value less than 5% signifies that the variable is significant.

Table 4.48 ANOVA for Allowance on loan losses 2010 - 2013

	Sum of Squares	df	Mean Square	F	Sig.
Regression	4.056	1	4.056	69.385	.000
Residual	6.781	116	.058		
Total	**10.837**	**117**			

The independent variable is AFLL.

The table 4.48 shows the results of ANOVA test which reveals that AFLL have significant effect on ROA .Since the P value is 0.000 which is less than 5% level of significance, then the model is significant.

Table 4.49 Regression Coefficients for allowance for loan loss 2010 – 2013.

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
AFLL	.181	.022	.612	8.330	.000
(Constant)	-.146	.022		-6.552	.000

The results in table 4.49 indicate that AFLL has a significant positive influence on ROA. This is shown by the regression weight of 0.181 with a t-value of 8.330 which is greater than 1.96 and P Value of 0.000 at 5% level of significance implying that the variable is relevant.

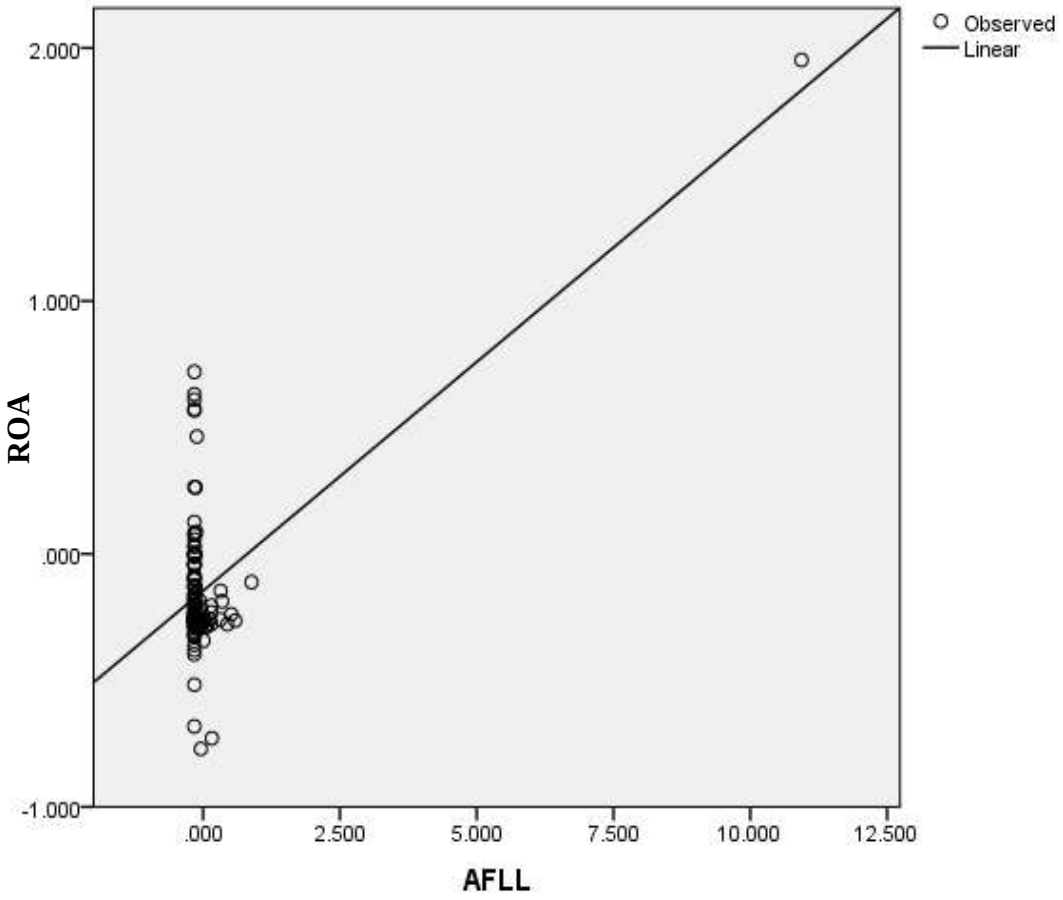


Figure 4.13 Scatter Diagram on Allowance for loan loss effect On Financial income (2010 – 2013).

Figure 4.13 shows the results of AFLL on ROA in a scatter diagram. The scatter diagram indicates a positive gradient which is an indication that AFLL has a positive influence on ROA. Regarding the whole period, the R^2 value is 0.409 and hence confirming findings that regulation must have influenced performance positively from 0.00 to 0.409 for the whole period as portrayed in table 4.50.

Table 4.50 Regression Summary for allowance for loan loss 2006 – 2013.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.507	.409	.329	.250479862	2.073

a. Predictors: (Constant), AFLL

b. Dependent Variable: ROA

Table 4.49, 4.50 and 4.51 are regression results for allowance for loan loss as the predictor and performance represented by ROA as the dependent variable. Table 4.49 shows the Anova results whose values are discussed in comments below table 4.49

Table 4.51: Coefficients of Variables 2006 – 2013.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.695	1	.695	11.083	.001[b]
	Residual	5.709	91	.063		
	Total	**6.405**	**92**			

a. Dependent Variable: ROA

b. Predictors: (Constant), AFLL

The F-test value result is 11.083 with a p-value of 0.001 which is less than 0.05 level of significance. Therefore a significant relationship exists between the independent variables (AFLL) and the dependent variable (ROA). In other words the entire model is a good fit.

Table 4.52 Coefficients of Variables 2006 – 2013.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.072	.027		-2.675	.009
	AFLL	.280	.084	.329	3.329	.001

The established linear regression equation becomes $ROA = -0.072 + 0.280AFll$ which portrays a larger coefficient of the independent variable, the allowance for loan loss in comparison with the pre- legislation period when the coefficient was 0.059. The regression coefficient of AFLL is 0.280 with a t-value =3.329, p-value of 0.001 which is less than 0.05 level of significance .This shows that one unit change in AFLL results in 0.280 unit increase in ROA.

4.10 Membership

The study sought to investigate the impact of membership on financial performance of deposit taking SACCOs. The study demonstrates the impact of membership on financial performance by comparing the coefficients of membership before the statutory reforms in year 2010 and after the implementation of prudential requirements as contained in SACCO Societies Act and the accompanying regulations in the period 2010 – 2013.

The regressed results for the four years before reforms show a consolidated balance sheet (statement of financial position) from 2006 to 2009 and the results were compared with consolidated Balance sheet for the period 2010 to 2013. The independent variable is measured by the percentage change in membership between different years. The study uses regression analysis and correlation analysis between variables as regression shows the relationship while correlation quantifies the extent of the existing relationships between variables.

4.10.1 Membership and Financial Income.

Table 4.53 indicates that correlation coefficient between membership and ROA is – 0.075 and R^2 of .006 and the results were compared with the results of 2010- 2013 which revealed strong relationship.

Table 4.53 Regression Summary for Membership 2006 - 2009

R	R Square	Adjusted R Square	Std. Error of the Estimate
.075	.006		.024

The independent variable is members.

Although there appears to be no relationship between Membership and ROA for the period before statutory reforms 2006 – 2009, the period after statutory reforms of 2010 – 2013 portray a strong relationship between membership growth and financial income.

Table 4.54 ANOVA for Membership 2006 – 2009.

	Sum of Squares	df	Mean Square	F	Sig.
Regression	.000	1	.000	.330	.568
Residual	.034	58	.001		
Total	**.034**	**59**			

The independent variable is member growth.

The F_ Value is 0.330, with a p value of 0.568 which is greater than 0.05. Hence the overall model was not significant.

Table 4.55 Coefficients for 2006 – 2009.

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
members	.001	.001	.075	.575	.568
(Constant)	.009	.003		2.597	.012

The linear regression relationship is ROA = 0.009 + 0.001 but the p-value of 0.568 which is greater than 5% is considered then the variable is not relevant. However, the variable became relevant when 2010- 2013 results were analyzed.

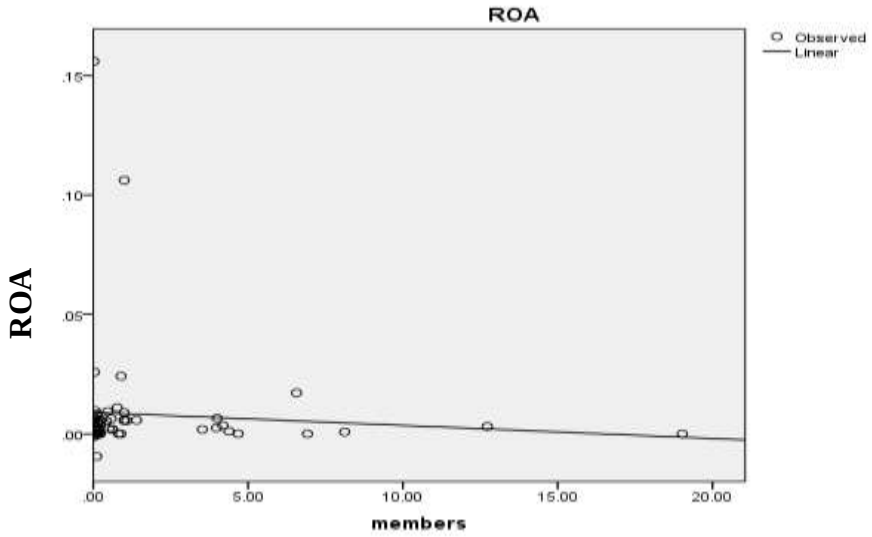


Figure 4.14 Relationship between membership and financial income.

The figure 4.14 shows the regression line between percentage change in membership of different years and the return on assets (ROA). It shows a straight line perpendicular to X axis with points normally scattered along the linear regression line implying a zero relationship between financial income and percentage change in membership.

4.10.2 Membership and Return on Assets (ROA) - Period 2010 – 2013.

The study sought to establish whether there was a relationship between membership and financial income as measured by Return on assets (ROA). On establishing relationship, the results were compared between pre-licensing period and post licensing period and membership was found to be significant as illustrated in table 4.56.

Table 4.56: Regression Summary for Membership 2010 - 2013

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.560[a]	.473	.402	.409347641

a. Predictors: (Constant), MEMBERS

The R^2 for post reform period is 0.473, much stronger than 0.00 for pre-licensing period. It therefore implies that the mobilization of members and maintenance of members register must have been enhanced by the SACCOs prudential regulations. Further, the members of the public must have increased confidence in regulated SACCOs to join membership of various SACCOs in large numbers.

Table 4.57 ANOVA for Membership 2010 – 2013.

	Sum of Squares	df	Mean Square	F	Sig.
Regression	.455	1	.455	5.079	.026
Residual	10.383	116	.090		
Total	**10.837**	**117**			

The independent variable is MEMBERS

The table shows the results of ANOVA which reveal that membership growth has significant impact on ROA as the P value is 0.026 which is less than 5% level of significance. The rule is if the significance level is less than 5% the variable is significant.

Table 4.58 Regression Coefficients for Membership 2010 – 2013.

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
MEMBERS	.064	.028	.205	2.254	.026
(Constant)	-.142	.028		-5.168	.000

The regression equation is $ROA=-0.142+0.064_{MEMBERS} + \varepsilon$

The results in table 4.58 indicate that membership has a significant positive influence on ROA. This is shown by the regression weight of 0.064 with a t-value of 2.254 which is greater than 1.96 and P Value of 0.026 at 95% confidence level that is less than 5%. The rule is that if P value is less than 0.05, then the variable is significant.

Table 4.59 Regression Summary for Membership 2006 - 2013

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.560[a]	.452	.402	.409347641

a. Predictors: (Constant), MEMBERS

The R^2 for the whole period is 0.452 as shown by table 4.59 is much stronger than 0.00 for pre-licensing period

Table 4.60 ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression		1	.032	2.193	.046[b]
	Residual		108	.168		
	Total		**109**			

a. Dependent Variable: ROA

b. Predictors: (Constant), Members

Table 4.60 shows the anova values and importantly shows that p-value is 0.046 for the whole period signifying that membership growth is a relevant variable.

Table 4.61 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.075	.039		1.930	.056
	MEMBERS	.017	.038	.042	.439	.0461

a. Dependent Variable: ROA

The established linear regression equation becomes:

$ROA = 0.075 + 0.017\ \text{memgrowt} + \varepsilon$ which portrayed a larger coefficient of the independent variable, the membership growth in comparison with the pre- legislation period where the coefficient is 0.001 implying regulations must have influenced membership positively.

4.10.3 Multiple regression

As stated by Gujarati (2004) and Brook (2008), the linear regression equation is a model which indicates the nature of relationship between independent variables and the dependent variable. In this research, the regression model show the relationship between financial income as measured by Return on assets (ROA) on one hand and the independent variables namely; core capital, liquidity, allowance for loan loss and membership on the other hand. Thus, the regression model results are compared with the hypothesis formulated. The study sought to establish if core capital, liquidity, allowance for loan loss and membership mobilization had any impact on financial income and if regulations had moderating effect on them to influence the financial position of a deposit taking SACCO in Kenya.

The study sought to establish the regression model of all the variables combined in the period 2006 – 2013 and comparing results with the period 2010 – 2013 because the regulation moderating effect has a value of (1,0) in the model as demonstrated by the following linear regression models :-

$Y= \beta o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + E$……..for period 2006 - 2013 before moderating effect of SACCO societies Act.

$Y= \beta o + \beta_1 X_1 * X_5 + \beta_2 X_2 * X_5 + \beta_3 X_3 * X_5 + \beta_4 X_4 * X_5 + E$ ……. for period 2006 - 2013 after moderating effect of SACCO societies Act.

Where the dependent variable Y = Financial Income levels,

βo = intercept (represented by entrance fee and minimum capital),

β_1 = coefficient of core capital,

β_2 = coefficient of liquidity,

β_3 = coefficient of credit and

β_4 = coefficient of members retention

X_1 = Core capital

X_2 = Liquidity

X_3 = Credit Management (allowance for loan loss)

X_4 = Members Retention.

X_5 = Moderating effect of regulations with a value of (1,0).

NB:

β is the symbol for Beta and beta represents the coefficients of independent variables.

Upon multiplication of the model variables with (1,0) where one (1) represents the presence of regulations and zero (0) the absence of variables the coefficients between 2006 – 2009 collapses and leaves coefficients of 2010 – 2013.

4.10.4 Appropriateness of the Model

To ascertain the appropriateness of the model, the coefficient of correlation (R) ,coefficient of determination (R^2) and the adjusted R are compared and produced results as demonstrated by table 4.62 and 4.63

Table 4.62 Model Summary – Overall Model 2006 - 2013

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.549[a]	.301	.276	.430535222	2.153

a. Predictors: (Constant), Members, Liquidity, AFLL, CCA

b. Dependent Variable: ROA

The coefficient of determination (R^2) and correlation coefficient (r) shows the degree of association between core capital, liquidity, allowance for loan loss and membership growth in Kenya. The results of the linear regression indicate that R=.549 and R^2=.301 implying there is a relationship between members, liquidity, allowance for loan loss (AFLL),Core capital (CCA) on one hand as independent variables and ROA as dependent variable. However, the relationship is strengthened by the moderating impact of regulation as shown in table 4.63

Table 4.63 Summary - Overall model 2010 - 2013

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.963[a]	.928	.926	.247325303578082	2.020

a. Predictors: (Constant), MEMBERS, AFLL, CCA, LIQUIDITY

b. Dependent Variable: ROA

The coefficient of determination (R^2) and correlation coefficient (R) show the degree of association between members, allowance for loan loss (AFLL), CCA, liquidity and membership mobilization on one hand and return on assets (ROA) for deposit taking SACCOs in Kenya. The results of the linear regression indicate that R=.963 for the period 2010 - 2013 compared to 0.548 for the entire period 2006 – 2013 implying a change of 75.7%. Further table 4.63 show that R^2= 0.928 for the period of 2010 - 2013 compared to R^2= 0.301 for the entire period 2006 – 2013, being an indication that there

is a strong relationship between members, liquidity, AFLL, CCA and ROA. The change in R^2 is represented by 208.3% signifying the change brought by regulations in the sector.

4.10.5 Significance of the Model

According to the results obtained, all the variables were relevant to the study as reported in the analysis of variance (ANOVA) table 4.64 and table 4.65

Table 4.64 ANOVAa 2006 - 2013

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	8.935	4	2.234	12.051	.000[b]
	Residual	20.760	112	.185		
	Total	**29.695**	**116**			

a. Dependent Variable: ROA

Table 4.64 indicates F value = 12.051 with a P value = 0.000 which is less than 5%. This shows that the overall model is significant. It further implies that MEMBERS, LIQUIDITY, AFLL, CCA have a significant effect on ROA.

Table 4.65 ANOVAa 2010 - 2013

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	90.141	4	22.535	368.404	.000[b]
1	Residual	6.973	114	.061		
	Total	**97.114**	**118**			

a. Dependent Variable: ROA

b. Predictors: (Constant), MEMBERS, AFLL, CCA, LIQUIDITY

Table 4.65 indicates F value = 368.404 with a P value = 0.000 which is less than 5%. The rule is that if P value is less than 0.05, then the model is significant. This shows that the overall model is significant. It further implies that Membership growth, Liquidity, allowance for loan loss (AFLL), and CCA have a significant effect on ROA. Though the F- values are different, the results for both periods 2006 – 2013 and 2010 – 2013 can be compared because all variables were ascertained as significant.

4.10.6 Coefficients of the Models

The study sought to establish if the change in coefficients for the two periods are different from zero and also to show the impact of the moderating variable on the four variables, namely; core capital, liquidity, allowance for loan loss and membership growth on financial performance. Therefore the decision rule was to reject null hypothesis ($H_o : \beta_{ix} = 0$) However if alternative hypothesis (Ha : Bix =1 2 3 4) then regression co-efficient is significantly different from zero and consequently accept the alternative hypothesis.

Table 4.66 and table 4.67 provide the coefficients for both periods as follows:

Table 4.66 Coefficients of the Variables (2006 – 2013)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.097	.040		2.421	.017
	CCA	.358	.057	.604	6.309	.000
	LIQUIDITY	-.161	.054	-.279	-2.966	.004
	AFLL	.101	.039	.205	2.565	.012
	MEMBERS	-.019	.041	-.037	-.459	.647

The regression model is $ROA=0.097+0.358_{CCA}+0.101_{AFLL}-0.019_{MEMBERS} + -0.161_{LIQUIDITY} + \varepsilon$. The values in the table were X_1 = core capital, X_2 = Allowance for loan loss, X_3 = membership and X_4 is liquidity.

Table 4.66 signifies that all the variables were significant except membership as they had P values less than 5% and thus satisfying the criteria that if P value for each variable is less than 0.05, then the variable is significant. However, the membership variable became significant during the statutory reforms implementation period as indicated in table 4.59.

4.10.7 Moderating Effect of Regulations on prudential variables and financial Performance.

After the moderating effect the model became:

$$Y = \alpha+\beta_1X_1*X_5+ \beta_2X_2*X_5+ \beta_3X_3*X_5+ \beta_4X_4*X_5+\varepsilon$$

The results are demonstrated in table 4.67.

Table 4.67 Coefficients of the Variables (2010 – 2013)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.060	.023		-2.639	.009
	CCA	.823	.022	.928	36.611	.000
	LIQUIDITY	-.084	.023	-.095	-3.742	.000
	AFLL	.168	.022	.190	7.539	.000
	MEMBERS	.068	.024	.074	2.871	.005

The regression model is

$$ROA=-0.060+0.823_{CCA}+0.168_{AFLL}+0.068_{MEMBERS}-0.084_{LIQUIDITY}+\varepsilon$$

Table 4.67 signifies that all the variables were significant as they had P values less than 5% and thus satisfying the criteria that if P value for each variable is less than 0.05, then the variable is significant. In comparison with table 4.67 when membership was not significant, it became significant during the statutory reforms implementation period as indicated by the value of 0.005.

4.10.8 Coefficients of the Variables (2006 – 2013)

The results in table 4.66 indicate that CCA has a significant positive influence on ROA. This is shown by the regression weight of 0.358 with a t-value(6.309) which is greater than 1.96 and P Value is 0.000 at 95% level of significance that is less than 5% which satisfies the rule that the model is significant if the p value is lower than 0.05. Liquidity has a significant negative influence on ROA. This is shown by the regression weight of -0.161 with a t-value (2.966) which is greater than 1.96 and P Value is 0.000 at 95% level of confidence that is less than 5% and satisfies the rule that the model is significant if the p value is lower than 0.05.

Allowance for loan loss (AFLL) has a significant positive influence on ROA. This is shown by the regression weight of 0.101 with a t-value (6.309) which is greater than 1.96 and P Value is 0.000 at 95% level of confidence that is less than 5%.Membership initially indicated that it had no significant influence on ROA. This is shown by the regression weight of -0.019 with a t-value (-.459) which is less than 1.96 and P Value is 0.647 at 95% level of significance that is greater than 5%. However, the results for 2010 – 2013 changed significantly to show that membership is a critical variable in determining financial performance of a deposit taking SACCO.

4.10.9 Coefficients of the Variables (2010 – 2013).

The results in table 4.20 indicate that CCA has a significant positive influence on ROA. This is shown by the regression weight of 0.823 with a t-value (36.611) which is greater than 1.96 and P Value is 0.000 at 95% level of significance that is less than 5%, implying that the model is significant. In comparison with 0.358 for the entire period 2006 – 2013, the 0.823 imply that CCA becomes a stronger predictor of financial income when managed prudentially than when organizations are using their discretion to maintain capital.

Liquidity has a significant negative influence on ROA. This is shown by the regression weight of -0.084 with a t-value (-3.742) which is less than-1.96 and P Value is 0.000 at 95% level of confidence that is less than 5%, implying that the model is significant. However, the negative relationship is reduced because the 2006- 2013 coefficient is -0.161 in comparison with the new reduced value of -0.084.

Allowance for loan loss (AFLL) has a significant positive influence on ROA. This is shown by the regression weight of 0.168 with a t-value (7.539) which is greater than 1.96 and P Value is 0.000 at 95% level of significance that is less than 5%, implying that the model is significant.

Membership has significant positive influence on ROA. This is shown by the regression weight of 0.068 with a t-value (2.871) which is greater than 1.96 and P Value is 0.000 at 95% level of significance that is less than 5%, implying that the model is significant.

4.11 Overall Model Comparisons

The models formulated can be compared using the following linear regression equations for the two periods:

$$ROA=0.097+0.358_{CCA}+0.101_{AFLL}-0.019_{MEMBERs}-0.161_{LIQUIDITY} + E\ldots 2006 - 2013$$

$ROA=0.060+0.823_{CCA}+0.168_{AFLL}+0.068_{MEMBERS}-0.161_{LIQUIDITY}+E\ldots.2010-2013$

For equation 1, 2006 – 2013 the R and R^2 was 0.549 and 0.301 respectively but for equation 2 when the statutory reforms were implemented the R and R_2 changed to 0.963 and 0.928 implying that variables became better estimators of financial performance.

As demonstrated by the two equations, it is evident that all independent variables ability to influence the dependent variable increased after statutory reforms implementation in 2010. The core capital to total assets ratio (CCA) Beta changed from 0.358 to 0.823. The change in CCA beta means that when core capital levels are predetermined in law, then the core capital ability to predict financial incomes increased. CCA beta increased by 129% indicating a very strong relationship between financial income (ROA) and the core capital of a deposit taking SACCO.

The Beta for liquidity showed a negative relationship between liquidity and income for the two periods, however the beta changed from -0.161 to negative - 0.084 which indicated a positive change of 0.077 and represented 91.6 % change when the statutory reforms were implemented. As deposit taking SACCOs maintained 15% liquidity ratio, the relationship between incomes and liquidity started to change from negative towards positive.

Similarly to core capital, the allowance for loan loss had a positive relationship with financial income and the statutory reform which was the moderating variable brought a positive change between the coefficients for the different periods. Allowance for loan loss beta changed from 0.101 to 0.168 implying an absolute change of .067 or 66.3% change. Thus, the SACCOs devised strategies of timely loan repayments which increased incomes as money circulation between members increased.

The Beta for membership showed a negative relationship between membership and incomes initially, but the statutory reforms brought a positive change of positive 0.087 which represented 457 % change. As deposit taking SACCOs complied with the stringent law, the members increased loyalty and confidence and hence increased member retention and recruitment.

Therefore, as demonstrated by various discussions and analysis, the statutory reforms led to increase in all variables including financial incomes. Since most variables were computed as a ratio of total assets it therefore implies that the numerators and denominators must increase at the same pace or more for numerator to remain compliant with law.

4.11.1 Optimal Model for Determining financial performance

The diagram of optimal framework shows the unique relationship between the independent variables and the dependent variables as illustrated by figure 4.15.

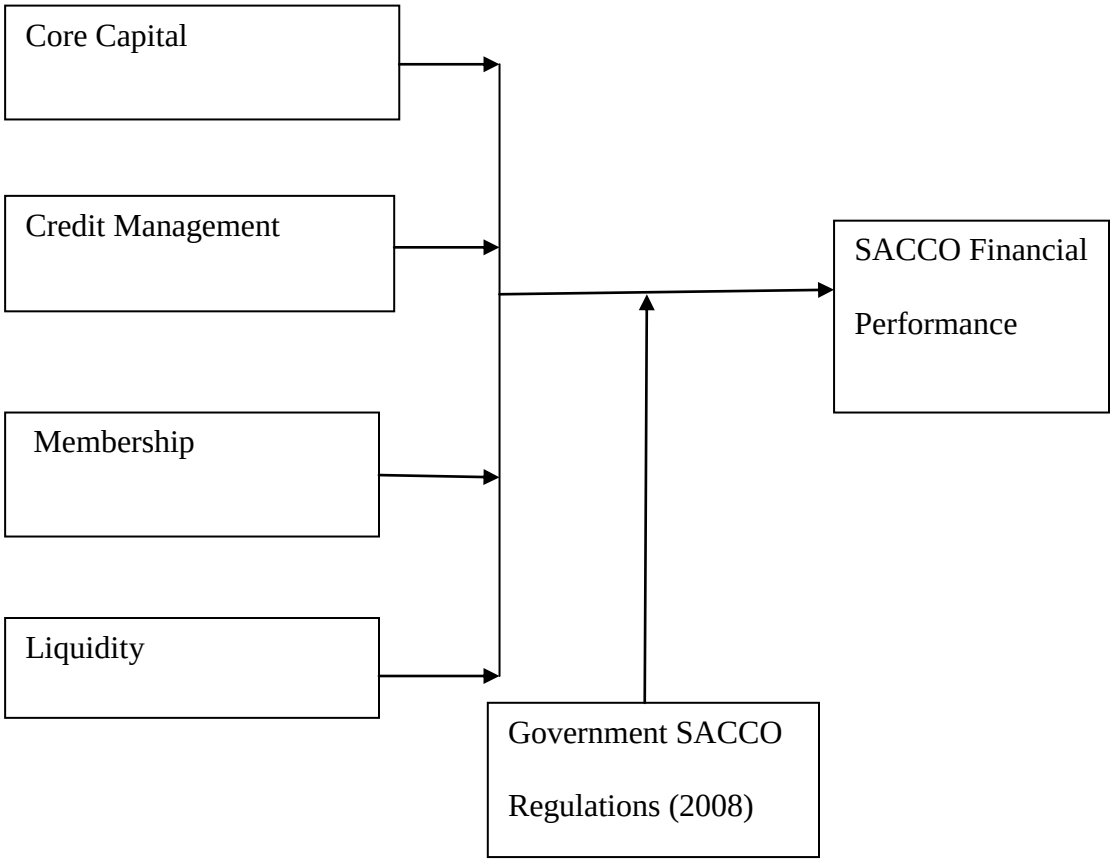


Figure 4.15 The Optimal Model

Figure 4.15 demonstrates the relationship between independent variable, moderating variable and the dependent variable. As demonstrated by various analysis and figures in chapter 4, the haphazard practices of accounting controls and planned prudential standards implementation had different effects on financial incomes.

The period before statutory reforms implementation experienced stagnant growth but after statutory reforms represented by the period 2010 – 2013, all the variables experienced growth and hence satisfying the optimal framework model. Thus, the optimal framework postulates that given core capital values, liquidity, allowance for loan loss and change in membership a person can be able to estimate financial income of a deposit taking SACCO.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the findings of the study with reference to specific objectives and research hypothesis. The study design was an empirical survey that compared the financial performance of deposit taking SACCOs in Kenya before the statutory reforms of 2010 and after enactment of law and the associated regulations. Data was interpreted and the results of the findings were correlated with both empirical and theoretical literature available. The conclusion relates directly to specific objectives and research hypothesis.

5.2 Summary of Findings

The study sought to investigate the impact of prudential regulations on the financial performance of deposit taking SACCOs in Kenya. Specifically, the study investigated core capital, liquidity, Allowance for loan loss and membership growth impact on SACCOs financial position.

The empirical literature showed that prudential regulations are essential for the financial performance of deposit taking SACCOs in Kenya and indeed can be replicated in the whole world. Other literature revealed that SACCOs developments have remained stagnant in countries where prudential standards have not been adopted.

5.2.1 Effects of core capital on SACCO's financial performance.

The finding of the study revealed that core capital positively influenced the financial performance of deposit taking SACCOs in Kenya. Results of the inferential statistics such as ANOVA show that core capital has a major positive significance on the SACCO's financial performance. When comparing the period prior to statutory reforms, the beta of core capital was low in comparison with beta for the post statutory reforms period.

5.2.2 Effects of Liquidity on SACCO's financial performance.

The study found out that liquidity as a practice of prudential standard is an important component for the performance of SACCOs' financial income. An optimal level should be maintained to avoid holding too much cash which should otherwise earn income from members' interest on loans and avoid zero cash levels as that would discourage depositors. Therefore increased cash holding has an inverse relationship with the financial income and vice versa.

5.2.3 Effects of Credit Management on SACCO's financial performance.

The F value is 69.3, with a P value of 0.001 which is less than 0.05 and thus implies that the model is significant. The R^2 of 0.409 implied a positive relationship between credit management and return on assets. Practically, it is demonstrating that financial income increased when credit management was done, implying that most of the loans were being collected as per contractual obligations.

5.2.4 Effects of membership on SACCO's financial performance.

Initially change in membership was insignificant but it later changed because as SACCOs opened common bond and became large enterprises, more people identified opportunities in SACCOs and hence willingness to do business with them. Close

supervision and regulation improved borrowers' confidence and hence people joined SACCOs in larger numbers to benefit from the institutions lending money at relatively lower interest rates. More membership would not only mean increased cash flow from new capital but also increased business when the new membership starts borrowing money from the deposit taking SACCOs.

5.3 The overall effects of the variables

The study findings showed a great influence of all four variables on the financial performance of deposit taking SACCOs. The study found out there was a 72% change in financial income due to the interaction of the four variables with the financial income. Test overall significance of all the four variables jointly, core capital, liquidity, allowance for loan loss and membership using ANOVA, at 0.05 level of significance found the model to be significant.

5.4 Conclusion of the Study

The critical point was to explore the impact of prudential regulations on the financial performance of deposit taking SACCOs in Kenya. Based on previous studies analyzed, the components of prudential standards had different impact on financial incomes of deposit taking SACCOs, namely; core capital, membership growth and credit management as represented by allowance for loan loss ratio had a positive relationship while liquidity had an inverse relationship.

The findings also indicated that core capital, credit management, liquidity and membership growth are significant contributors towards growth of financial income of deposit taking SACCOs. This is in line with Mayer (1990), Boyd (2008) and Berger *et al* (1995) who found that core capital is essential in protection of deposits and stability of financial systems. The findings indicated that prudential management is important for increasing financial incomes, protection of deposits and maintenance of professionalism within the financial markets.

5.5 Recommendations of the Study

The study has established that core capital, liquidity, allowance for loan loss and membership were important components in sustaining and increasing financial incomes of deposit taking SACCOs in Kenya. Specifically, the study recommends;

The SACCOs should abide by core capital requirements as provided in the SACCO law and regulations to enjoy benefits of increased business. The members should realize the importance of prudential management and popularize it among all the stakeholders. Prudential management practice is a method of passing wealth and information to generations through members' education programs. The implementation of liquidity prudential practices should be encouraged by all stakeholders in the subsector as it leads to savings culture among communities. Since a proportion of liquid asset is kept in cash, that practice improves confidence and loyalty of members among SACCOs. The accumulated savings should be channeled to further investments and prosperity.

The SACCOs should strive to identify members' financial needs to design loan products which will lead to members' loyalty and patronage. Prudential environment requires core competencies on subjects of finance, accounting, human resources, credit management and risk management among others. Members should elect Board of directors on the basis of key competencies and the board should extend same practices while recruiting employees. This is critical to the SACCOs and the SACCO subsector at large.

For full benefits of financial prudential management to be realized, SACCOs should develop polices on all key areas as a standard practice to guide employees especially in the new era of performance management in the SACCOs. Prudential standards usually lead to economies of scale and economies of scope and usage of technology and computerization. Then it leads to reduction of costs, increased capacities in handling large volume of business and efficiency in task handling.

5.6 Contribution to New Knowledge

This study's contribution to the new body of knowledge is its ability to show the impact of prudential regulation on financial performance of deposit taking SACCOs in Kenya. The Study researched on four independent variables, namely; core capital, liquidity, credit management and membership growth with prudential regulations moderating on four variables to show impact on financial performance. This type of research with given methodology and approach was largely missing in the literature reviewed. To show the moderating effect two simultaneous equations were used. These were:

$Y= \beta o + \beta_1 CCA + \beta_2 Afll + \beta_3 Mbrg + \beta_4 Lqdty + \varepsilon$ ……..for period 2006 - 2013 before moderating effect of SACCO societies Act……...(i).

$Y= \beta o + \beta_1 X_1 * X_5 + \beta_2 X_2 * X_5 + \beta_3 X_3 * X_5 + \beta_4 X_4 * X_5 + \varepsilon$ ……. for period 2006 - 2013 after moderating effect of SACCO societies Act…….(ii)

CCA represented by X_1 means a ratio of core capital to total assets, Afll (X_2) means allowance for loan loss to total assets, Mbrg (X_3) means membership growth and finally lqty (X_4) means liquidity. Lastly, the study is able to rank the variables in order of significance as core capital, credit management, membership growth and liquidity on the basis of betas of the linear regression equations provided.

5.7 Areas for further research

The study is a milestone in the SACCO subsector in Kenya particularly in post reform period of year 2010. It investigates the SACCOs financial performance under prudential management at specific capital structure of 10% core capital to total assets, 65% or more owners' deposits to total assets and external borrowing to total assets of 25% or less. However, other studies need to be done at different capital structure levels to establish if similar findings can be generated. Thus, other studies would help to establish the most optimal capital structure level to enable the subsector reap the highest benefits.

Similar studies should be done on non-deposit taking SACCOs to enable formulation of regulation policies for the non-deposit taking SACCOs with a view of a single regulation for all SACCOs (both deposits and non-deposit taking SACCOs) since the legislation is the same for all SACCOs. Studies should also be done on effect of legislation on total asset growth of SACCOs and the associated dividend payout policy. Since compliance required increased revenue retention to sustain capital adequacy, the SACCOs have to increase revenue retention which would be in direct conflict with members. Members' interest is usually increase in dividends at the expense of SACCOs financial stability and growth.

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APPENDICES

Appendix A: Questionnaire

Dear respondent:

I am David Kahuthu, a PhD Student of JKUAT carrying out a research on "The impact of prudential regulations on financial performance of deposit taking savings and credit cooperative societies in Kenya". You have been selected together with others to participate in this research. Please be assured that whatever information that will be collected using this questionnaire will be treated with at most confidentiality and will only be used only for the purpose of this research. Please do not indicate your name anywhere on this questionnaire.

This questionnaire is structured in six sections, section A, B, C, D, E and F.

SECTION A: BACKGROUND INFORMATION

Please tick the appropriate box or fill in the blank (Please ignore the information sought in the tables).

1. Name of the SACCO:_____
   (The name of the SACCO will only be for the identification purposes for this research)
2. What is your position in the SACCO…….?
3. a) How long have you served in your current position?
   ☐ 1-5 yrs ☐ 5-10 yrs ☐ 10-15 yrs ☐ Above 15 yrs
   b) Indicate your highest academic and professional qualifications
   ☐ O' level and professional qualification
   ☐ O' level and below diploma

☐ Diploma and other professional qualifications

☐ First degree and other professional qualifications

☐ Post-graduate and other professional qualifications

4. How long has your SACCO been in existence?

☐ 1-5 yrs ☐ 5-10 yrs ☐ 10-15 yrs ☐ Above 15 yrs

5. What is the legal formation of your SACCO?

☐ Licensed ☐ Unlicensed

6. Please indicate the size of your SACCO by annual income.

☐ Under sh. 10 million ☐ Sh. 10 million-Sh.100 million

☐ Sh. 100 million-1billion ☐ Over sh.1 billion

SECTION B: FINANCIAL PERFORMANCE

7.

Item	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Total income								
Profit for the year								
Return on assets								
Dividends rate for members								

8. Did your SACCO expand/increase the volume of business after licensing?

☐ Yes ☐ No

If yes, were there new loan products introduced?

☐ Yes ☐ No

9. Who makes decision in your SACCO?
   a) The board of directors ☐
   b) Financial director ☐
   c) The chief finance officer ☐
   d) AGM ☐
10. Is your SACCO audited by independent auditors?

☐ Yes ☐ No

11. Are audited accounts presented to members on yearly basis?

☐ Yes ☐ No

12. Are members involved in the distribution of surplus?

☐ Yes ☐ No

13. In your opinion, has dividends and interest on member deposits increased?

☐ Yes ☐ No

14. If yes, by what extent?

☐ Substantial ☐ Slightly

SECTION C: INFROMATION ON CORE CAPITAL VARIABLES (COMPARE PERIODS 2006 – 2009 VERSUS 2010 – 2013)

15. Please, provide the research assistant to obtain information below for each SACCO?

Item	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Share capital								
Statutory reserve								
Capital reserve								
Retained earnings								
Investment in other equities								
Total Core capital								
Total Assets								
Total Deposits								

16. What is the current level of core capital in absolute terms in 2013 audited accounts?

☐ Below 10m ☐ Above 10m

17. What is the core capital ratio to total assets for the same period-2013?

☐ Below 10% ☐ Above 10%

18. What was it in 2008?

☐ Below 10% ☐ Above 10%

19. As at December 2013, was your SACCO indebted to any other institution?

☐ Yes ☐ No

20. Is your SACCO able to pay all the loanees and creditors on time?

☐ Yes ☐ No

SECTION D : INFROMATION ON SECOND VARIABLE - LIQUIDITY

(COMPARE PERIODS 2006 – 2009 VERSUS 2010 – 2013)

21. What is your liquidity ratio?

☐ Above 1% and below 5% ☐ Above 5% and below 10%

☐ Above 10% and below 15% ☐ Above 15%

22. Do tellers have a cash limit?

☐ Yes ☐ No

23. If yes who determines the cash limit?

☐ Board ☐ Management policy

24. Is there rationale for setting cash limit?

☐ Yes ☐ No

25. Do you have a strong room with adequate safes?

☐

☐ Yes No

26. Do you have treasury management manuals?

☐ Yes ☐ No

27. Do you have a designated FOSA manager who reports to the CEO?

☐ Yes ☐ No

28. Do you have an internal auditor who constantly checks cash management internal controls?

☐ Yes ☐ No

29. Fill in the table as comprehensible as possible.

Item	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Cash in hand								
Cash at bank								
Cash deposits in other institutions								
Short term deposits								
Short term liabilities								

SECTION E: INFROMATION ON CREDIT (LOANS TO MEMBERS)

(COMPARE PERIODS 2006 – 2009 VERSUS 2010 – 2013)

30. Are loans paid as per contractual period?

☐ Yes ☐ No

31. If Not, are loans repaid on time ?

☐ Yes ☐ No

32. Fill in the table (to be filled by the research assistant).

Item	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Loans to members								
Allowance for loan loss								

SECTION F: INFROMATION ON MEMBERSHIP

(COMPARE PERIODS 2006 – 2009 VERSUS 2010 – 2013)

33. Are there members leaving the SACCO – before 2009? After 2010?

☐ Yes ☐ No

34. Are these members rejoining the SACCO - before 2009? After 2010?

☐ Yes ☐ No

35. In your analysis the net gain in membership joining versus exiting, what are the results - before 2009? After 2010?

☐ Increase ☐ Decrease

36. Did SACCO operate with a member's recruitment strategy or not? Before 2009? After 2010?
37. Fill in the table as comprehensive as possible.

Item	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Active members								
Dormant members								
Net members (total)								

38. In your opinion do you think the statutory reforms brought benefit or losses to your organization?

Yes ☐ No ☐

Give reasons for your answers indicated above

……

……

……

Appendix B: List of Licensed Savings and Credit Cooperatives-2012

No	Name of the SACCO	Type of SACCO	County
1	Afya	Government	Nairobi
2	Airports	Government	Nairobi
3	Asili	Government	Nairobi
4	Bandari	Government	Mombasa
5	Baraka	Farmer	Nyeri
6	Boresha	Teachers	Baringo
7	Biashara	Community	Nyeri
8	Bingwa	Farmer	Kirinyaga
9	Borabu	Farmer	Kisii
10	Bungoma	Teachers	Bungoma
11	Bureti	Farmers	Bomet
12	Chai	Private institution	Nairobi
13	Chemilili	Farmers	Kakamega
14	Chepsol	Farmers	Nandi
15	Chuna	Government	Nairobi
16	Comoco	Private Institution	Nairobi
17	Centenary	Community	Meru
18	Winas	Teachers	Embu
19	Fariji	Farmers	Kiambu
20	Fortune	Farmers	Kirinyaga
21	Githunguri	Farmers	Kiambu
22	Gusii	Teachers	Kisii
23	Harambee	Government	Nairobi
24	Hazina	Government	Nairobi
25	Imenti	Farmers	Meru
26	Irianyi	Farmers	Kisii

27	Jamii	Government	Kisii
28	Jiunge	Farmers	Thika
29	Kakamega	Teachers	Kakamega
30	Keiyo	Teachers	Iten
31	Kenpipe	Private institution	Nairobi
32	Kenya Bankers	Private institution	Nairobi
33	Kenya Canners	Private institution	Thika
34	Kenya Police	Government	Nairobi
35	Kenya Highlands	Farmers	Kericho
36	Kiambaa Dairy Rural	Farmers	Kiambu
37	K-Unity	Community	Kiambu
38	Kilifi Teachers	Teachers	Kilifi
39	Kingdom	Community	Nairobi
40	Imairisha	Teachers	Kericho
41	Kite	Teachers	Kisumu
42	Kitui Teachers	Teachers	Kitui
43	Kmfri	Government	Mombasa
44	Konoin Tea Growers	Farmers	Mogogosiek
45	Kuria Teachers	Teachers	Kehancha
46	Lengo	Government	Malindi
47	Magadi	Private institutions	Magadi
48	Marakwet Teachers	Teachers	Kapsowar
49	Marsabit Teachers	Teachers	Marsabit
50	Enea	Farmers	Karatina
51	MMH(Maua Methodist)	Community	Maua
52	Solution	farmers	Meru
53	Dhabiti	Farmers	Maua
54	Meru South	farmers	Chuka

55	Metropolitan	Teachers	Kiambu
56	Mombasa Port	Private Institution	Mombasa
57	Mombasa Teachers	Teachers	Mombasa
58	Muhigia	Farmers	Kerugoya
59	Mo SACCO	Farmers	Mumias
60	Daima	Farmers	Embu
61	Unaitas	Farmers	Murang'a
62	Mentor	Teachers	Murang'a
63	Murata	Farmers	Murang'a
64	Mwalimu National	Teachers	Nairobi
65	Mwito	Government	Nairobi
66	Nacico	Government	Nairobi
67	Naku	Private Institution	Nairobi
68	Cosmopolitan	Teachers	Nakuru
69	Nandi Hekima	Farmers	Kapsabet
70	Narok Teachers	Teachers	Narok
71	Nation	Private institutions	Nairobi
72	Ndege Chai	Farmers	Kericho
73	Ndosha	Farmers	Chogoria Maara
74	Thamani Growers	Farmers	Chuka
75	Ntiminyakiru	Farmers	Meru
76	Nyambene	Farmers	Maua
77	Nyamira Tea Farmers	Farmers	Nyamira
78	Tower Teachers	Teachers	Ol'kalou
79	Nyeri Teachers	Teachers	Nyeri
80	Orthodox	Community	Nairobi
81	Safaricom	Private institution	Nairobi
82	Skyline	Private institution	

83	Sheria	Government	Nairobi
84	Taraji	Government	Siaya
85	Kiamba Chai	Farmers	Kericho
86	Siraji	Private institution	Timau
87	Sot Tea Growers	Farmers	Bomet
88	Sotico	Farmers	Sotik
89	Yetu	Teachers	Nkuba
90	Stima	Private institution	Nairobi
91	Sukari	Farmers	Mumias
92	Kiambaa Dairy Farmers Sacco	Farmers	Githunguri
93	Taifa	Farmers	Nyeri
94	Taita Taveta	Farmers	Wundanyi
95	Tembo	Private institution	Nairobi
96	Tenhos	Private institution	Bomet
97	Tharaka Nithi Teachers	Teachers	Chuka
98	Orient	Teachers	Nairobi
99	Tranz-Nzoia Teachers	Teachers	Kitale
100	Ukulima	Government	Nairobi
101	UN	Private institution	Nairobi
102	Universal Traders	Community	Machakos
103	Wakenya Pamoja	Community	Kisii
104	Wakulima Commercial	Community	Nyeri
105	Wanaanga	Government	Nairobi
106	Wananchi	Farmers	Othaya
107	Wanandege	Private institution	Nairobi
108	Wareng Teachers	Teachers	Eldoret
109	Washa	Private institution	Mombasa

110	Waumini	Private institution	Nairobi
111	Nassefu	Private institution `	Nairobi
112	Fundilima	Government	Nairobi
113	Maisha Bora	Private institution	Nairobi
114	County	Farmers	Runyenjes
115	Mudete Tea Growers	Farmers	Kakamega
116	Samburu Traders	Community	Maralal
117	Nafaka	Private institution	Nairobi
118	Busia Teso Teachers	Teachers	Busia
119	Kenversity	Government	Nairobi
120	Egerton	Government	Egerton
121	Dimkes	Farmers	Kiambu
122	Magereza	Government	Nairobi
123	Times-U	teachers	Meru
124	NRS	Farmers	Kikuyu

Appendix C:Age and Gender of the Respondents

No	Name of the SACCO	Gender (Male/Female)	Age Bracket
1	Afya	M	Above 45
2	Airports	M	36-45
3	Asili	M	36-45
4	Bandari	M	Above 45
5	Baraka	M	36-45
6	Boresha	M	Above 45
7	Biashara	F	Above 45
8	Bingwa	F	36- 45
9	Borabu	M	Above 45
10	Bungoma	M	Above 45
11	Bureti	M	36-45
12	Chai	F	Above 45
13	Chemilili	M	Above 45
14	Chepsol	F	36-45
15	Chuna	M	Above 45
16	Comoco	M	Above 45
17	Centenary	F	25-36
18	Winas	F	36-45
19	Fariji	M	Above 45
20	Fortune	M	Above 45
21	Githunguri	F	36-45
22	Gusii	M	Above 45
23	Harambee	F	Above 45
24	Hazina	M	36-45

25	Imenti	F	36-45
26	Irianyi	M	Above 45
27	Jamii	M	Above 45
28	Jijenge	M	Above 45
29	Kakamega	M	Above 45
30	Keiyo	M	Above 45
31	Kenpipe	M	Above 45
32	Kenya Bankers	M	Above 45
33	Kenya Canners	M	36-45
34	Kenya Police	M	Above 45
35	Kenya Highlands	F	Above 45
36	Kiambaa Dairy Rural	F	36-45
37	K-Unity	M	Above 45
38	Kilifi Teachers/Imarika	M	Above 45
39	Kingdom	M	36-45
40	Imairisha	M	Above 45
41	Kite	M	Above 45
42	Kitui Teachers	F	Above 45
43	Kmfri	M	Above 45
44	Konoin Tea Growers	F	36-45
45	Kuria Teachers	M	36-45
46	Lengo	M	36-45
47	Magadi	M	Above 45
48	Marakwet Teachers	M	36-45
49	Marsabit Teachers	M	36-45
50	Enea	F	36-45
51	MMH(Maua Methodist)	F	36-45
52	Solution	M	Above 45

53	Dhabiti	M	Above 45
54	Meru South	M	36-45
55	Metropolitan	M	Above 45
56	Mombasa Port	M	Above 45
57	Mombasa Teachers	F	Above 45
58	Muhigia	M	36-45
59	Mumias Outgrowers SACCO	M	Above 45
60	Daima	M	36-45
61	Unaitas	M	Above 45
62	Mentor	M	Above 45
63	Murata	M	Above 45
64	Mwalimu National	M	Above 45
65	Mwito	M	Above 45
66	Nacico	M	36-45
67	Naku	F	25-36
68	Cosmopolitan	F	Above 45
69	Nandi Hekima	M	25-36
70	Narok Teachers	M	25- 36
71	Nation	M	36- 45
72	Ndege Chai	M	Above 45
73	Ndosha	F	36-45
74	Thamani Growers	F	36-45
75	Ntiminyakiru	M	Above 45
76	Nyambene	M	36-45
77	Nyamira Tea Farmers	M	Above 45
78	Tower Teachers	M	Above 45
79	Nyeri Teachers	M	Above 45
80	Orthodox	M	Above 45

81	Safaricom	M	36-45
82	Skyline	M	Above 45
83	Sheria	M	36-45
84	Taraji	M	36-45
85	Simba Chai	M	Above 45
86	Siraji	M	Above 45
87	Sot Tea Growers	M	Above 45
88	Sotico	F	36-45
89	Yetu	M	Above 45
90	Stima	M	Above 45
91	Sukari	M	Above 45
92	Tai	F	36-45
93	Taifa	M	Above 45
94	Taita Taveta	M	Above 45
95	Tembo	F	Above 45
96	Tenhos	M	36-45
97	Tharaka Nithi Teachers	M	Above 45
98	Orient	M	Above 45
99	Tranz-Nzoia Teachers	M	36-45
100	Ukulima	M	Above 45
101	UN	M	36-45
102	Universal Traders	M	36-45
103	Wakenya Pamoja	M	Above 45
104	Wakulima Commercial	M	Above 45
105	Wanaanga	M	Above 45
106	Wananchi	M	Above 45
107	Wanandege	M	Above 45
108	Wareng Teachers	M	36-45

109	Washa	M	36-45
110	Waumini	F	36-45
111	Nassefu	M	Above 45
112	Fundilima	M	Above 45
113	Maisha Bora	M	Above 45
114	County	M	Above 45
115	Mudete Tea Growers	M	Above 45
116	Samburu Traders	F	Above 45
117	Nafaka	M	Above 45
118	Busia Teso Teachers	M	Above 45
119	Kenversity	M	36-45
120	Egerton	M	26-35
121	Dimkes	M	36-45
122	Magereza	F	Above 45
123	Times-U	F	Above 45
124	NRS	F	Above 45

Appendix D: Academic Qualifications of the Respondents

No	Name of the SACCO	Academic Qualifications
1	Afya	Post graduate and other professional qualification
2	Airports	Diploma and professional qualifications
3	Asili	1st Degree and professional qualifications
4	Bandari	Post graduate and other professional qualification
5	Baraka	Diploma and professional qualifications
6	Boresha	Diploma and professional qualifications
7	Biashara	Diploma and professional qualifications
8	Bingwa	Post graduate and other professional qualification
9	Borabu	Below Diploma and other qualifications
10	Bungoma	1st Degree and professional qualifications
11	Bureti	Diploma and professional qualifications
12	Chai	Post graduate and other professional qualification
13	Chemilili	Diploma and professional qualifications
14	Chepsol	1st Degree and professional qualifications
15	Chuna	Post graduate and other professional qualification
16	Comoco	Diploma and professional qualifications
17	Centenary	Below diploma
18	Winas	Post graduate and other professional qualification

19	Fariji	Diploma and professional qualifications
20	Fortune	1st Degree and professional qualifications
21	Githunguri	1stDegree and professional qualifications
22	Gusii	Post graduate and other professional qualification
23	Harambee	1stDegree and professional qualifications
24	Hazina	Diploma and professional qualifications
25	Imenti	Diploma and professional qualifications
26	Irianyi	Diploma and professional qualifications
27	Jamii	Below diploma.
28	Jijenge	Below diploma.
29	Kakamega	1stDegree and professional qualifications
30	Keiyo	Diploma and professional qualifications
31	Kenpipe	Post graduate and other professional qualification
32	Kenya Bankers	1stDegree and professional qualifications
33	Kenya Canners	Diploma and professional qualifications
34	Kenya Police	Post graduate and other professional qualification
35	Kenya Highlands	Diploma and professional qualifications
36	Kiambaa Dairy Rural	1stDegree and professional qualifications
37	K-Unity	1stDegree and professional qualifications
38	Kilifi Teachers/Imarika	1stDegree and professional qualifications
39	Kingdom	1stDegree and professional qualifications
40	Imairisha	Diploma and professional qualifications
41	Kite	1stDegree and professional qualifications
42	Kitui Teachers	Diploma and professional qualifications

43	Kmfri	Below diploma.
44	Konoin Tea Growers	1st Degree and professional qualifications
45	Kuria Teachers	Diploma and professional qualifications
46	Lengo	Diploma and professional qualifications
47	Magadi	Diploma and professional qualifications
48	Marakwet Teachers	Diploma and professional qualifications
49	Marsabit Teachers	Diploma and professional qualifications
50	Enea	1st Degree and professional qualifications
51	MMH(Maua Methodist)	1st Degree and professional qualifications
52	Solution	Below diploma
53	Dhabiti	1st Degree and professional qualifications
54	Meru South	1st Degree and professional qualifications
55	Metropolitan	1st Degree and professional qualifications
56	Mombasa Port	Diploma and professional qualifications
57	Mombasa Teachers	1st Degree and professional qualifications
58	Muhigia	Post graduate and other professional qualification
59	Mumias Outgrowers SACCO	1st Degree and professional qualifications
60	Daima	Diploma and professional qualifications
61	Unaitas	Post Graduate and professional qualifications
62	Mentor	Diploma and professional qualifications
63	Murata	Post Graduate and professional qualifications
64	Mwalimu National	Post graduate and other professional qualification
65	Mwito	Diploma and professional qualifications

66	Nacico	Post Graduate and professional qualifications
67	Naku	Post graduate and other professional qualification
68	Cosmopolitan	Diploma and professional qualifications
69	Nandi Hekima	1st Degree and professional qualifications
70	Narok Teachers	1st Degree and professional qualifications
71	Nation	1st Degree and professional qualifications
72	Ndege Chai	1st Degree and professional qualifications
73	Ndosha	Diploma and professional qualifications
74	Thamani Growers	Diploma and professional qualifications
75	Ntiminyakiru	Diploma and professional qualifications
76	Nyambene	Below diploma
77	Nyamira Tea Farmers	1st Degree and professional qualifications
78	Tower Teachers	Diploma and professional qualifications
79	Nyeri Teachers	Post graduate and other professional qualification
80	Orthodox	Diploma and professional qualifications
81	Safaricom	Post graduate and other professional qualification
82	Skyline	Diploma and professional qualifications
83	Sheria	1st Degree and professional qualifications
84	Taraji	Diploma and professional qualifications
85	Simba Chai	1st Degree and professional qualifications
86	Siraji	Diploma and professional qualifications
87	Sot Tea Growers	Post graduate and other professional qualification
88	Sotico	Below Diploma

89	Yetu	1st Degree and professional qualifications
90	Stima	Post graduate and other professional qualification
91	Sukari	Diploma and professional qualifications
92	Tai	Diploma and professional qualifications
93	Taifa	1st Degree and professional qualifications
94	Taita Taveta	1st Degree and professional qualifications
95	Tembo	1st Degree and professional qualifications
96	Tenhos	1st Degree and professional qualifications
97	Tharaka Nithi Teachers	1st Degree and professional qualifications
98	Orient	1st Degree and professional qualifications
99	Tranz-Nzoia Teachers	Diploma and professional qualifications
100	Ukulima	Diploma and professional qualifications
101	UN	1st Degree and professional qualifications
102	Universal Traders	1st Degree and professional qualifications
103	Wakenya Pamoja	1st Degree and professional qualifications
104	Wakulima Commercial	Diploma and professional qualifications
105	Wanaanga	Below Diploma
106	Wananchi	Post graduate and other professional qualification
107	Wanandege	Diploma and professional qualifications
108	Wareng Teachers	1st Degree and professional qualifications
109	Washa	Below Diploma
110	Waumini	Post graduate and other professional qualification
111	Nassefu	1st Degree and professional qualifications
112	Fundilima	1st Degree and professional qualifications
113	Maisha Bora	1st Degree and professional qualifications

114	County	Diploma and professional qualifications
115	Mudete Tea Growers	Diploma and professional qualifications
116	Samburu Traders	1st Degree and professional qualifications
117	Nafaka	Post graduate and other professional qualification
118	Busia Teso Teachers	Diploma and professional qualifications
119	Kenversity	1st Degree and professional qualifications
120	Egerton	1st Degree and professional qualifications
121	Dimkes	1st Degree and professional qualifications
122	Magereza	Post graduate and other professional qualification
123	Times-U	1st Degree and professional qualifications
124	NRS(Ndetika rural SACCO)	1st Degree and professional qualifications

Appendix E: Summary of Empirical Evidences and Predicted Relationships

Independent Variables	Empirical evidence with similar models.	Models used to show Relationships
Core Capital	Boyd (2008), Buch *et al* (2014) Moyer (1990), Barrios and Blanco(2002), Bergie *et al* (1995) Croteau (1956), Dran (1971), Taylor (1972, 1977 and 1991) wolken and Navratil(1980) and Fry *et al*l (1982), Buch, C. and Prieto, E. (2014).	Linear Regression, Ratios, Other mathematical and statistical equations
Liquidity Management	Saunders and Cornett (2011), Ross,Westerfield and Jordon(1995), Leung(2009), Miller and Orr, Davidson *et al* (1999), Pandey (2007), Hampton (2001)	Linear regression, Ratios, Other Statistical and Mathematical Tools
Allowance for Loan Loss	McKillop and Wilson (2011), Levintis, Dimitropoulus and anandarajan (2012), Brunnermiar (2009), Berger Herring and Szego (1995),Peek and Rosengren (1995), Bizer (1993)	Linear Regression, Ratios, Other Statistical and Mathmatical Tools.
Membership	Kobia (2011), Manyara (2003)	Linear Regression

Appendix F:Descriptive Statistics - Core Capital

	Responses			
Statements	**Yes**	**No**	**N/A**	**Total**
Was the core capital above 10m before 2009	8	100	16	124
Was the core capital above 10m after 2010	108	0	16	124
Was CCA above 10% before 2009	6	102	16	124
Was CCA above 10% after 2010	96	12	16	124
Were you indebted to banks before 2009	106	2	16	124
Were you indebted to banks after 2010	48	60	16	124
Were you indebted to other financial organizations before 2009	34	74	16	124
Were you indebted to other financial organizations after 2010	8	100	16	124

Appendix G:Descriptive Statistics - Core Capital

	Responses in Percentages			
Statements	**Yes**	**No**	**N/A**	**Total**
Was the core capital above 10m before 2009	6	80	14	100
Was the core capital above 10m after 2010	87	0	13	100
Was CCA above 10% before 2009	5	82	13	100
Was CCA above 10% after 2010	77	10	13	100
Were you indebted to banks before 2009	85	2	13	100
Were you indebted to banks before 2010	39	48	13	100
Were you indebted to other financial organizations before 2009	27	60	13	100
Were you indebted to other financial organizations after 2010	6	81	13	100

Appendix H: Descriptive Statistics – Liquidity

	Responses			
Statements	**Yes**	**No**	**N/A**	**Total**
Was your liquidity ratio above 15% of short term deposit and short term liabilities before 2009?	6	102	16	124
Was your liquidity ratio above 15% of short term deposit and short term liabilities after 2010?	106	2	16	124
Did you have designated FOSA managers before 2009?	3	105	16	124
Did you have designated FOSA managers after 2010?	107	1	16	124
Did tellers operate with a teller manual before 2009?	64	44	16	124
Did tellers operate with a teller manual after 2010?	107	2	16	124
Did you have designated Internal Auditor before 2009?	4	104	16	124
Did you have designated Internal Auditor after 2010?	106	2	16	124
Did tellers operate with a specific cash limit before 2009?	64	44	16	124
Did tellers operate with a specific cash limit after 2010?	107	2	16	124

Appendix I: Descriptive Statistics – Liquidity

	Responses			
Statements	**Yes**	**No**	**N/A**	**Total**
Was your liquidity ratio above 15% of short term deposit and short term liabilities before 2009?	5	82	13	100
Was your liquidity ratio above 15% of short term deposit and short term liabilities after 2010?	85	2	13	100
Did you have designated FOSA managers before 2009?	2	85	13	100
Did you have designated FOSA managers after 2010?	86	1	13	100
Did tellers operate with a teller manual before 2009?	52	35	13	100
Did tellers operate with a teller manual after 2010?	86	1	13	100
Did you have designated Internal Auditor before 2009?	3	84	13	100
Did you have designated Internal Auditor after 2010?	86	1	13	100
Did tellers operate with a specific cash limit before 2009?	52	35	13	100
Did tellers operate with a specific cash limit after 2010?	86	1	13	100

Appendix J: Descriptive Statistics – Credit Management

	Responses			
Statements	**Yes**	**No**	**N/A**	**Total**
Are loans being paid as per contractual documents – loan policy for period (2010 – 2013)?	102	6	16	124
Were loans being paid as per contractual documents – loan policy for period (2006 – 2009)?	46	62	16	124
Were you making provisions for loan losses from 2006 – 2009?	3	105	16	124
Do you make provision for loan losses from 2010 - 2013?	107	1	16	124

Appendix K: Descriptive Statistics – Credit Management

	Responses			
Statements	**Yes**	**No**	**N/A**	**Total**
Are loans being paid as per contractual documents – loan policy for period (2010 – 2013)?	82	6	13	100
Were loans being paid as per contractual documents – loan policy for period (2006 – 2009)?	37	50	13	100
Were you making provisions for loan losses from 2006 – 2009?	2	85	13	100
Do you make provision for loan losses from 2010 - 2013?	86	1	13	100

Appendix L: Descriptive Statistics – Membership

	Responses			
Statements	**Yes**	**No**	**N/A**	**Total**
Were there members who were leaving the SACCO 2006 – 2009?	102	6	16	124
Were there members who were leaving the SACCO 2010 – 2013?	46	62	16	124
Had SACCO formulated member recruitment strategy during the period 2006 – 2009?	3	105	16	124
Had SACCO formulated member recruitment strategy during the period 2010 – 2013?	107	1	16	124

Appendix M: Descriptive Statistics – Membership

	Responses			
Statements	**Yes**	**No**	**N/A**	**Total**
Were there members who were leaving the SACCO 2006 – 2009?	82	5	13	100
Were there members who were leaving the SACCO 2010 – 2013?	37	50	13	100
Had SACCO formulated member recruitment strategy during the period 2006 – 2009?	2	85	13	100
Had SACCO formulated member recruitment strategy during the period 2010 – 2013?	86	1	13	100

Appendix N:Cronbach's Alphaa Financial performance Component Matrix[a]

Item	
My SACCO increased volume of business after licensing	0.878
New loan products led to increase in business	0.711
Decision to make loan products properly made volume of business to increase	0.751
The legal status of my SACCO is licensed since licensing	0.830
Dividends and interest on deposits increased in my SACCO since licensing	0.848

Reliability Statistics

Cronbach's Alpha[a]	N of items
0.841	5

Core Capital

Item	
Current level core capital is above 10m required	0.734
My SACCO ratio for core capital in 2013 is above 10% as required by the Act	0.860
My SACCO ratio for core capital in 2008 is above 10% as required by the Act	0.759
My SACCO was not indebted to any other financial institution in 2013	0.851
My SACCO was not indebted to any other financial institution in 2008	0.850
My SACCO pays creditors on time	0.814

Reliability Statistics

Cronbach's Alpha[a]	N of items
0.783	6

Liquidity

Item	
My SACCO has complied with the liquidity ratio of 15% to short-term deposits and short-term liabilities 2013	0.785
My SACCO has tellers with specific cash limits 2013	0.814
My SACCO has tellers with specific cash limits 2008	0.811
The manual sets specific cash limit for the teller 2013	0.882
The manual sets specific cash limit for the teller 2008	0.833
My SACCO has strong rooms and safes to safeguard cash 2013	0.748
My SACCO has strong rooms and safes to safeguard cash 2008	0.745
My SACCO has designated treasury managers to manage FOSAs in 2013	0.889
My SACCO has designated treasury managers to manage FOSAs in 2008	0.868
My SACCO has designated internal auditor who constantly checks cash management internal controls 2013	0.748
My SACCO has designated internal auditor	0.734

who constantly checks cash management internal controls 2008	

Reliability Statistics

Cronbach's Alpha[a]	N of items
0.802	11

Credit management

Item	
My SACCO loans are repaid as per contractual document 2013	0.890
My SACCO loans are repaid as per contractual document 2008	0.862
In my SACCO there are loan defaulters 2013	0.779
In my SACCO there are loan defaulters 2008	0.979

Reliability Statistics

Cronbach's Alpha[a]	N of items
0.793	4

Membership

Item	
In my SACCO members are leaving the SACCO 2013	0.860
In my SACCO members were leaving the SACCO 2008	0.841
New and previous members are joining the SACCO 2013	0.733
New and previous members are joining the SACCO 2008	0.735
Overall the membership is increasing 2013	0.781
Overall the membership is increasing 2008	0.795

Reliability Statistics

Cronbach's Alpha[a]	N of items
0.814	6
Overall	
0.8	

Appendix O: List of Saccos in Pilot Study

(1) Harambee
(2) Jijenge
(3) Winas
(4) Kemfri
(5) Mwalimu
(6) Murata
(7) Mentor
(8) Yetu
(9) Orient
(10) Kenya Canners
(11) New Forties
(12) Transnational times
(13) Nyamira
(14) Unison
(15) Nyandarua Teachers
(16) UN
(17) Stima
(18) Magereza
(19) Tembo
(20) Wanandege
(21) Lengo
(22) Mombasa Port

APPENDIX P: Financial performance

Financial performance is the dependent variable in the study and was measured using return on assets (ROA). Return on assets is calculated as earnings before interest and taxes divided by total assets of an enterprise (Druly, 2000).

Core Capital

Core capital is an independent variable in the study and it comprises of equity capital and institutional capital which remains in the business as long as the business remained as a going concern (Government of Kenya, 2008). In the study it was computed as a ratio of core capital divided by total assets and the fraction expressed as a percentage (CCA).

Liquidity

Liquidity is an independent variable in the study. It was computed as total of cash and cash equivalent divided by the sum of short term liabilities and short term deposits and the fraction expressed as a percentage (Government of Kenya, 2008).

Credit Management

Credit management is an independent variable in the study. In the study it was computed as a ratio of Allowance for loan loss divided by total assets and the fraction expressed as a percentage (AFLL).

Membership

Membership is an independent variable in the study and it was measured using membership growth. The membership growth was in percentages and was computed as change in membership between the current year and the preceding year divided by the number of members in the preceding year and the fraction expressed as a percentage.

Prudential regulation

Since prudential regulation is the moderating variable, it was measured by the differences in betas between the period before legislation and after legislation. Therefore two sets of data, 2006-2009 periods and 2010-2013 periods were collected and results compared.

A list of all variables, the measurements and indicators.

Variable	**Indicator**	**Measurement level**	**Measurements**
Financial Income	Income ratio	Ratio	Earnings before interest and Taxes/total Assets expressed as a percentage
Core Capital	Core capital ratio	Ratio	Core Capital/ Total Assets expressed as a percentage
Liquidity	Liquidity ratio	Ratio	Cash and Cash Equivalents/Withdrawable deposits and short term liabilities expressed as a percentage
Credit (Allowance for loan loss)	Allowance for Loan loss / Total Assets ratio	Ratio	Allowance for loan Losses/total Assets expressed as a percentage.
Membership	Numbers	Ratio	Numbers showing change of membership in any given year / Number of members in the preceding year expressed as a percentage.