REGULATORY FRAMEWORK AND FINANCIAL INTERMEDIATION EFFICIENCY OF DEPOSIT TAKING SAVINGS AND CREDIT COOPERATIVE SOCIETIES IN KENYA

PERMINUS KARIUKI MURIITHI

DOCTOR OF PHILOSOPHY

(Accounting)

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Regulatory Framework and Financial Intermediation Efficiency of Deposit Taking Savings and Credit CooperativeSocieties in Kenya

Perminus Kariuki Muriithi

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DECLARATION

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

Signature …….……. Date ……

Perminus Kariuki Muriithi

This thesis has been submitted for examination with our approval as University Supervisors.

Signature …….……. Date ……

Dr. Tabitha Nasieku, PhD.

JKUAT, Kenya

Signature …….……. Date ……

Prof. Florence S. Memba, PhD.

JKUAT, Kenya

DEDICATION

I dedicate this thesis with utmost gratitude and love to my family for their unwavering support, love, and prayers throughout this challenging academic journey.

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ACRONYMS AND ABBREVIATIONS

ABCUL	Association of British Credit Unions Limited
ACCOSCA	African Confederation of Co-operative Savings and Credit Associations
BoD	Board of Directors
BOSA	Back Office Services Authority
DTS	Deposit Taking Sacco's Financial Intermediation Efficiency
FIE	
FOSA	Front Office Services Activities
GoK	Government of Kenya
ICA	International Co-operative Alliance
MDI	Micro Deposit Taking Institutions
MoCD&M	Ministry of Cooperative Development and Marketing
NCUA	National Credit Union Administration
PEARLS	Protection, Effective financial structure, Asset quality, Rates ofreturn and cost, liquidity and signs of growth
RF	Regulatory Framework
SACCO	Savings and Credit Co-operative Societies
SACCOL	Savings and Credit Cooperatives Leagues of South Africa
SASRA	Sacco Societies Regulatory Authority

WOCCU	World Council of Credit Unions

DEFINITION OF TERMS

Capital Adequacy

The adequate amount defined by Regulators of capital a SACCO needs to hold as a percentage of its risk weighted assets.

It consists of non-distributable reserves created through appropriations of retained earnings, capital donations and other surpluses (Ho, 2012).In this study it will be proportion of core capital to total deposits (Wanjohi, 2016).

Core Capital

It is the fully paid-up members shares, retained earnings, disclosed reserves, grants and donations all of which are not meant to be expended unless on liquidation of the Sacco Societies (Wanjohi, 2016).

Credit Management

It refers to rules related to an organization's extension of credit or lending activities. It is ability of SACCO assets (loans) to provide income in a timely manner with which borrowers are meeting their contractual obligations (Mutua, 2014). It will be operationalized as proportion of non-performing loans to total loan portfolio (Ombaba, 2013).

Deposit Taking SACCOs

Are registered Savings and Credit Cooperative Societies in Kenya which accept deposits on a day-to-day basis (SASRA, 2008). In this

	study, Deposit-Taking SACCOs refer to those SACCOs operating front-office services activities.
Disclosure Requirements	These are policies guiding on information requirements to different stakeholders in DT SACCOs (Quayes & Hasan, 2014). In this study it refers to natural logarithms of loan loss provisions.
Financial Intermediation Efficiency	Refers to mobilization of funds from surplus to deficit savings units at minimal operational cost (Kanyi, Maina, & Kariuki, 2018).
Investment Management	These are rules adopted by deposit taking regulatory institutions to ensure that its members can easily access financial intermediation services (Brunnermeier& Pedersen, 2009). In this study it refers to proportion of plant, property and equipment to total assets.
Regulation	According to Ngaira (2011), regulation means law, rule or other orders prescribed by authority specially to regulate conduct. In this study, regulation means the rules that have been put in place by SASRA and which DTS are expected to adhere to.
SACCO	SACCO are autonomous association of individuals who are voluntarily united with the

objective of meeting common economic, social or cultural needs and aspirations through a mutually owned and democratically-controlled enterprises (International Co-operative Alliance,2015)

ABSTRACT

The regulation of Deposit Taking Saving and Credit Co-operative societies enhances transparency and accountability in the management of DT SACCO's. Thus, protecting the interests of members. This may lead to better service to members through provision of timely loans and advances with minimal risk exposures. SACCO's have been identified as major financial player thus an important player in financial intermediation. Consequently, the current study on the influence of regulatory framework on financial intermediation efficiency of DT SACCO's in Kenya. The study specifically looked into the effects of capital adequacy, credit management, investment management, and disclosure requirements on financial intermediation efficiency of DT SACCO's in Kenya and the moderating effect of SACCO size on the effect of regulatory framework on financial intermediation efficiency of DT SACCO's in Kenya. The study targeted 174 DT SACCO's operating in Kenya as at 31st December 2019. Data analysis was done using both descriptive and inferential statistics. Descriptive statistics used in the study included measures of central tendency; mean; dispersion and standard deviation. Inferential statistics used included correlation and regression analysis. The study findings showed that there was a persistent increase in financial intermediation efficiency within the period under study and thus can be concluded that as DT SACCOs complied with regulatory framework their financial intermediation efficiency improved. For instance capital adequacy has positive and significant influence on financial intermediation efficiency ($\beta = 0.0212$, p value < 0.05), Credit management has positive and significant influence on financial intermediation efficiency of DT SACCOs in Kenya ($\beta = 0.010$, p value < 0.05), investment requirement had positive and significant influence on financial intermediation efficiency of DT SACCOs in Kenya ($\beta = 0.071$, p value < 0.05), disclosure requirements had positive and significant influence on financial intermediation efficiency of DT SACCOs in Kenya ($\beta = 0.0013$, p value < 0.05) while investment management had positive and significant influence on financial intermediation efficiency of DT SACCOs in Kenya ($\beta = 0.0371$, p value < 0.05). Size of DT SACCO's was found to have positive and significant moderating effect on the influence of regulatoryframework on financial intermediation efficiency of DT SACCOs in Kenya. Thus, there is need for DT SACCOs to optimize their sizes so as to enhance their financial intermediation efficiency in their respective areas of operations. Pure efficiency was lower than scale efficiency throughout the period under study, thus there is need for management to examine their performance inefficiencies so as to minimize wastages and spillage of performance opportunities. Future study may segregate DT SACCOs according to sectors and examine the influence of regulatory framework on financial intermediation efficiency of DT SACCOs in Kenya.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The vision 2030 economic and macro pillar aims at transforming Kenya into a middle income country through several sectors among them Vibrant and competitive financial sector driving high level savings and financing country investment need. This has been made possible partly through SASRA 2010 regulations of DT SACCOs. Increasing mobilization of funds improved access to financial services to unbanked Kenyans. The vision 2030 blue print recognizes SACCO as important player in deepening financial access to mobilized saving for investment in enterprise and development. The SACCO business like banking business thrives on trust and confidence of depositors and investors. The growth of SACCO subsector shows how important SACCO's are in providing affordable financial services to Kenya (Njeru, 2016).

Cooperatives are people centred enterprises owned, controlled and run by and for their members to realise their common economic, social and cultural needs and aspirations (International Cooperative Alliance, 2015). According to Zeuli, Cropp and Schaars, (2004) cooperative societies are voluntary contractual organizations whose memberships aims at attaining financial intermediation. Onguka (2014) alludes that Savings and Credit Co- operative Societies (SACCO's) also known as Credit Unions or Cooperative banks in other parts of the world are operated with primary goal of promoting credit growth, financial freedom, alternative financial services at minimal costs as compared to other financial institutions.

The history of cooperative development dates back to 1852 in Germany when two pilot projects were consolidated to form a credit union. In 1864, in rural Germany rural credit union was founded to promote financial services among poor. The former was founded by Frank and later by Raiffeisen. According to Kanyi, Maina and Kariuki (2018) rural population can be easily excluded from banking sector since they have little income, unseasonal cash flows and limited human capital

skills. Due to turbulent changes in state of economic development, some financial institutions have not survived though cooperative movement have recorded positive growth. Birchall, Hammod and Ketilson (2009) alludes that in moments of financial crisis cooperative movements have recorded resilience due to adoption of guarantor-ship lending model that minimizes the level of default risk. Wanyama, Develtere, and Pollet, (2009) argues that there are innovative cooperative ventures world- wide but in emerging economies there are measures that ought to be undertaken.

Globally, credit unions have increased in their asset base and membership thus the need for regulations. The need for regulations is founded on the need to increase investors' confidenceas SACCO's grow due to availability of cheaper loans. Ngaira (2011) alludes that regulation makes credit unions to comply with certain requirements, restricts and guide on measuresthat ought to be adopted to enhance integrity in their management. According to ICA (2015) regulations are laws, rules or orders that are prescribed by authority to control conduct of entities that are licensed by licensing authorities. Regulations and financial intermediation of financial institutions cannot be over emphasized since they are core drivers of economic development and growth.

According to Craig and Hardee, (2007) regulations are aimed at promoting prudential guidelines, minimizing moral hazard and erosion of odds of deposits losses. Hence, regulations may have higher odds of enhancing financial intermediation. Financial institutions ought to be regulated so as to minimize the level of risk exposure associated in pursuance of business (Kahuthu, 2016). Success of financial institutions have trickling effect on stability of an economy. Hence, the need for provision of prudent guidelines aimed at stabilizing operations of financial institutions. Through sound regulations financial institutions will not only manage to provide cheap loans but also create credit that may minimize odds of cash crunch, bank panic and failures.

Theories of financial regulations have vouched for argument that markets rarely

operate in customer's best interest thus the need for regulations to protect them. Notable theories are public interest theory which is skewed towards public interest that is contrasted by regulatory capture theory which supports private interest (Stigler, 1971). Agency theory calls for adoption of decisions that optimizes shareholder's wealth and minimize risks associated with agency costs.

Moreover, competition for regulations asserts that there is need for regulations that will match with those who incurs higher regulation costs. There is need for moderated regulations of financial institutions since there is a positive causality between regulation and its related costs. In some instance, regulations may be adopted as tools for correction of market failure and consolidation of market niche.

1.1.1 Regulatory Frame Work and Financial Intermediation Efficiency of Credit Unionsin the World

The success of financial institution is contingent to the level of financial liberalization (Black & Dugger, 2011). Though, credit unions have been hailed as sources of economic development worldwide the speed of financial regulation does not match their growth (Ngaira, 2011). According to Deller, Hoyt, Hueth and Sandaram (2014) credit unions has a role in development of industrialization and emerging economies. Slow pace in legislative and regulatory deficiencies have caused regulatory burden that inhibits soundness of financial institutions hence inhibiting their capacity to address financial needs of their clients. World Council of Credit Unions (WOCCU) have developed regulation and supervision guidethat is of use during training and development of regulatory frameworks of credit unions.

In 2015 Credit Unions came up with model law for Credit Unions and within the framework there was recognition of locally accepted standards. The purpose of this model Law was to aid SACCO movement leaders, legislators, regulators and others in preparing and seeking approval of laws that will strengthen the safety and soundness of credit unions without imposing unreasonable regulatory burdens and is considered an optimal legislative framework for a jurisdiction that is revising its credit union regulatory regime or starting from scratch (WOCCU, 2019).

In 2014 WOCCU carried out a study that drew respondents from 104 countries. The study indicated that 36% of the countries had credit union specific legislation. It was noted that majority had weak credit union sector regulations. In some countries credit unions areregulated by ministry of finance, central banks and other financial regulators at 9%, 13% and 16% respectively. Moreover, despite of some countries having registrar of cooperative unions the offices were not operational. The study recommended that to ease provision of financial services by DT SACCOs there was need for creation of credit unions regulation bodies.

Black and Dugger, (2011) argued that US credit unions felt that regulators are trying to micromanage them, often in ways that seem inconsistent with the credit union mission. Many countries and credit union systems apply a tiered system of provisioning for delinquency, and standards may vary depending on the level of the credit unions' technology. The situation was different since measures towards consolidation of regulation into single regulatory body of credit unions was achieved through integration (Brown & Buckley, 2018). There was need for exercising caution while implementing these policies since they may yield optimal cost management. This was in contrast to Fischer and Cuevas (2006) who alluded that credit unions in India deployed hybrid model to amplify growth of cooperative owned enterprises.

Pille and Paradi (2002) observed that Brazil was an early adopter of cooperative model and as early as 1874 the regulation of cooperatives was marked by involvement of military personnel and hence the credit Unions operated prudently with fewer cases of cooperative failure. Baker, (2008) study in Ireland found that Credit union regulatory framework outlinedthe characteristics of and restrictions on a Credit Union. Baker further found that the regulator was using supervisory structure of Credit Unions and their management where applicable to address problems relating to provision of services to members. However, majority of regulators all over the world has been focusing on the quality of loan books and the levels of provisions and reserves held by Credit Unions.

1.1.2 Regulatory Frame Work and Financial Intermediation Efficiency of Credit Unions in Africa

In Africa, there are different models of credit union supervision. They can be broadly classified as direct and indirect models of supervision. The greatest challenge to their supervision is adoption of the most appropriate model of supervision due to scarcity of supervision resources. Although, there are heterogeneous models for credit union supervision there is congruence that the ministry that regulates financial institutions should be uniform among all. This is appropriate due to access of trained personnel on risks, methodologies and nature of financial institutions operations (Black & Dugger, 2011).

Adoption of supervision model among credit unions is dependent on phases of its development. In early phases of credit unions development their regulations are limited to licensing registration which graduates to adoption of prudent operational behaviours such as minimum capital requirements, risk management model and liquidity requirements (Goddard, McKillop, & Wilson, 2008). Direct supervision models call for supervision of credit unions by prudential government regulator who ensures that they are uniform standards of market competition, regulatory arbitrage elimination and promotion of consumer confidence. The drawback of this model is on how to recover its operational costs. This is achievable through technology leverage; deployment of risk based supervisory structure and use of different examination models to authenticate performance. Furthermore, failure to recover operational costs may hinder achievement of credit union supervision (WOCCU, 2019).

In direct credit supervision models, there is delegated supervision and supervision through ministry of cooperatives. Delegated supervision, the government formally assigns supervision to a third party. The model yields clear feedback between regulator and credit union as compared to direct supervision model. The model benefits the government through eradication of operational costs, provides income stream and creates collegial relationship with the supervisor. Successfully delegated supervision calls for strong agency conflict management skills and development of

strong technical capacity. In supervision through structured ministry of cooperative SACCOs are regulated in their respective core business. The model is faced by financial and technical challenges. In adequate funding complicates operations of SACCOs and generation of income (Hertog, 2017).

1.1.3 Regulatory Frame Work And Financial Intermediation Efficiency of SACCO's inKenya

Mirie (2014) allude to the evolution of cooperative movement as having been started through a government initiative contained in the sessional paper No 10 of 1965. It invigorated 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 ofcooperative 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) 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, Ngugi, Ogollah & Orwa, 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 Office Services Activity (FOSA). Kilonzi (2012) stated that myriad problems encountered by large SACCOs were the increased risks and severe competition. Financial Sector Deepening (FSD) (2014), found similar problems and recommended prudential management which the government implemented by

forming SACCOs specific act and the associated regulations.

In Kenya, the regulation model for DT SACCOs is through direct government regulation through Saccos and Societies Regulatory Authority (SASRA). The model has enhanced transparency, accountability and stakeholder's confidence among members. Moreover, the approach has stimulated economic growth through resources mobilization. This has not been conclusive since effects of compliance of regulatory framework on the performance of deposit taking Saccos has mixed findings with some indicating growth in terms of membership for instance SASRA (2014; 2019) while Central Bank of Kenya in a survey report in 2013 and 2018 found out that in spite of Sacco's wide geographical spread in the country, they had lost 12% and 17% respectively of their market share to other financial services providers. This may have negative implications on financial intermediation efficiency.

SASRA, (2014) noted that since enactment of SASRA regulations (2010), mixed observations have been made on its effect on governance and conduct of business in SACCOS's key among them being: effectively functioning board and management; increased professionalism at BoD and management level; growth in SACCOs membership due to marketing and promotional activities, to new branches and products; exponential growth in assets, loans and deposits and increased disclosures in financial statements which are more informative which lead to more financial intermediation. SARSA regulation (2010) which came to address the deficiency in previous capital adequacy requirements which under Rule 52(3b) of cooperative society Act of 2004 which required SACCOs operating FOSA to Maintain capital adequacy of 10% of total liabilities as against new Societies regulations of 2010 which requires the SACCO to maintain Core capital of ten million shillings for a SACCO establishing a FOSA or Core capital of 10 % of total assets or Core capital of 8 % oftotal deposits or Institutional capital of 8% of total asset.

Mbui (2010) observed that the operation of Stima Sacco Society under SASRA new regulatory environment created more customer confidence & more dynamic and enabling environment for business growth of the SACCO. SASRA report (2019)

shows that 168 DT SACCOs were able to fully maintain the prescribed core capital of Sh10 million, with theremaining seven failing to meet the requirement. Only 69 deposit-taking SACCOs were able to maintain and comply with the prescribed institutional capital to total assets ratio of eight per cent, with the majority failing to comply with this key regulatory minimum.

Porteous *et al.* (2010) notes that there is need to maintain a high standing among all the financial intermediaries including SACCOs with regard to investment vehicles they can engage in. This has a great impact on financial performance of the organizations and hence financial intermediation. SACCOs are particularly prone to credit risk because they advance loans on the strength of individual guarantees and hence the excessive coverage of credit risks assessment on the loans to members by the SACCO.

However, this regulation did not cover members with outstanding loans rather than one seeking position in committees. The SASRA regulation of 2010 came to fill this gap by coming up with specific credit management policy that ensured a loan shall always be adequately secured, a guarantor shall be informed of his/or her level of guarantor ship and none should be allowed to over guarantee, shares shall not be used as security for loans, external borrowing to be capped at 25% of total assets unless with SASRA approval and SACCO to coming up with risk classification and provisioning (risk assessment , delinquency and requisite provisioning for loans). Njeru (2016) observed that members are not satisfied with the shorter repayment period, and that pegging loan on deposits was denying member's money which they had ability to pay.

Throughout the history of co-operatives and Sacco movement in Kenya, its regulation has been limited to Sacco Societies Act (SSA) which had not fully captured the deposit-taking aspect of the Sacco societies. Saccos were set up with clear intentions which were significant to the members. However, some faulted in their mission and have since closed down to the disappointment of their members. However, Kenya's Saccos have grown at a tremendous ratein the past years but have had no effective regulatory framework that captured the deposit taking aspect of the

Sacco societies until 2010. Following the enactment of the Sacco Society Act of 2008, the Sacco Societies Regulatory Authority (SASRA) was introduced in 2010 to license, standardize, regulate and control the operations of deposit-taking Saccos operating in Kenya. The authority ensures that all DT SACCO's are licensed and observe prudential standards that are set. Nevertheless, little is known about how these regulations have impacted on the financial intermediation efficiency of the DT SACCO's in Kenya. This prompted the current research to find out the influence of these regulations on financial intermediation efficiency of DT SACCO's in Kenya. It had been practically difficult for the key players in the deposit-taking Saccos to effectively implement the regulations set by SASRA without clear understanding of how they affect financial intermediation efficiency ofDT SACCO's.

1.2 Statement of the Problem

There has been debates and controversies on effects of compliance of regulatory framework on the performance and hence intermediation efficiency of DT SACCO's some indicating there has been growth in terms of membership for instance SASRA (2014; 2019) report indicated that implementation of SARSA regulations (2010) had led to growth of SACCOs membership. In addition, from SARSRA Website in 2010 the Deposit taking Saccos which were operating and applied for licensing were 215 and 110 were allowed to operate as DTSin 2011. However, despite of the increased regulatory reforms undertaken in the Sacco sub - sector in Kenya, performance and hence financial intermediation of DTS's is still wanting. SASRA statistics show that between 2014 and 2019, the regulator revoked operating licensesof 43 DT SACCO's due to severely undercapitalization, inability to meet members and third parties' obligations leading to unsustainably high external borrowing (SASRA 2014; 2019). It is not clear whether this decline in number of DTS's operating was as a result of excessive regulations. However, the costs of regulations should be weighed against the benefits so thatit does not turn out to be costlier to regulate than not to regulate (Odera, 2019).

Role of SACCOs in financial intermediation in Kenya cannot be ignored since it has at least 62% of total deposits in African continent (SASRA, 2019). Despite of this

the penetration levels of SACCOs in Kenya is at most 20% (WOCCU, 2019). The worst case, investors' confidence is on decline due to governance and lack of credit creation capacity. Since 2011to date at least six DT SACCOs are issued with interim licenses per annum with cases of SACCO panic and run reported in Metropolitan SACCO. Though, the situation was rescued through provision of professional services by Coop-Trust consultancies. Further, there is a case of merger and acquisition between Mwalimu National SACCOs and spire banks that resulted into losses that has eroded capital of the SACCO. According to SASRA (2019) contribution of SACCOS towards financial sector inclusion is commendable since there is a positive average growth of at least 9% per annum

The efficiency of SACCOs is important. (Kariuki *et al.,* 2018) alluded that they account for at least 49% of gross national savings. Hence, any odds of their instability would be detrimental to economic stability and growth. The growth of SACCOs lending rate is higher as compared to commercial banks where their average growths are 3.42% and 3.02% respectively (Kariuki *et al*., 2018). The interest rate margins are higher in commercial banks as compared to SACCOs and there is consistent decline in number of DT SACCOs per annum (SASRA, 2019). From these there was need for examination on the causality of financial intermediation efficiency and regulatory framework of deposit taking SACCOs in Kenya.

In Kenya some of the studies done on effects of regulations on financial intermediation efficiency of DTS's are: Kariuki (2014) reported that there is need for SACCOs to comply with regulatory requirements through monitoring and assessment of risk. This was hailed as tool for exploration of growth opportunities. Jagongo and Ndede (2017) reported that capital adequacy has significant contribution on banks performance. Banks and DT SACCOs have contextual differences on their regulations hence the need for customized study. Wanjohi (2016) reported significant contribution of capital adequacy on credit evaluation of DT SACCOs in Kenya. The study may have considered diagnostic tests prior to modelling. Magali (2013) reported significant contribution of loan size and years of schooling on credit default risk in Tanzania. Abata (2014) reported significant effect

of quality of loan on profitability of Nigerian banks. The findings are faced by contextual differences between Kenya and Nigeria due to political, economic and regulation policies that may have effect on intermediation efficiency. Saunders and Cornett (2011) called for prudent planning of cash flows to optimize financial intermediation of financial institutions.

There are methodological, contextual, conceptual and time gaps that emanated from these empirical evidences. Methodologically, studies relied only on quantitative data and used descriptive analysis while those that have applied regression modelling did not report on diagnostic tests. Contextually, studies have been drawn from developed economies thus the findings ought not to be generalized in DT SACCOs in Kenya. Conceptually, financial intermediation efficiency has been operationalized differently. Thus, the study examined the influence of regulatory framework on financial intermediation efficiency of DT SACCOs in Kenya as well as moderating effect of DT SACCO's size.

1.3 Objectives of the Study

1.3.1 General Objective

The general objective of study was to examine the influence of regulatory framework on financial intermediation efficiency of deposit taking SACCOs in Kenya.

1.3.2 Specific Objectives

The study addressed the following specific objectives:

1. To assess the influence of capital adequacy on financial intermediation efficiencyof Deposit Taking SACCOS's in Kenya.
2. To investigate the influence of credit management policy on financial intermediation efficiency of Deposit Taking SACCOS's in Kenya.
3. To assess the influence of investment management on financial intermediation efficiency of Deposit Taking SACCOS's in Kenya.
4. To investigate the influence of disclosure requirements on financial

intermediation efficiency of Deposit Taking SACCOS's in Kenya.

5. To assess the moderating effect of SACCO size on the influence of regulatory framework on financial intermediation efficiency of DT SACCOs in Kenya.

1.4 Research Hypotheses

The study tested the following hypotheses:

H_{01}: Capital adequacy has no significant influence on financial intermediation efficiency of Deposit Taking SACCO's in Kenya.

H_{02}: Credit management have no significant influence on financial intermediation efficiency of Deposit Taking SACCO's in Kenya.

H_{03}: Investment management has no significant influence on financial intermediation efficiency of Deposit Taking SACCO's in Kenya.

H_{04}: Disclosure requirements has no significant influence on financial intermediation efficiency of DT SACCO's in Kenya

H_{05}: SACCO size has no significant moderating effect on the influence of regulatory framework on financial intermediation efficiency of DT SACCOs in Kenya.

1.5 Justification of the Study

The findings of this study are relevant in various ways: The findings are expected to assist inimproving communication between DTS management, members, regulatory authorities, researchers and other users.

1.5.1 Board of Directors, Management and Staff of DT SACCO

The study highlights the influence of SASRA regulations on financial intermediation efficiency of DTS's thereby assisting management and staff to monitor trends, accountabilityand transparency of their SACCOs.

1.5.2 SACCO Members

The findings of this study are useful in informing SACCO members when making economic decisions with regard to commitment of their funds in a particular SACCO.

1.5.3 Policy Makers/ Regulatory Authorities

The findings of this study are helpful to policy makers as they chart the way forward for the SACCO Movement. Thus, the findings can be used to influence the policy makers when revising prudential regulatory requirements for DTS's.

1.5.4 Academia and Research

Finally, the study provides a rich description of the current status of SACCO regulations in Kenya and extend the limited literature on DTS's in Kenya, East African region, Africa and world at large. Because of the scanty research in the area of effects of regulations on SACCOs' performance, this study adds to the sparse literature on the influence of regulatory framework on the financial intermediation efficiency of deposit taking Saccos and may be used as reference for future studies.

1.6 Scope of the Study

The definition of regulatory framework of DT SACCOs in Kenya was limited to capital adequacy, credit management, investment management and disclosure requirements. This was informed by Onguka (2014) study on the effect of regulations on the financial performance of deposit taking savings and credit cooperative societies and focused on capital adequacy, management efficiency and liquidity while Njeru (2016) studied effect of Liquidity Management on financial performance of Deposit Taking Saving and credit co- operative society in Kenya while this study used capital adequacy, credit management, investment management and disclosure requirements. The moderating effect of SACCO size on the influence of regulatory framework on financial intermediation efficiency of DT SACCOs was examined. The choice of SACCO size as moderating variable was informed by Maina, Ndwiga and Kinyariro (2021) study on moderating effect of Sacco size on

the nexus between governance costs and financial soundness of deposit taking SACCO's in NairobiCity County. In their study they used total deposit as measure of SACCO size, however this study used natural log of total assets as measure of size. The choice of DTS as area of study was necessitated by fact that DTS's provide opportunity for their members to obtain loan facilities at low rate of interest and better conditions than those offered by the banks and other financial institutions coupled with flexible repayments. Some DTS's also provideinvestment counselling to their members, poverty alleviation assistance and also give trainingto members on credit management at little or no fees which may not be provided by other financial institutions.

In consonance with the aforementioned benefits, DTS's contributes greatly to economic development in terms of providing finance to small scale businesses, creating the willingness to save among the people and improving the economic well-being of the communities. The study targeted all 174 DTS operating in Kenya as at 31 December 2019. The unit of analysis was DTS's which have a six-year continuous data over the period 2014-2019 because this is period when SASRA regulation had been to fully implemented.

1.7 Limitations of the Study

The theoretical foundations of the study were public interest, regulatory capture, buffer capital, signaling and agency theory, this limited the choices of attributes of measures of variables in the study. Data considered in the study was panel and was sourced from financialrecords of DT SACCOs that was sourced from SASRA. The SACCO's selected in the study was limited to those DT SACCOs that operated throughout the period under consideration. Any DT SACCOs that was issued with interim licenses in the study was excluded. The studyfaced limitation of access to whole dataset due to some presumed confidentially as well as organizing huge data set. This was mitigated by obtaining a research license from National Commission for Science, Technology and Innovation (NACOSTI).

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this chapter theoretical and empirical literature on regulatory framework and financial intermediation efficiency was discussed. From theoretical review study variables were selected and conceptual framework drawn. The conceptual framework presented the link between regulatory framework and financial intermediation efficiency and moderating effect of deposit taking savings and credit cooperative society size. From theoretical and empirical literature review research gaps were presented.

2.2 Theoretical Review

Theoretical framework is a collection of interrelated concepts and it guides the measurements of variables selected in a study (Simonson, 2005). According to Sekaran and Bougie (2013) atheory is a collection of coherent statements which are clarified through evidence to elaborate a phenomena of interest. The current study was anchored on public interest theory, regulatory capture theory, signalling theory, agency theory and buffer capital theory.

2.2.1 The Public Interest Theory

Public interest theory was developed by Pigou, in 1932. The theory calls for economic regulation through government intervention in the market. The theory alludes that regulations are demanded by public to correct inefficient or unhealthy market conducts.

Regulations are initially meant to promote society benefits wholly rather than meeting the needs of specific group. Regulations are mainly implemented through regulatory bodies that ought to be independent to achieve desired objectives. Moreover, public interest theory should maximize social economic benefits, though there are costs associated with regulations. Cost benefits analysis should be

evaluated. Main costs related with regulations are formulation and implementing costs, maintenance costs, compliance costs and dead costs which are contingent to distortion as new rules are adopted and deployed (Deegan & Unerman, 2011).

Public interest theory is perceived to be based on static ideologies that may rarely evolve to achieve private interest. Williams (2007) argued that public interest theory is limited to law maker's policy recommendations that may not be in consideration of extraneous contribution of other players. Moreover, in most instance government regulations are perceived to control measures for inhibiting market entry and exit of different enterprises. Furthermore, there is need for regulations to enhance business disclosures and protection of investors' confidence. Pearce (2007) eludes that through compliance with regulatory issues corporate entities wouldbe deterred from engaging in harmful business activities.

According to Hertog (2007) government regulations respond to public needs and rectifies market imperfection through creation of perfect competition environment, information asymmetry and market disequilibrium. This was in support of Hahn Hahn and Tetlock, (2006) who eludes that financial regulations are a good response strategy for market inefficiency. Moreover, government deploys regulations to enhance fair distribution of resources. This may erode odds of unequal distribution of resources and achievement of social economic benefits.

In USA the need for financial regulations was based on the level of information asymmetry among different stakeholders (Dawatripatwe *et al.,* 1994). Moreover, financial managers of corporate entities have access to information that they may not willingly share with all stakeholders. Furthermore, regulations aid organizations to achieve stability, investor protection and transparency (Wanjau *et al.,* 2018). Government of Kenya enacted the Sacco Societies Act (2008) and became operational in 2010 with the aim of protecting the interestof SACCO members and improving the confidence of the public in SACCO sub sector. The Act created SASRA, whose mandate entails licensing, regulating and supervising Sacco Societies engaging in deposit taking business (SASRA, 2014).

This theory supports the current study which sought to study the effect of SASRA regulatory framework on financial intermediation efficiency of DT SACCOs in Kenya. Hence, there is need for DT SACCOs to comply with capital requirements that may be guide in management of core capital to total deposits. Moreover, increased level of total deposits would enhance credit creation of DT SACCO's.

2.2.2 Regulatory Capture Theory

Regulatory capture theory was developed by Stigler (1915). The theory was advanced by Huntington (1952), Mitnick (1981), Levine and Forrence (1990) and Laffont and Tirrole (1991). The theory asserts that regulations are response to heterogeneous groups that are aimed at maximizing economic benefits of their investments. Benefits to be gained include profits, optimal allocation of resources and protection of investor's resources. According to Jordaan (1997) the core focus of regulation theory is protection of economic value derived from public goods. Government regulations are mostly pursued through creation of regulatory agencies that are mandated to protect public interest, advance commercial and social economic benefits of interest groups in the society. Caution should be exercised while pursuing regulations to minimize the odds of political capture.

Regulatory Capture theory asserts that there are odds of producers capturing regulatory bodies and controlling them to achieve their own interest. This may erode the value contributions of regulations in place and culminate to massive losses due to promotion of non-competitive behaviour among different stakeholders. Moreover, Okumu (2007) alluded that the theory assumes that regulations are imposed to achieve public interest though their costs are born by public whose interest may not be fully guaranteed.

SASRA in 2010 was mandated by SACCO Societies Act to regulate, license and supervise SACCOs engaging in deposit taking business (SASRA, 2014). The theory is in support of thecurrent study since there is need for understanding on the effect of regulatory framework on financial intermediation efficiency of DT SACCOs in Kenya.

2.2.3 Buffer Capital Theory

Buffer capital theory was proposed by Calem and Rob (1996) and it argues that banks that are close to regulatory minimum capital ratio have higher odds of altering its capital requirements ratios to alleviate odds of incurring compliance costs. However, there are higher chances of poorly capitalized banks to take more risks in anticipation that they may generate superior returns as compared to raising required capital. Despite of this approach to capital requirements formulated through these approaches are exposed to complexity associated with formulation of respective weights. Hence, some banks perceived it as block on achievement of its mandate.

In Germany, savings and credit cooperative groups and banks assert that there is need for an internal rating system for examining stability of respective financial institutions (Everling, 2003). This approach may instil a sense of discipline in management. Moreover, the approach may lead to seeking of internally generated solution to issues facing specific financial institution. According to Oloo (2011) regulations of financial institutions in Kenya is undertaken by Central Bank of Kenya (CBK) and several prudential guidelines are stipulated. Capital requirements is clearly stipulated and optimal capital requirements; increases risk absorbed by banks, increases buffer against shocks and changes on organization credit creation capacity (Sun, & Chang 2018).

According to Gudmundsson, Ngoka-kisingu and Odongo (2013) those commercial banks whose capital is higher and liquidity buffers are available are better placed in supporting businesses and households in periods when business is in recession. Further, Moh'd Al- Tamimi and Obeidat (2013) assert that compliance with capital requirements provides security on member's deposits though, compliance with capital requirements may not cushion against external losses.

SASRA prudential guidelines prescribes minimum amount of capital that must be held by DT SACCOs. The theory is appropriate for the study in support for the need to have capital in excess of minimum requirements. This will aid in examination of the effect of capital adequacy in financial intermediation efficiency

of DT SACCOs. Moreover, if all DT SACCOs holds the minimum capital adequacy, then it may not have been fit to examine its contribution on financial intermediation efficiency.

2.2.4 Signaling Theory

Signalling theory was developed by Spence (1974) and elaborated by Watts and Zimmerman (1986) who alluded that the levels of asymmetric information in an organization have influence on investor's adverse selection. In credit management organizations should carry out due diligence of borrowers so as to minimize odds of adverse selection and moral hazard problems. There is need for collection of all loans disbursed and proper provisioning should be made. There are higher odds of loans provided for loans under provisions to default. According to Calomiris (2009) financial distress in 2007 to 2009 was associated with increased levels of loan defaults. Moreover, in some instances accounting provisions were not made on time.

According to Olando et al. (2012) efficient managements of credit facilities in DT SACCOs would be achieved through continuous review of credit policies and adoption of loan loss provision that can easily be adopted in development of credit model sensitivity analysis model. Moreover, the management should estimate 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 SACCO 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 fund's theory (Mishkin & Eakins, 2012). For a SACCO to be successful, it must be able to disburse loans and collect loan

repayments from the members, (Fiorillo, 2006). The impact of not collecting loan repayments is: 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 & Cornet, 2011).

In Kenya, credit management is regulated by law, specifically the SACCO Societies Act 2008; section 33 provides how loans are disbursed by the SACCO societies and placed emphasis on policies and limitations on loans disbursements. Regulation 41(3) directs SACCOs to do provisions depending on the number of days that the loans remain 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 at 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 for in full (GOK, 2008).

The theory is appropriate for the study in support for the need for examination of credit management policies adopted by DT SACCOs. There is need for DT SACCOs to continuously provide information on non-performing loans to gross loans. This may minimize cost associated with seeking for credit information that may injure the creditmanagement of DT SACCOs and ultimately erode odds of financial intermediation efficiency.

2.2.5 Agency Theory

Agency theory was proposed by Jensen and Meckling (1976). The theory asserts that there exists a relationship between management and stakeholders of an organization and in some instances, there are conflicts associated with pursuance of conflicting

goals which escalates into agency costs. Monitoring expenses are incurred by principals so as to cushion themselves against pursuance of conflicting interests. Moreover, agents incur bonding costs as an insurance against pursuance of decisions that may escalate into losses (Jensen & Meckling, 1976).

According to Clark (2004) there is a worry that management may take actions that serve theirown interest at the expense of other shareholders. This will be consistent with arguments that even though agents are meant to pursue principals' interest they may at times have personal interests overriding and ultimately decrease firms profit capacity. Padilla (2002) alludes that it's not always that decisions undertaken are aimed at serving interest of all stakeholders uniformly. Notable management tendencies are skewed towards self-interests, investing in risky investments and pursuance of aspirations that contravenes organization investment culture. Hence, there is need for participation of board of directors in monitoring and controlling management conducts so as to comply with corporate governance principles. In congruence with Wanjau, Muturi and Ngumi (2018) board of directors should be independent and avail oversight that may enhance achievement of corporate institution core objectives. To minimize agency costs there is need for deployment of audit services and subscription to reporting standards and ultimately the management may have to limit their conduct to acceptable code of practices.

The adoption of agency theory principles in public sector is faced by hurdles such as difficulty in differentiation of interests of different stakeholders (Cornforth & Chambers, 2010). In public sectors, principals may include government, tax payers and social economic services beneficiaries whose input must be factored in management. Further, Wanjau *et al.* (2018) alludes that there is need for elaboration on the disclosure measures that should be adopted to minimize agency problems and decrease costs of information access. Though, Healy and Palepu (2002) argue that disclosure may aid in management of corporate entities and minimize conflicts.

The theory fits the study since there is need for DT SACCOs to comply with disclosure requirements. This can be achieved through compliance on the composition of tangible to total assets in an organization. Moreover, DT SACCOs

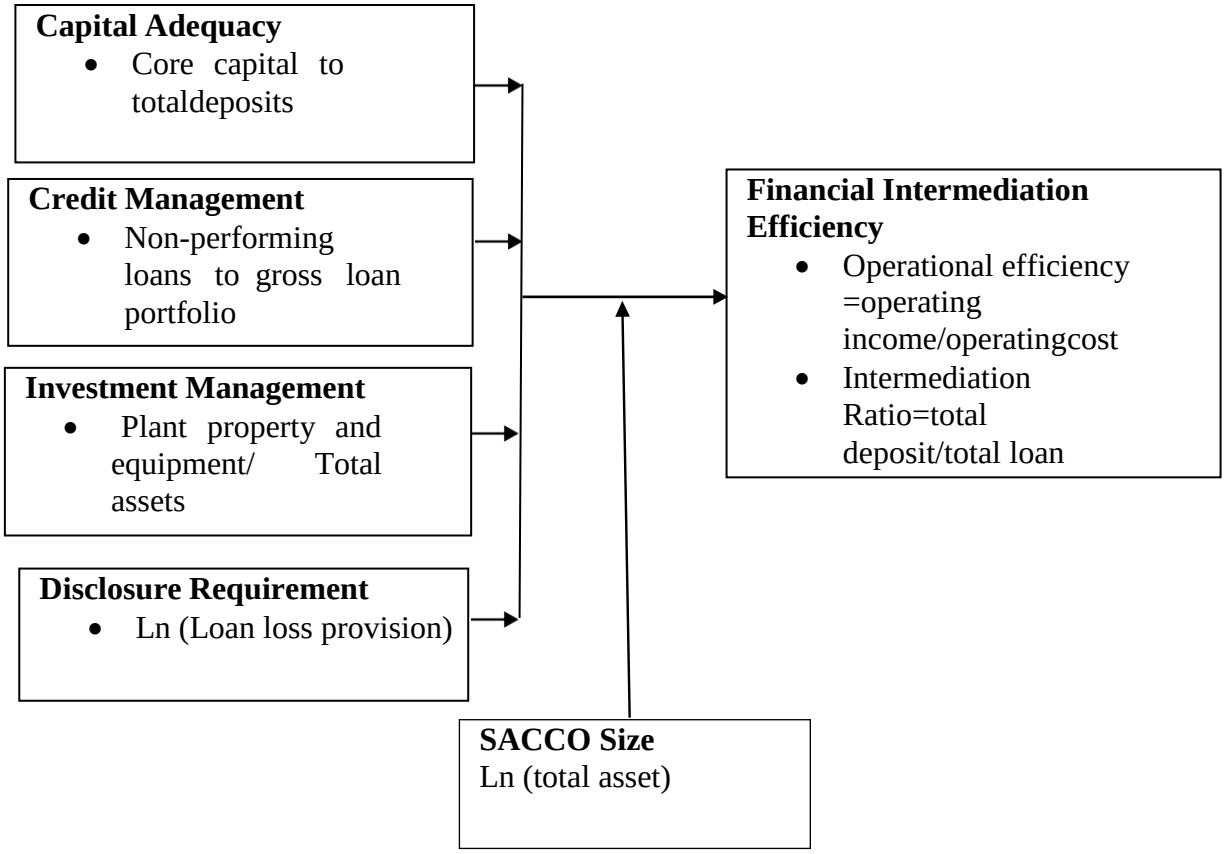
should avail information on loan loss provisions regularly. This may minimize the level of information asymmetry among different stakeholders and enhance its capacity to play the role of financial intermediation.

2.3 Conceptual Framework

Sekaran and Bougie (2013) asserts that conceptual framework is a consolidation of concepts that are aimed at providing a focus, rationale and tool for interpretation and integration of information. Conceptual framework is mostly provided as a pictorial presentation. Saunders, Lewis and Thornhill (2014) allude that conceptual framework is a presentation of detailed description of phenomenon under study and have graphical or visual presentation of major attributes under examination.

The conceptual framework in Figure 2.1 presents the link between independent and dependent variables and moderating effect of DT SACCO's size. The dependent variable is financial intermediation efficiency which will be operationalized as weighted sums of outputs to weighted sums of inputs. Independent variables were capital adequacy, credit management, investment management and disclosure requirements. The moderating variable was DT SACCO's size that was operationalized as natural logarithms of financial investment.

Regulatory Framework



Independent variable **Moderator** **Dependent variable**

Figure 2.1: Conceptual Framework

2.3.1 Financial Intermediation Efficiency

The role played by financial institutions in economic growth and development have increased empirical currency of intermediation efficiency. Efficiency in financial roles would enhance provision of financial services and their stabilization. Efficiency measurement was coined by Koopmans (1951). Further, Farrel (1957) advanced it by broadening its definition to technical and allocative efficiency. In technical efficiency ability of an organization to maximize its outputs given a set of inputs is examined while allocative efficiency examines ability of a firm to allocate inputs given their respective costs.

There are heterogeneous approaches for examining efficiency of an organization through development of Decision-Making Units (DMUs). These methods are either parametric; Stochastic Frontier Analysis (SFA), Distribution Free Approach (DFA), Thick Frontier Approach (TFA) (Kariuki *et al.,* 2018) or non-parametric; Data Envelopment Analysis (DEA),Free Disposal Hull (FDH). The current study adopted DEA.

DEA is a multifactor productivity examination model that applies relative efficiencies of heterogeneous DMUs. The approach deploys linear programming principles in examining how respective DMUs differ from others in the same sample. According to Nasieku, Kosimbei and Obwogi (2013) firms that lies within frontiers are efficient or otherwise. Andorand Hesse (2011) assert that efficiency can be perceived to distance from respective frontiers in exclusion of noise associated with the data. Moreover, efficiency is not a measure of maximum output in a given set of inputs but an examination of best practice deployed by respective firms. DEA is dominant due to flexibility with nil requirements on parametric assumptions compliance though it has a drawback of not decomposing deviations of some institutions in their efficient production frontier (Kiyota, 2011).

DEA has two models; Constant Returns to Scale (CRS) and Variable Returns to Scale (VRS)models (Kariuki *et al.,* 2018). Moreover, CRS models assume that scale of operations and efficiency has no significant relationship though this assumption is only tenable if DMUs are operating optimally (Sufian, 2007). VRS model is a technical efficiency evaluation model that yields pure technical efficiency scores. Financial intermediation efficiency was estimated as the ratio of weighted sum of outputs (interest income and profitability) and inputs (labour cost, overhead expenses & operating expenses).

2.3.2 Capital Adequacy

Capital adequacy for DT SACCOs is stipulated by SACCO Societies Act 2008. Core Capital is deemed as fully paid-up member's shares, retained earnings, disclosed reserves, grants anddonations all of which are not meant to be expended unless on liquidation of the Sacco Society. Institutional capital refers to the portion of the Core

Capital that belongs to the SACCO Society as an institution such that no one member can individually lay claim on it. Itis used as a measure of capital adequacy within the Deposit Taking SACCOs. Institutional capital = Core capital less the members share capital. The Sacco Act 2010 state that SACCO shall maintain adequate capital (Core capital of ten million shillings for a SACCO establishing a FOSA or Core capital of 10 % of total assets or Core capital of 8 % of total deposits or Institutional capital of 8% of total asset (SASRA, 2014)

Capital adequacy ratios are a measure of the amount of a financial institution's capital expressed as a percentage of its risk weighted credit exposures. Applying minimum capital adequacy ratios serves to protect depositors and promote the stability and efficiency of the financial system. Two types of capital are measured - tier one capital which can absorb losses without a SACCO being required to cease trading, e.g., members share capital, and tier two capital which can absorb losses in the event of a winding-up of SACCO and so provides a lesser degree of protection to depositors. Measuring credit exposures requires adjustments to be made to the amount of assets shown on a SACCO's balance sheet. Deposit Taking SACCO's in Kenya are required to remit quarterly disclosure returns which include a range of financial and prudential information. A key part of these Returns is the disclosure of the Sacco's' "capital adequacy ratios". These ratios are a measure of the amount of a Sacco's capital in relation to the amount of its credit exposures. They are usually expressed as a percentage. The minimum core capital of a Sacco Society shall at all times be Ksh. 10 million (ten million shillings), or 10 per cent of its total assets whichever is higher; a core capital of not less than eight per cent of its total deposit's liabilities; and an Institutional capital of not less than eight per cent of its total assets (Wanjohi, 2016).

Many financial institutions definitions of available capital are tangible equity, tier one capital or capital definitions used by rating agencies. Among the various items that can be included in the definition of actual capital (some of them included in the regulatory definition of capital) are common equity, preferred shares, adjusted common equity, perpetual non- cumulative preference shares, retained earnings, intangible assets, surplus provisions, reserves, contributed surplus, current net profit,

planned earning, unrealized profits and mortgage servicing rights. In determining the actual capital amount to be maintained, management of an entity can consider regulatory capital requirement and economic capital (where exists), capital or solvency level perceived to be required to maintain a specific external rating assigned by credit rating agencies, levels set by peers and comparable competitors, shareholders' influence (Ho, 2012).

2.3.3 Credit Management

For SACCOs, whose members hold the equity and also provide the vast majority of liabilities in the form of their deposits, the capital adequacy debate may appear not particularly relevant: it is all member money anyway, be it shares or deposits. And even loans are made only to members. Already, this is not entirely true, because a loan is generally much larger than the average share capital and deposit held by an individual member. The bigger the loan amount relative to the individual shareholding and parallel savings, the larger the temptation for the borrower to default on the loan. Yes, it is your own money that you are losing, but in actual fact it is mostly the other members' money, because your individual loss compared to the loan amount is small (Bald, 2007).

SACCO credit requirement refers to all activities that a SACCO is engaged in when dealing with issuance of service, recording of transactions, analysing and collecting payments for services rendered to debtors or customers. It is the process of controlling and collecting payments from customers (Mukherjee, 2014). SACCO credit requirement refers to the timely manner with which borrowers are meeting their contractual obligations (Alhassan, Kyereboah-coleman, & Andoh, 2014). The asset quality is inversely related to the amount of non-performing assets (NPAs). According to Ombaba (2013) a non-performing loan/asset is a credit facility in respect of which the interest and (or) principal amount has remained past due date for a specific period of time. According to Ng'etich and Wanjau (2011) the issue of non-performing assets has gained increasing attention since the immediate consequence of large amount of NPAs in the banking system is bank failure.

According to the SASRA report of 2014, the level of non-performing loans deteriorated from 4.72% to 5.73% in 2014, implying an increase in credit risk. In Kenya, credit management in SACCO's is regulated by law, specifically SACCO society Act (2008), which provides how loans are disbursed by the SACCO Societies and places emphasis on policies and limitations on loan disbursement. The Act provided the following criteria for computing allowance for loan loss: Performing loans- which are well documented and performing 1%; Watch loans which are one instalment outstanding 5%; Sub- standard loans which are 2- 6 instalment unpaid 25%; Doubtful loans which are 7- 12 instalment unpaid 50% and loss loan which are >12 instalment unpaid 100%.

2.3.4 Investment Management

Investment management means ensuring that the institution maintains sufficient cash and liquid assets to satisfy the organizations demand for cash. For a financial institution, and thus for DTS's cash demand will be to meet the customers demand for cash in form of loans; savings withdrawal and to pay institutions expenses. It involves a daily analysis and detailed estimation of the size and timing of cash inflows and outflows over a given period of time to minimize the risk that savers will be unable to access their deposits in the moment they demand them. It describes the effort of managers to reduce liquidity risk exposure (Brunnermeier & Pedersen, 2009).

The board of directors are responsible for the formulation of the investment policy which shall be frequently updated the main challenges in implementing Investment Policy requirement is that SACCOs have focused on investing in the properties and buildings and these investments have surpassed the minimum regulatory requirements. The regulationrequires Sacco's to divest from investment in buildings and focus on the core business of serving the members (SASRA, 2014).

SACCO investment management mandates them not to exceed 10% total assets in land and buildings in their investments for purpose of earning rental or capital appreciation while should not exceed 5% of the land and buildings to total assets. The board of directors are responsible for the formulation of the investment policy

which shall be frequently updated. Financial investment should not exceed 40% of core capital or 5% of total deposits Investments. Liquid assets to all institutions for profit making or not for profit are scarce and has liquidity risk. Companies have adopted complex and very rigorous liquidity managementprograms to manage their affairs since profitability is significantly influenced by liquidity (Adebayo *et al.*, 2011).

2.3.5 Disclosure Requirements

SACCO disclosure requirements are required on need basis. Disclosure by organizations is important in providing information to stakeholders to assist in decision making. Despite the decision usefulness of disclosure in the modern financial sector, concerns have been raisedon the level of disclosure by SACCOs in Kenya (Irungu, 2013; SASRA, 2014; Ngatia, Kyalo, & Kiragu, 2015). Sile (2009) noted that most SACCOs do not accurately disclose their financial position as per the accepted accounting practices. An earlier impact study in 2006 cited poor financial disclosure practices as a major weakness in the SACCO sector in Kenya.

According to Njuguna, (2012), financial transparency and information disclosure are important aspects of good governance in an organization. Gibbins, Richardson and Waterhouse (1992) and Haniffa and Cooke (2002) posited that corporate governance should be considered because the board of directors manage information disclosure in the annual reports.

Disclosure requirements are required on need basis. Disclosure requirements are mandatory financial or social, provides a channel for enhancing market discipline in the financial sector. Financial disclosure refers to the provision of an organization's disclosures relating to its performance, position, changes in performance and accompanying notes to the annual report (Quayes & Hasan, 2014). Social disclosure entails disclosures regarding the organization and its physical and social environment, and include disclosures on human resources, community participation, energy and environmental conservation (Deegan *et al.*, 2002).

2.3.6 SACCO Size

The size reflects how large a DTS is in infrastructure and total assets. McMahon (2011)found that SACCO size significantly linked to better performance. Larger SACCOs were found to have higher level of success. SACCO size has also been shown to be related to SACCO sub-sector -sunk costs, branch network growth and overall performance (Dean *et al.*,2018). The size of a DTS is one of the major drivers of operational costs of SACCOs. McMahon (2011) points out that large SACCOs are more productive in terms of average cost per borrower and also have better write-off ratios. He also found that bigger SACCO are associated with smaller average costs making them more efficient. Similarly, Usman and Zahid (2011) found that larger SACCO have higher Return on equity (ROE) and operational self-sufficiency. Small SACCO not only find it difficult to compete with large SACCO in the market but they also face problems in obtaining funding, thereby hampering their ability to offer better services to their members. DT SACCO size was operationalized as naturallogarithms of total assets.

2.4 Empirical Literature

2.4.1 Capital Adequacy and Financial Intermediation Efficiency

Kariuki (2014) in a study on credit unions and capital adequacy observed that credit union needs to continuously monitor and asses its risk exposure in the context of capital requirements and available growth opportunities. The study further observed that judicious management of the interaction between these three elements is crucial to the long-term survival and growth of credit unions. The study further found out that over the years the Credit Union industry had undergone a significant change, both in terms of the number of Credit Unions as well as the asset mix of their portfolios. This was found to be brought about by their ability to generate sufficient income to support growth while maintaining adequate capital in the context of increasingly tightening reserve requirements. Basel standards are seen to have greatly influenced on development of Credit union Capital Adequacy requirements and thus the DTS's in Kenya. Kariuki (2014) observed Basel standards are not directly applicable to Credit Union industry, but it was necessary to understand them

as the capital standards creation process for the Credit Union industry is influenced by the Basel standards. The study may have considered customizing SACCO's requirements instead of relying on regulatory requirements for banks whose regulator and customer base differs.

Matumo, Maina and Njoroge, (2013) emphasized that FOSA enhances Sacco performance. They studied the impact of FOSA on Sacco performance in Kenya; a case study of Meru South and Maara district in Tharaka Nithi County in Kenya. They argued that while Sacco's are organized to meet economic and social needs, their performance was being hampered by low capital base. This limits loanable funds to members. In order to address this challenge, many Sacco's have introduced FOSA, in order to strengthen their capital base and liquidity level. FOSA's offer simple banking services to members/customers, thus improving their working capital. The study adopted a descriptive research design. The population of the study was the three Sacco's with FOSA in the two districts. The researchers used secondary data in this study for a period of six years from 1998 to 2003. This included three years before and after operating FOSAs. Correlation analysis was used to analyse the data. The findings of the study revealed that FOSA can improve the performance for Sacco's hence member's welfare. This study found out that SACCO's operating FOSA had a stronger capital base enhancing their capability in meeting member's welfare. This owing to the fact that FOSA attract non- member deposits through savings accounts thus improving customer deposits. The membership of the Sacco grows both in FOSA and BOSA. This improves the volume of transactions, thus improving the revenue income of the Sacco.

Chumo (2013) studied the effects of regulatory compliance on financial performance of DTS and pointed out that share capital which is a component of core capital; liquidity managementsystems and enhanced credit policies are the major and critical provisions that DTS need to comply with if they were to succeed under new regulation. The researcher focused on the key considerations of the prudential regulatory standards; Liquidity desirable levels; Capital adequacy that is Core Capital and loan provisioning requirements. The study found that loan provisioning requirement was also a point of focus by the SASRA and had an effect on

financial performance of DTS. Chumo study focused on liquidity, capital requirement and loan provisioning as variables. However current study focused on effect of regulatory requirement on financial intermediation efficiency of DTS which include: capital adequacy, credit management, investment management, and disclosure requirements. Further, the study explored the moderating effect of DT SACCO's size on financial intermediation efficiency.

According to Manyara (2003) the major problems facing Sacco's financial growth and protection of members' deposits were liquidity challenge; capital inadequacy; credit management and membership growth. Despite the critical role played by SASRA on improving management of DTS, there have been very few studies that have focused on establishing the effects of SASRA prudential regulatory standards on financial intermediation efficiency of DT SACCO's in Kenya. This study will focus on effect of capital adequacy, credit management, investment management, disclosure requirements and moderating effects of size on financial intermediation efficiency of DT SACCO's in Kenya. Since regulations are continuously updated due to changes in technological advancement and guidance on jurisprudence in line with changes in demand from the public. The findings of Manyara may have been affected by changes in time.

Karagu and Okibo (2014) carried out a research on effect of SACCO Societies Regulatory Authority's Regulations on Financial Performance of SACCO's in Nairobi County. The study adopted descriptive research design study in which data was gathered just once over the period 2008 to 2013 for 35 SACCOs in Nairobi registered by SASRA. The study revealed that SASRA regulations had positive effects on the financial performance of SACCO's in Nairobi County. The study further revealed that there was a positive relationship between size, liquidity, capital adequacy ratio compliance, managerial quality, cost of income and financial performance of SACCOs' in Nairobi County. The study finally revealed that there was a negative relationship between non-performing loans and financial performance of SACCO's in Nairobi County. Karagu and Okibo study used dependent (Financial performance) and the independent variables were not measure organizational performance. Financial performance and the independent variables

were not measured. The study was an opinion survey of SACCO employees Jagongo and Ndede (2017) studied the effect of capital adequacy on financial performance of banks in Kenya. The study applied descriptive research approach and secondary data was gathered among 43 banks. Univariate, bivariate and multivariate techniques analyzed the data. Study findings indicated that capital adequacy has significant contribution on financial performance of banks in Kenya. Since the study drew data from banking sectors whose regulator differs from DT SACCO's there were contextual differences hence the findings maynot be generalized in each sector. Further, the study may have considered using causal research design and reporting on granger causality findings.

Wanjohi, (2016) study examined how capital adequacy affects the credit risk profile of DTS in Kenya. The study adopted Causal research design by using panel data of all DTS in the period 2011-2014. The dependent variable was represented by a change in credit risk, while Capital Adequacy was represented by the level of capital to risk weighted Assets. Descriptive and regression analysis were used to establish the relationship between the variables. The study found out that capital adequacy as measured in terms of capital base to risk weighted assets, has a negative and statistically significant effect on the level of credit risk of DTS in Kenya. The study may have considered data over long period of time so as to eradicate shortcomings associated with small panel data. Moreover, the study should have examined diagnostic tests prior to fitting regression model this may have minimized likelihood of drawing biased conclusion.

Makori, Munene, and Muturi (2013) conducted a study on the challenges facing deposit taking (FOSA) Sacco's in complying with their regulatory requirements as provided for in Kenya with a particular focus on Gusii region which encompasses Kisii and Nyamira counties. Unlike other financial institutions proper regulations for Sacco's were enacted in 2008. The study used structured questionnaires, interviews, observations, focused discussionswith selected persons and available documentation. Five of the nine Sacco's in the region and 49 of the 92 Sacco employees were sampled. The study concluded that the challenges facing deposit taking Sacco's in regulatory compliance included non-separation of shares from deposits, high

dependence on short term external borrowing, and lack of liquidity monitoring system, high investment in non-earning assets, inadequate managerial competencies and political interference among others. Although these challenges exist compliant Sacco's had opportunities of capital accumulation and agency business from government funds to youth and women groups. This study highlighted the need for Sacco's to address regulatory compliance challenges. The study may have considered more Sacco's so as to avoid drawing different respondents from the same Sacco a situation that may have compromised unit of analysis and creation of duplicating responses.

Mbui (2010) conducted a study on the business opportunities for Stima Sacco Society Limited in a new regulated environment. The study revealed that capital adequacy affects financial performance in SACCOs. The study concluded that the new regulatory environment provided more structured and clear guidelines on the operations of Stima SACCO. The new environment was also found to be more focused on the safety of the members' funds hence creating more customer confidence, more dynamic and enabling environment for business growth of the SACCO. The study recommended that Stima SACCO should turn its challenges into opportunities and exploit the opportunities to survive in this unfamiliar regulatory environment. The study may have considered case study research design since it drew its respondents from a single Sacco. Analysis of quantitative data from a single SACCOmay have limited the sample and the data ought to have been time series in nature so as to examine short- and long-term effect of capital adequacy. Furthermore, SACCOs regulations may have been short lived thus periodical data may have been monthly.

Kilonzi, (2012) studied the impact of SASRA regulations on SACCO's financial performance in 98 SACCOs registered by SASRA in Kenya. The study used Causal research design where researcher selected 30 SACCO in Nairobi using purposive sampling. A linear regression model of SACCOs return on assets versus SASRA regulations was applied to examine the relationship between the variables. The study found that higher capital requirements, and increase in management efficiency impacted positively to SACCO's profitability in the post- capital regulation period.

The study further revealed that capital regulation affects financial performance in SACCOs. The study concluded that financial stability could be at risk as a result of shocks impinging on the economic system and absence of proper policy adjustments to mitigate the effects of these shocks. Kilonzi findings may notbe generalized in the whole country since DT SACCOs draws their membership from different sectors whose features may have influence on their response on given inputs.

Kahuthu (2016) studied impact of prudential regulation on financial performance of deposit taking savings and credit cooperative societies in Kenya before regulation and after regulation. The study used comparative design and a linear regression model to establish the impact of prudential requirements on the DTS on their financial performance. The study found that core capital, credit management, membership growth and liquidity were not strongpredictors of financial performance but after the prudential regulations they all became strong predictors. The study recommends that SACCOs should abide by prudential regulations to enable them enjoy benefits of increased volume of business. The study further recommended research on ascertainment if other optimal capital structure exists for SACCOs and dividend policies to balance between stability of the institution and the returns on members. The study concluded that the prudential regulations have positive impact on SACCO's financial performance. Kahuthu study focused on financial performance of deposit taking savings. However, the measures of financial performance of SACCOs not appropriate as the objective of the SACCO is not to maximize these outcomes. The balanced scorecard framework which has a comprehensive performance measurement system comprising both financial and non-financial measures (Kaplan & Norton, 2008). The study may considered incorporating other aspects that may have affected performance of DT SACCOs instead of focusing mainly on capital structure.

Kivuvo and Olweny (2014) carried out a study on financial performance analysis of Kenya's SACCO sector using the Altiman Z Score model of corporate bankruptcy. This study analyzed SACCO financial statements to determine financial performance, predictor variable potency and models contribution to finance stability. The study population was the 215 DTS's with a sample of 30 that were identified

using simple random sampling method. Quantitative research design was used to analyze longitudinal data for the period 2008 – 2013. Financial analysis showed a fairly strong finance position and improved performance for SACCOs in grey and bankrupt area moving them to non-bankrupt position. 24 SACCOs had a positive slope, a trajectory if sustained enhanced sector financial stability with only six SACCOs having a negative slope. The study concluded that regulatory agency is correct in advocating for additional capital base as such will improve individual Z scores and recommended the model application in financial analysis of SACCOs. However, the measures of financial performance of SACCOs not appropriate as the objective of the SACCO is not to maximize these outcomes.

2.4.2 Credit Management and Financial Intermediation Efficiency

Sacco's are required by SASRA to have a loaning policy specifically detailing loan concentration limit; terms and condition of insider lending; borrower to be provided with quarterly statement of each outstanding credit facility; and Sacco's to seek prior approval to introduce any new loan products. On External borrowing the Sacco shall not borrow more than 25% of its total capital and shall charge interest at least 2% higher than the borrowing rate. The classification of loan shall be in five categories; performing, watch, substandard, Doubtful and bad. The Challenges in Credit management requirement are: Lack of comprehensive loaning policy that conforms to the regulatory requirement, inability of SACCOs to generate members statement within specified frequencies, Some Sacco's have surpassed the minimum external borrowing requirement of 25% of the total assets, and high level of non-performing loans (delinquencies) which they are required to be written off (SASRA, 2014).

According to Manyara (2003) the major problems facing Sacco's financial growth and protection of members' deposits were liquidity challenge; capital inadequacy; credit management and membership growth. Despite the critical role played by SASRA on improving management of DTS, there have been very few studies that have focused on establishing the effects of SASRA prudential regulatory standards on financial intermediation efficiency of DT SACCO's in Kenya. This study will

focus on effect of capital adequacy, credit management, investment management, disclosure requirements and moderating effects of size on financial intermediation efficiency of DT SACCO's in Kenya. Since regulations are continuously updated due to changes in technological advancement and guidance on jurisprudence in line with changes in demand from the public. The findings of Manyara may have been affected by changes in time.

Nyambere (2013) studied the effect of credit risk management on financial performance of deposit taking savings and credit co-operative societies in Kenya. Nyambere used a sample size of 30 SACCOs in Kenya for the three-year period 2010 – 2012. ROE was regressed against capital adequacy, asset quality, management efficiency, earnings and liquidity. The results were that ROE was positively correlated to all the variables. The study used measure of ROE as performance; this study will measure effect of regulatory framework on financial intermediation efficiency of DT SACCO's.

According to Calomiris (2009), allowance for loan loss is a contra asset account on the balance sheet used for offsetting losses on loan assets. It is the management's best estimate 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 date and likely to continue in default. SACCO Act (2008) defines allowance for loan loss as an amount set aside in the statement of financial position to recognize probable loan losses so that the true value of the loan portfolio is fairly stated. It is an expense in the income statement. The most critical asset in any financial institution SACCO's included is loans and advances to members (Monteverde, 2000). For a SACCO to be successful, it must be able to disburse loans and advances and collect them from the members (Fiorillo, 2006). The impact of not collecting loan repayments are: direct reduction of SACCO's liquidity and direct reduction on profitability. When provision for loan loss is not deducted from the comprehensive income, the income statement will be over stated and if the SACCO pays dividend, it will be paying from capital which is illegal, (Leventis, 2012). If it is done periodically over a number of years, it can lead to insolvency, (Saunders & Cornet, 2011). For a SACCO to be successful, it must be

able to disburse loans and advances and collect them from members, (Fiorillo, 2006).

Magali (2013) studied the factors affecting loans' default risks for the Savings and Credits Cooperative Societies (SACCOS) in Tanzania. The study used qualitative, descriptive and multivariate regression analysis to assess factors affecting credit default risks for 431 borrowers from 37 SACCOS in Morogoro, Dodoma and Kilimanjaro regions. The study revealed that loan size and years of schooling of borrowers contributed positively to the loan default. The study further revealed that absence of proper credit risks management techniques resulted into huge amount of overdue loans. The study recommended that politics should not be entertained in Sacco's activities and SACCOS should make sure that they abide by their regulations. The study further recommended that SACCO's management and members should be trained on investment and business analysis, at the same time the loans limit should be considered. The study only looked at Rural SACCOs and made no attempt to look at other types of SACCOs.

Abata, (2014) investigated the impact of asset quality on listed commercial banks performance in Nigeria from 1980 to 2013. Secondary data was collected from annual audited financial statements. Commercial bank performance (ROA) was hypothesized as a factor of percentage of nonperforming loans to total loans, percentage of Non-Performing Loans to Total Customers' Deposit (NPL/TCD), percentage of Loan Loss Provision to Total Loans (LLP/TL) and percentage of Loan Loss Provision to Total Asset (LLP/TA). Multiple linear regressions were used to analyse the data. Augmented Dickey Fuller (ADF) tests were used to examine stationarity while co-integration and Granger Causality test examined short term and long-term relationship between asset quality and financial performance. Regression analysis results revealed a positive and significant relationship between return on assets and both percentage of non-performing loans to total loans and percentage of non-performing loans to total customer's deposit. In contrast there was a negative relationship between loan loss provisions to total assets and commercial banks performance. Stationarity test revealed the data was stationary at 1(1), Co integration revealed long run relationship between variables while Granger causality

showed no causality between variables. The study recommended the need to evaluate the banking lending environment and this will minimize incidences of bad debts and consequently improve depositor's confidence and commercial banks profitability. Since the study drew its data from banking sectors the findings may notbe generalized in DT SACCOs since they are exposed to different regulations in Nigeria and Kenya.

Swammy (2015) modelled the impact of asset quality on commercial banks performance using panel data technique on 1997 to 2009 amongst commercial banks drawn from developing economies. Panel regression analysis was used to analyse the data. Results of study contrasted past studies which had found significant influence of priority sector on NPAs. Moreover, the study revealed that bad debts were highly correlated with industry sectors against the earlier assertion that it is dependent on the economy. Further, it was found that public sector banks had inferior bad debts management strategies as compared to private banks who had adopted superior risk management strategies and technology to mitigate the vice. Moreover, there was a link between capital adequacy, investment activity and profitability of commercial banks though asset size had no significant impact on commercial bank profitability. The study findings considered data from 1997 to 2009 after which they arenew regulatory issues that have been introduced and they may have effect on financial intermediation efficiency of DT SACCO's.

Pastory and Mutaju (2015) examined the nexus between capital adequacy and asset quality among commercial banks in Tanzania. Panel research design was adopted in the study and a sample of 33 commercial banks was considered from 2006 to 2011 and regression analysis was applied to examine the nexus between variables. The findings revealed a positive and significant relationship between capital adequacy and asset quality. From the findings it was concluded that more regulatory measures ought to be employed in the banking sector since the duo ratios had more influence on commercial banks stability in Tanzania. There are different political and social economic environment in Tanzania and Kenya that may have implications on financial intermediation efficiency. Hence, each country findings may not be generalized in another.

Gathigia, Waweru and Muturi (2016) investigated the effect of credit risk on financial performance of commercial banks in Kenya. Panel secondary data was collected for the period 2005 to 2014 among 43 commercial banks in Kenya. Credit risk was operationalized as measured by capital to risk weighted assets, asset quality, loan loss provision, loan and advance ratios and financial performance by return on equity (ROE). Fixed effects regression analysis was used to analyse the data and Generalized Method Moments (GMM) was used to purge time invariant unobserved firm specific effects and minimize possibilities of endogeneity problems. Results of the study revealed an inverse significant relationship between credit risk and commercial banks profitability. Moreover, poor asset quality was associated with low levels of commercial banks performance in both short run and long run. It was concluded that there is need for commercial banks to enhance their credit analysis and administration through robust credit policies and lending guidelines.

A Nigerian case to examine the nexus between credit risk and commercial banks performance in Nigeria over 15 years from 1997 to 2011 was carried out by Marshal and Onyekachi (2014). Panel secondary data was collected from annual audited financial statements of five commercial banks. Data was analysed using panel regression analysis technique and the results showed a positive and significant relationship between ratio of non- performing loans to loans and advances and commercial banks performance (ROA). It was concluded that loan and loan advances enhanced commercial banks performance thus calling for the need to recruit more borrowers as such to enhance commercial bank performance.

2.4.3 Investment Management and Financial Intermediation Efficiency

An investment is the outlay of a sum of money in the expectation of a future return which more than compensates for the original outlay plus a premium to cover inflation, interest foregone and risk. The process of investment appraisal is designed to ensure that the right amount of money is invested in the right projects at the right time (Muchemi, 2005). Pandey (1996) asserts that too little investment, in the long run is more dangerous than too much. Too little investment leads to

inefficiency and certain slow stagnation. Too much involves unacceptable levels of risk, but at least has the possibility of success. In the short term the converse is true- too little is the safer option. These conflicting needs have to be balanced in order to obtain sustainable financial performance, hence, calling for proper regulatory and supervisory mechanisms. It's one very significant aspect is the task of measuring the prospective profitability of new investments. Any investment decision as source of raising funds for the firm must consider the interests of the shareholders

Deller, Hoyt, Hueth and Sandaram (2014) carried out a study on economic impact of Credit Unions 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. Deposits and savings can also act as sources of financing for SACCO societies. In this regard, SACCO society members and third parties may put funds into the co-operative in form of savings or short- term investments. These funds can be invested by the SACCO Society to generate returns which can be used in repaying the deposits and interest with any surplus re-invested in the SACCOs (Olando *et al.*, 2012).

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. SACCO Society Act (2008) advocates for 15% liquidity to short term deposits and short-term liabilities ratio as a means of sustaining deposit taking business. The ratio encourages SACCO's to be liquid always to enable them meet daily cash requirements for the members. Thus, matching different maturities of assets (loans to members), and maturities of liabilities is critical to both performance and liquidity (Miskin & Eakins 2012).

2.4.4 Disclosure Requirements and Financial Intermediation Efficiency

Off balance sheet items means items not shown on the balance sheet but which constitute a risk to the Sacco Society. Off balance sheet Item are assets such as existing guarantees by the Sacco Society which may include Guarantees and

Commitments and Other Contingent Liabilities (SACCO society Act, 2010). The loan policy may establish guidelines on the size of the loan portfolio relative to other balance sheet accounts. Limits should be developed for the aggregate volume of outstanding loans as well as for total commitments. A SACCO will find it much easier to develop a commitment limit if it has historical data on usage of its commitments during various phases of the credit cycle. Traditionally, limits have been set relative to deposits, capital, or total assets. As risk management is adopted more widely, SACCOs are also developing limits on an activity's risk to earnings. A benefit of this approach is that limits are more closely tied to risk. The credit demands of the members, the volatility of the SACCO's funding, and the relative level of risk in the loan portfolio should also be considered when limiting the size of the loan portfolio (SASRA, 2014).

Hyndman *et al.* (2004) analyzed the level of compliance with 16 mandatory financial disclosure items by credit unions in Ireland. The study found that the level of disclosure by credit unions in Ireland was weak, and this could partially be attributed to inadequate regulatory efforts aimed at improving disclosure by credit unions. Hyndman *et al.* (2004) argued that regulators are key stakeholders in the financial performance disclosure regulation and support framework. Further, regulators have significant influence and possibly power in terms of fostering and monitoring accountability. Interestingly, the study by Hyndman et al. (2004) found that regulators and managers did not think that a specific guidance on the preparation of financial statements by credit unions was necessary. There are contextual differences between Kenya and Ireland and the level of technological and economic development may have differences on the findings.

2.4.5 Regulation, SACCO Size and Financial Intermediation Efficiency

Heshmati, Usman and Zahid (2011) examined the relationship between size and performanceof SACCOS in Sweden and found that performance was higher in larger SACCOs compared to the smaller SACCOs. In relation to this study the size of the DTS is viewed in reference to the total assets of the SACCO. According to SASRA (2019) Deposit-taking SACCOs are peer-grouped into three (3) categories based on

their respective total asset portfolios. These are the Large-sized DT-SACCOs with total assets above Kshs5 Billion; the Medium-sized DT-SACCOs with total assets of between Kshs 1 billion and Kshs 5 billion and the Small- sized DT-SACCOs with total assets of below Kshs 1 billion. The peer-grouping of DT- SACCOs enable the Authority to make comparable assessments and monitoring of the SACCOs of risks and performance premised on the similar characteristics common or prevalent within each peer-group.

Ngaira (2011) did a study on the impact of SASRA regulatory guidelines on DTS operatingin Nairobi. The aim of this study was to look at the impact SASRA has had on Sacco performance since its inception. The study was conducted on the 50-deposit taking SACCOs in Nairobi. Data was collected from primary source on structured questionnaires as well as secondary sources. In administering the research instruments, the researcher used self- administered survey by use of mails and drops and pick letters. Based on this study, it was concluded that, SASRA regulations had greatly impacted on the Sacco performance in terms of outreach and sustainability. Most SACCOs reported improvement in their performance both in membership, portfolio and loan cycle and general efficiency. This was attributed to a number of factors ranging from increased membership, high efficiency, high demand and quick recoveries and one can easily attribute this to be as a result of SASRA regulatory framework. The study may have considered gathering secondary data over a period of time rather than issuing questionnaires. Since regression analysis was used it was necessary to report on diagnostic tests that supported it.

Almumani (2012) examined the impact of management controllable factors on commercial banks profitability in Jordanian listed commercial banks in Amman stock exchange (ASE). Panel secondary data was collected from annual financial statements of 13 commercial banks from 2005 to 2011. Both descriptive and panel multiple regression analysis were used to analyze the data. Commercial banks profitability (ROA) was hypothesed to be a factor of cots efficiency (CIR), liquidity, credit composition, credit risk, capital adequacy (TE/TA) and bank size. Results of the study revealed a significant relationship between cost income efficiency and profitability while liquidity, credit risk management, capital adequacy

and sizenone had significant effect. Since the findings from banking sector there is need for customized study in Kenya and drawing data from DT SACCOs so as to evaluate the existingstudy.

Ally and Patel (2014) applied data envelopment analysis (DEA) to evaluate efficiency of Tanzanian commercial banks in period 2006 to 2013. The findings of the study revealed that commercial banks were only 95.9% efficient and even if inputs were reduced by 4.1% commercial would still be profitable. Inefficiency levels which were registered in the study originated from poor utilization of the available resources, which was more prone amongst the smallest banks. Further, Tobit multiple regression analysis revealed that asset quality, management efficiency and liquidity had the highest significant on commercial banks efficiency. Since the data was drawn from commercial bank there is need for a customized study considering data from DT SACCOs to confirm or contradict the findings.

Nigmonov (2010) investigated the relationship between commercial banks performance and efficiency in Uzbekistan. DEA was used to measure both technical and scale efficiency of commercial banks in the period from 2004 to 2006. Results of the study revealed no significant difference on commercial bank efficiency amongst local, foreign and jointly listed commercial banks though there was a significant difference between small, medium and big commercial banks. Since DT SACCOs draws their membership from respective countries there is need for consideration of panel data from DT SACCOs to examine their contribution effect of regulation on financial intermediation efficiency.

Seelanatha (2012) investigated the drivers of technical efficiency among Sri Lankan commercial banks. The study considered unbalanced panel data set commencing 1989 to 2009. Data envelopment analysis was used to estimate TE (technical efficiency). Results of the study revealed a positive relationship between operational risk, amount of purchased funds, gross interest's margin, ownership, bank size and technical intermediation efficiency while market share impacted on it negatively. Moreover, operational risk, inflation andmarket capitalization had positive effect on TE in asset transformation while market share, profitability, quality of bank assets,

amount of purchased funds and high liquidity had inverse effect. There are contextual differences between a study in Kenya and Sri Lanka owing to differences in social economic aspects that may have influence on the demand for financial services in two countries.

Wanyoike, (2013) argued that regulations are meant to provide minimum operational and prudential standards in DT SACCO's and help in realizing that members who serve as staffin Sacco's are qualified to hold their current positions and lead to quality services to Sacco members hence it is important to introduce the new regulations. Wanyoike further argued that staff competence, quality of Board of Directors and internal control affect the financial performance of Saccos. With increased complexity and the sheer size of SACCOs, the risks have also changed. Regulation seeks to address this problem. An independent, skilled regulator can oversee the activities of a large and complex financial institution much more efficiently than any individual member. Backed by statutory authority, the regulator can insist that management does not take excessive risks, maintains sufficient capital to absorb the inevitable peaks and troughs of business and adequate liquidity to meet its day-to-day obligations (Chebor, 2008).

According to Bwana and Mwakujonga (2013) during implementation of Cooperative Society Act of 2004 SACCOs' Board of Director (BOD) were not trusted by employees, there wereno adequate guidelines on various stakeholders in SACCOs, the authority of the executive committee and credit committee in comparison with staff authority was not properly defined. In addition, the board members in most cases were non-professional volunteers, yet they assumed very highly technical issues such as loan analysis and disbursement, budgeting and financial expenditure control. SACCO society Act No 14 of 2010 which was amended in June 2018 came to address this by introducing Part X that deals with governance of SACCO societies which focuses on membership responsibilities, directors' duties and responsibilities, director not to be remunerated, limitation of director to only one SACCO, appointment of chief Executive officers (CEO), responsibilities of CEO and code of conduct for SACCO officers. The most important and challenging issue of SACCOs in Kenya is making sure SACCOs have good internal control systems which are

essential to streamlining operations and minimizing unnecessary financial costs which in turn affect their growth. The element of SACCO internal control systems in Kenya include: employee's clear delegation and separation of duties, proper procedures for processing of transactions, suitable documents and accounting records, control over asset records and independent verification of performance.

In a SACCO-setting, the board of directors are elected from among the membership. The board is charged with the responsibility of ensuring sound and prudent management of SACCOs' affairs and the provision of adequate disclosures to enable members and regulators make well-informed decisions (Alukwe *et al.,* 2015). The underlying motive of DT SACCO regulations was aimed at making DT SACCO's governance mechanisms transparent, accountable and building members' confidence through offering efficient services (Ademba, 2011). The cooperative society act 2004 did not have Disclosure requirements as regulatory requirement. DT SACCO board members have a fiduciary responsibility to their current and prospective members and fiduciary duty as enshrined in the SACCO Society Act 2008 as amended in 2018. It requires that directors' act in honesty and high standard of care in making annual financial statement disclosures. They must ensure that information reported inthe annual financial statements reflect true and fair position to adequately guide their members being the owners and principal users of audited financial statements. It is against this background that the study derived its variables which were the capital adequacy, credit management, investment management, and disclosure requirements which are part of SASRA prudential regulatory framework.

SACCOs are supposed to attain high minimum capital requirements to act as a barrier to market entry to possible new players that are not able to raise sufficient capital for the initial stages as a regulated institution. But, on the other hand, a high minimum capital requirement could help to mitigate moral hazard behaviour among shareholders. The first prudential standard is the minimum amount of liquid capital that SACCOs should raise to enter the market (Staschen, 2003). This requirement is an absolute measure of solvency and is usually established by primary regulation. Capital requirements are measured by the ratio of risk- weighted assets relative to regulatory equity, which has been internationally recommended to

be equal to 12.5 times, or commonly known as a capital adequacy ratio of 8% (Jansson, 1997). Minimum capital regulation is one of the three pillars of macro prudential regulation. Financial institutions capital serves both as a buffer and as a disincentive to excessive risk taking. When general equilibrium effects are taken into account, however, it is not clear that higher capital requirements will reduce the level of risk in the financial sector (Gale, 2010). In most cases financial regulators find capital adequacy regulation as a means of strengthening the safety and soundness of the SACCO industry (Oladejo & Oladipupo, 2011).

Njenga (2012) studied the relationship between agency and financial performance of SACCOs. 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 member's funds). The results were that ROA was weakly positively related to agency costs, positively related to marketing expenditure and weakly negatively related to size. Njenga study focused on relationship between agency and financial performance while current study will focus on effect of regulatory require on financial intermediation efficiency DT SACCO's.

Mwangi (2014) studied the influence of members' income and conduct of SACCOS in the relationship between characteristics and efficiency of SACCOS in Kenya. The study targeted all SACCOs that are regulated by SASRA for the period 2009 - 2013. The study used multiple regression analysis between efficiency, and characteristics. The study findings were that characteristics (specifically size and age) have a significant positive effect on efficiency of SACCOs and this relationship (for size only) is moderated by the income of members. Increase in size resulted in improved efficiency and, the older the SACCO, the higher the efficiency. The higher the income of members, the stronger the relationship between size and efficiency. Efficiency was negatively related to strength of bond of association, possibly because weakening of the bond would be associated with increased in size, which contributes to increased efficiency. This study focused on efficiency while current

study will focus on financial intermediation efficiency.

2.5 Critique of the Reviewed Literature

SARSA regulation plays major role in safeguarding member's deposits in DTS's. This promotes security of member's investment. Studies available are mostly on effect of regulations requirement for credit unions in United States and European Union and very few on SACCO's financial intermediation efficiency and hence limited knowledge. Available researches on SACCO regulatory requirement were based on a sample of SACCOS in certaincounties or regions. 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 or regions mentioned. This research will focus on the whole population to provide insight on the findings that can be generalized for the whole country.

The existing studies are restricted in scope as they are either focused on a particular independent variable, conclusion or recommendation. Thus, generalizing the results of existing study results may result to errors due sample bias. Some of studies conducted on area of effects of SASRA regulation and financial performance of DTS are: Deller, Hoyt, Hueth, and Sundaram-Stukel (2014) Karagu & Okibo (2014), Kilonzi (2012), Macharia (2013), Ndung'u (2013), Ngaira (2011), Alukwe *et al.,* (2015), Odhiambo (2011), Magali (2013), Olando *et al.,* (2012), and Wanyoike (2013) focused on financial performance of DTS not financial intermediation efficiency.

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 SACCOs. Similar conclusion can be made for Muigai (2013) who carried out a research on the challenges of strategy implementation faced by SASRA. 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 theresults 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 would therefore be 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. Mbui (2010), Ngaira (2011), Kilonzi, (2012) and Kahuthu (2016) studied the impact of SASRA regulations on SACCO's financial performance. However, Ngaira studied the factors ranging from membership, efficiency, demand and loan recoveries attributing them to SASRA regulatory framework, Kilonzi, (2012) studied the impact of capital regulation, SACCO's profitability and management efficiency on SACCO's financial performance.

2.6 Research Gaps

Most empirical studies have discussed SARSA regulatory requirements on SACCO's, challenges, impact, risk management, capital adequacy, liquidity management effects and Sacco's performance. There are some empirical studies that have touched on the efficiency in banking sector; however, there is little research by the various authors regarding the effect of SASRA regulations on financial intermediation efficiency in DT SACCO's For instance Macharia (2013) study was on effect of licensing requirements on the performance of savings and credit cooperatives in Nakuru County however the research used efficiency as a variable affecting performance of savings and credit cooperatives and the study, reported improvements in their performance both in membership, portfolio and efficiency after introduction of SASRA Regulations.

Mbui (2010), Ngaira (2011), Kilonzi, (2012) and Kahuthu (2016) did a study on the impact of SASRA regulations on SACCO's financial performance. However, Ngaira studied the factors ranging from membership, efficiency, demand and loan recoveries attributing them to SASRA regulatory framework, Kilonzi,(2012) studied

the impact of at capital regulation, SACCO's profitability and management efficiency on SACCO's financial performance while Kahuthu (2016) studied impact of core capital, credit management, membership growth and liquidity on financial performance of deposit taking savings and credit cooperative societies in Kenya before regulation and after regulation. None of these studies focused on effect of SASRA regulations on financial intermediation efficiency of DT SACCOs in Kenya.

Karagu and Okibo (2014) carried out a research on effect of SACCO Societies Regulatory Authority's Regulations on Financial Performance of SACCOs in Nairobi County. The study focused on liquidity, capital adequacy ratio compliance, managerial quality, and cost of income and financial performance of SACCOs' in Nairobi County. The study merely used Financial Performance as variable which affect performance of DTS. Kiaritha *et al.* (2014) studied the effect of operating costs on the financial performance SACCOs Kiaritha used a simple linear regression for six years. The study would have been appropriate if data of several years was used. The studies have heterogeneous differences associated with the country of operation of specific financial institution.

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.

2.7 Summary of the Literature

The chapter introduced the literature on effect of SARSA regulations on financial intermediation efficiency of DT SACCO'S in Kenya, and covered several aspects. In the first section, different effects of SASRA regulations on performance of DTS

have been discussed. These effects are based on capital adequacy, credit management, investment management, and disclosure requirements, thus determining the central focus of this study.

In this context, Sacco size was briefly described as moderating variable in the study. This study has identified five theories (public interest theory, Regulatory capture theory, agency theory, capital buffer theory and signalling theory) and linked them to the derived hypotheses in the new empirical setting. In addition, the variables in the study are derived from the theoretical framework. This chapter concludes by identifying the research gap and formulating the research hypothesis as the starting point for further analysis.

The current study sought to fill the gap identified above by studying the effect of SARSA regulations on financial intermediation efficiency of DTS's in Kenya. It focused on 4 independent variables: capital adequacy, credit management, investment management, and disclosure requirements on financial intermediation efficiency of DT SACCO's in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the research methodology to be used in meeting the present study objectives. In particular, it explains the research design, target population, research instruments, data analysis and the empirical model.

3.2 Research Philosophy

Research philosophy is important in the development of the research background, research knowledge and its nature (Saunders, Lewis & Thornhill, 2009). Furthermore, research philosophy can also be described as a paradigm which involves a broad framework, which comprises perception, beliefs and understanding of several theories and practices that are used to conduct a research. The fundamental question in any field of study concerns what constitutes acceptable knowledge in that field. In the process of establishing knowledge on any subject matter, the researcher is guided by one of the many philosophical viewpoints or philosophies noted by Flowers (2009) which include: positivism, phenomenology and realism among others. The two main philosophies that guide social scientist researchers are positivism and phenomenology.

Phenomenology has two important aspects: objectivism (or positivism) and subjectivism. This study employed phenomenology research philosophy paradigm with positivism. It dealt with studying the nature of reality. Positivism advocates for the application of methods of the natural science to study social reality and beyond (Bryman & Bell, 2011). Saunders, Lewis and Thornhill (2009) viewed positivism as a research paradigm that is likened to an objective analyst who interprets data without adding value to its outcome. According to Bryman and Bell (2011), objectivism asserts that social phenomena and their meanings have an existence that is independent of social actors.

In this study, positivism was adopted to guide the study. According to the positivist approach, a deterministic view of nature was adopted and a nomothetic methodology was applied. A nomothetic methodology enabled the researcher to apply statistical techniques to test hypotheses and analyse research data that was collated using quantitative research techniques, such as surveys. A positivist - inductive reasoning was applied to make conclusions from the analysis that was performed.

3.3 Research Design

Research design is a conceptual structure within which to conduct a research. It constitutes an outline for data collection, measurement and analysis (Kothari, 2014). This study adopted a descriptive survey research design to analyse the effect of SASRA regulatory requirements on financial intermediation efficiency of DTSs in Kenya. Research design is a scientific method which involves observing and describing the behaviour of a subject without influencing it in any way (Saunders *et al.,* 2009). A qualitative and quantitative research design was appropriate where the researcher is attempting to explain how the phenomenon operates by identifying the underlying factors that produce change in it in which case there is no manipulation of the independent variable (Kerlinger & Lee, 2000). According to Yin (2015), such a design is structured to examine a number of logical sub-units or units of analysis within an organization at any point in time.

Tromp (2009) describes a research design as the review of the overall research aim, the literature and chosen research methods. Kothari (2004) states that research design facilitates the smooth sailing of the various research operations, thereby making research as efficient as possible, yielding maximal information with minimal expenditure and effort, time and money. Lavrakas (2008) asserts that choosing an appropriate research design depends on; the nature of the research questions and hypotheses, the variables, the sample of participants, the research settings, the data collection methods and the data analysis methods. Thus, a research design is the structure, or the blueprint, of research that guides the process of research from the formulation of the research questions and hypotheses to reporting the research findings. In designing any research study, the researcher should be familiar with the

basic steps of the research process that guide all types of research designs. Also, the researcher should be familiar with a wide range of research designs in order to choose the most appropriate design to answer the research questions and hypotheses of interest.

3.4 Target Population

According to Polit and Hungler (1999) target population is defined as an aggregate or totality of all the objects, subjects or members that conform to a set of specifications**.** It is anyset of people or events from which the sample is selected and to which the study results are to be generalized. The study targeted 174 DTS's operating as at 31st December 2019 in Kenya. The target population was 174 DTS in Kenya (appendix III).

3.5 Sampling Technique and Sample Size

Sampling is concerned with the selection of a subset of individuals from within a statistical population to estimate characteristics of the whole population. Each observation measures one or more properties (such as weight, location, colour) of observable bodies distinguished as independent objects or individuals. The reason for sampling is that: it lowers cost of data collection and makes it faster to measure the entire population (Saunders *et al.,* 2009). The study undertook census survey for all the 174 DTS's operating in Kenya as at the end of year 2019. Census was appropriate because the population of the study was small and sampling was not suitable.

3.6 Data Collection Instruments and Procedure

The main source of data was secondary data which was collected from Audited SACCO Financial statements and published SASRA reports for period 2014 to 2019. The choice of Six year's period for this study was because it is during this period that SASRA expected all DTS's to have fully adhered to the regulations. Secondary data was collected using a secondary data collection sheet (appendix II).

Kothari (2004) defines secondary data as data that is already available, referring to the data which have already been collected by someone else. Polit and Beck (2003) explain that secondary research involves the use of data gathered in a previous study to test new hypotheses or explore new relationships. They also indicate that secondary analysis of existing data is efficient and economical because data collection is typically the most time- consuming and expensive part of a research.

3.7 Data Analysis and Presentation

Data analysis was done using both descriptive and inferential statistics. Figures and tables were used for data presentation. Descriptive statistics used in the study included measures of central tendency; mean and dispersion; standard deviation, minimum and maximum. Inferential statistics included correlation and regression analysis. Correlation analysis examined the strength of the influence of regulatory framework on financial intermediation efficiency of DT SACCOs in Kenya. Further, regression analysis examined the nature of the influence of regulatory framework on financial intermediation efficiency of DT SACCOs in Kenya. In regression analysis the dependent variable which was financial intermediation efficiency was regressed against predictors; capital adequacy, credit requirement, investment management, and disclosure requirements. The study was guided by a panel regression equation.

$$Y_{it} = \beta_{0+} \beta_1 X_{1it+} \beta_2 X_{2it+} \beta_3 X_{3it+} \beta_4 X_{4it+} \beta_5 X_{5it+} \varepsilon_{it} \quad \text{i}$$

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 Z_{it} + Z_{it} (\beta_6 X_{1it} + \beta_7 X_{2it} + \beta_8 X_{3it} + \beta_9 X_{4it}) + \varepsilon_{it} \quad \text{ii}$$

Where;

β_0 = Constant for each DTS

βi; i= (1,2,3,4) = Beta coefficients

X_{1it}= capital adequacy of DTS *i* at time *t.*

X_{2it}= credit management of DTS *i* at time *t.*

X_{3it}= investment management of DTSs *i*

at time *t*. X_{4it}= Disclosure requirements of DTSs *i* at time Z_{it}= SACCO size of DTSs *i* at time Y_{it}= Financial intermediation of SACCO *i* at time (measured by efficiency scores estimated through Data Envelopment Analysis)

ε_{it} =composite error term (the residual error of the regression)

t= 2014 2019

Moderating effect of DT SACCO's size was examined through partial differentiation as shown in the equation below. Similar approach was adopted by (Muchiri, Muturi & Ngumi, 2016; Wairimu, Muturi & Oluoch, 2019). After partial differentiation the estimated coefficients were compared with non-moderated coefficient to examine the moderating effectof DT SACCO size.

DT SACCO size moderating effect was confirmed through comparison of moderated and non-moderated coefficients with marginal change of regulatory framework effect on financial intermediation efficiency of DT SACCOs in Kenya. The marginalized coefficients differed from non-moderated regression coefficients. The following equations were adopted

$$\frac{\delta\ Financial\ Intermediation\ efficiency\ i,t}{\delta\ Capital\ Adequacy\ i,t} = \beta_1 + \beta_6 DTS$$

$$\frac{\delta Financial\ Intermediation\ efficiency\ i,t}{\delta\ Credit\ management\ i,t} = \beta_2 + \beta_7 DTS$$

$$\frac{\delta\ Financial\ Intermediation\ efficiency\ i,t}{\delta\ Investment\ requirementi,t} = \beta_3 + \beta_8 DTS$$

$$\frac{\delta\ Financial\ Intermediation\ efficinecy\ i,t}{\delta\ Disclosure\ requirements\ i,t} = \beta_4 + \beta_9 DTS$$

3.7.1 Measurement of Variables

The measurement of study variables was summarized as follows:

Financial intermediation efficiency was evaluated as the weighted sum of outputs to weighted sum of inputs. The inputs were (Operating expenses) and outputs (operating income) ((Muchiri, Muturi & Ngumi, 2016; Wairimu, Muturi & Oluoch, 2019).

Technical Efficiency $_{it} = \alpha_{it} + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \varepsilon_{it}$ $_{X1it.....X3it}$ = Operating expenses.

Capital adequacy is the proportion of core capital to total deposits (Ho, 2012). The Capital adequacy measures according to Sacco Societies regulations of 2010 are: Core capital of 10

% of total assets, Core capital of 8 % of total deposits and Institutional capital of 8% of total asset. This study adopted Core capital to Total deposit ratio as a measure of regulatory capital against Actual capital of each DTS. The reason of choosing this measure is because Section 9 of the SACCO business state that the importance of core capital is to ensure Sacco's maintained sufficient capital that can protect its members' deposits and also protect creditors against losses that are as a result of business risks hence is a better measure of Capital adequacy compared to the other two measures. The equation is:

Capital adequacy = Core capital / Total deposit ratio (Ho, 2012).

Credit management is the management of loans, advances and overdrafts to members and is the main income generating activity for the SACCO's. This is because SACCO's are in the business of safeguarding money and other valuables for their members besides providing loans and offering investment financial services. However, Credit management involves hugerisks to both the lender and the borrower (Mutua, 2014). This study adopted Asset Quality as a measure of Credit management of DTS this according to Nyambere (2013) study.

The equation was:

Credit management = non-performing loan /gross loan and advance

Investment management are rules that are put in place to ensure an adequate and effective internal control, establishment of appropriate policies to ensure institutions maintains sufficient cash and liquid assets to satisfy the Sacco's demand for cash to meet their obligation (Brunnermeier & Pedersen, 2009). This is because Saccos are required to only purchase land for business expansion and not to hold idle land for more than two years. Saccos were also limited to investments in financial instruments of regulated financial institutions, subsidiaries, and other less risky investment avenues (SACCO Act, 2010).

The Investment requirement measures according to Sacco Societies regulations of 2010 are: investment in non-earning asset not to exceed 10% of the total assets in which land and buildings should not exceed 5% of the total assets, financial investment should not exceed 40% of core capital or 5% of total deposits. The reason of choosing this measure was that Saccos are prohibited by the Sacco Societies Act from purchasing or acquiring land except as may be reasonably necessary for the purpose of conducting their deposit-taking business. This is because land and buildings take longer time to sell compared to other investment in financial investment. The equation is:

Investment requirement = land and buildings/Total assets.

Disclosure Requirements was measured using loans and advances. Loans and advances refer to facilities advanced to members whether secured or not. These need to be reported net of provisions which must be computed in accordance with Classification of Assets and Provisioning Return. Insider loan is a loan in which the borrower is a corporation and the lender is one of its corporate officers, stockholders, or members of the board of directors (SACCO society Act, 2008). The reasons for collapse in cooperatives Societies include but not limited to poor leadership and governance, unqualified managers, nepotism, corruption, financial indiscipline and political interference. Internationally, Enron's case has been cited in many studies of

corporate governance. In Kenya we had the Trust Bank which collapsed in 1999 due to insider lending to directors and shareholders. SASRA mandate SACCOs to report on any lending to insiders and credit advances exceeding limits of its core capital (SASRA, 2014).

Disclosure requirements = Natural logarithms of loan loss provisions this is according to Quayes and Hasan, (2014) study and supported by(Alrafadi *et al.,* 2014) who observed that natural logarithm of DTS total asset is a proxy of DTS size to captures the possible cost advantages associated with size.

Table 3.1: Operationalization of Variables

Variable	Proxy	Variable definition
Financial Intermediation Efficiency (Y)	**FIE**	Inputs – Labour cost, overhead expenses &operating expenses. Outputs- Interest income and profitability.
Capital Adequacy ($X_{1)}$	**CA**	Core capital/ Total Deposits
Credit management (X_2)	**Asset quality**	Non-performing loans to gross loan portfolio
Investment management (X_3)	IR	Plant property & Equipment to total assets
Disclosure requirements (X_4)	**DR**	Ln (Loan's loss provisions)
SACCO size (Z)		Ln (total asset)

Source: Ho, 2012; Mutua, 2014; Brunnermeier& Pedersen, 2009; Alrafadi *et al*., 2014; SASRA, 2014

3.8 Diagnostic Tests

Diagnostic tests are normally carried out with aim of testing the suitability of data collected and analyzed using regression model that should be best linear unbiased estimator (BLUE). Diagnostic tests carried out in the study were for normality, heteroscedasticity, autocorrelation, stationarity, granger causality, Lagrange multiplier (LM) and Hausman specification test.

3.8.1 Normality Test

Normality of study variables can be examined through graphical or statistical approach. Dominant statistical normality tests are Kolmogorov-Smirnov test, Jarque Berra test amongst others. They assume that the data is normally distributed against an alternative that it's not normally distributed. If p value is less than 0.05 then data was not normally distributed and requisite transformation should be carried out prior to classical modelling. Graphical approaches include box plots, stem and leaf, PP plots, QQ plots and histograms. In this study Jarque Berra test was adopted to test for normality.

3.8.2 Homoscedasticity

Regression model assumes that the error term of regression model has uniform variance of the error terms. Woodridge test for heteroscedasticity was adopted for its examination. The test assumes that the data is homoscedastic against an alternative that the data is not homoscedastic.

3.8.3 Serial Correlation

Serial correlation is a characteristic of data in which the correlation between the values of the same variables is based on related objects. It violates the assumption of instance independence, which underlies most of the conventional models. It generally exists in those types of data-sets in which the data, instead of being randomly selected, is from the same source. Autocorrelation was tested using likelihood ratio and its null hypothesis showed there is no serial correlation and it was rejected if p value was less than 0.05. Feasible Generalized Model (FGLS) may have to be fitted if serial correlation was an issue.

3.8.4 Stationarity Test

Since panel data have both cross-sections and time series, there is need to test for the stationarity of the time series because the estimation of time series data is based on the assumption that the variables are stationary. Estimating models without taking into account the non-stationary nature of the data would lead to spurious results

(Gujarati, 2003). In this thesis, the researcher employed Fisher-type test of unit root in panel data. The advantage of this test is that it allows for unbalanced panels with gaps, performs either Dickey-Fuller or Phillips-Perron test for each panel, and reports four different tests. The null hypothesis of this test is that all panels have unit root. The alternative hypothesis is that at least one panel does not have unit roots or some panels do not have unit root (Choi, 2001). If any of the variables has unit root, the researcher differentiated it and run equations using the differenced variable.

3.8.5 Granger Causality

Granger causality was carried out to show the explanatory power variables under explanation (Granger, 1988). Variables under examination are said to granger cause each other whenever historical pattern can explain current features of themselves (Zou, Ladrou, Guo & Feng, 2010). Hence, granger causality was carried out to evaluate the effect of capital adequacy, credit management, investment management, disclosure requirements and performance.

3.8.6 Hausman Specification Test

Fixed or Random effect is tested using Durbin–Wu–Hausman test (Hausman specification test) is a statistical hypothesis test in econometrics named after James Durbin, De-Min Wu, and Jerry A. Hausman. It helps one evaluate if a statistical model corresponds to the panel data. The test evaluates the consistency of an estimator when compared to an alternative, less efficient estimator which is already known to be consistent. It basically tests whether the unique errors (ui) are correlated with the regressors (Green, 2008). Hausman test is based on the comparison of two sets of estimates and its main arguments are based on two panel model objects or a formula. A classical application of the Hausman test for panel data is to compare the fixed and the random effects. The study used Durbin–Wu–Hausman test where the null hypothesis is that the preferred model is random effects and the alternative is the fixed effects For instance when two estimators for b: b_0 and b_1 the null hypothesis, both of these estimators are consistent, but b1 is efficient (has the smallest asymptotic variance), at least in the class of estimators containing b_0. Under the

alternative hypothesis, b_0 is consistent, whereas b_1 is not.

3.8.7 Langragian Multiplier Test

Lagrange multiplier (LM) test for autoregressive conditional heteroskedasticity (ARCH) of Engle (1982) is widely used as a specification test in univariate time series models. It is a testof no conditional heteroskedasticity against an ARCH model The study adopted Langragian multiplier test to choose between fitting random effects regression and simple ordinary least squares model (Dumitrescu & Hurlin 2012). The study hypothesized that there were panel effects against an alternative there was not. Findings in the models with and without moderation p values were less than 0.05. Consequently, it was not appropriate to fit simple ordinary least squares model.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the findings of the study that are presented as per objectives. The main objective examined the influence of regulatory framework on financial intermediation efficiency of DT SACCOs in Kenya. Specifically, the influence of capital adequacy, credit management, investment requirement and disclosure requirement were examined. Moreover, moderating effect of SACCO size on the effect of regulatory framework was studied. The study applied descriptive and inferential statistics for data analysis.

4.2 Descriptive Statistics

Measures of central tendency and dispersion were used as descriptive statistics whose findings are in Table 4.1. The average financial intermediation efficiency of DT SACCOs in Kenya was 0.87, with a minimum of 0.09 and maximum of 1. The standard deviation was 0.09, which indicates minimal deviation on financial intermediation efficiency of DT SACCOs. Normality test indicates that financial intermediation efficiency was not normally distributed since its P value was less than 0.05. Hence, there was enough evidence to warrant rejection of the null hypotheses that the data was normally distributed against an alternative of non-normality of data.

The mean capital adequacy was 6.34, with a minimum 2 and maximum of 8.69. The standard deviation of capital adequacy was 4.33, an indication that there were wider variations in capital adequacy among DT SACCOs. Capital adequacy among DT SACCOs was not normally distributed. The mean credit management was 0.35, with a maximum of 0.68 and minimum of 0.01. The standard deviation was 0.14 a clear indication of variation of credit management approaches among DT SACCOs in Kenya. Credit management practices were normally distributed since p value for Jarque Berra was greater than 0.05.

The mean investment management were 7.95 with a minimum of 1.17 and maximum of 30.19. The standard deviation for investment requirement was 7.65 a clear indication of wider variation on level of compliance with investment requirement among DT SACCOs. Huge allocation of financial resources among immovable assets may injure financial intermediation role of DT SACCOs since they may be exposed to credit crunch.

The mean disclosure requirement was 19.89, with a minimum of 7.73 and a maximum of 30.96. There were thin variations in disclosure requirements of DT SACCOs accounted by standard deviations of 2.68. Disclosure requirements were not normally distributed since its Jarque-Berra p value was less than 0.05. The mean size of DT SACCO in Kenya was 16.65, with a maximum of 22.67 and minimum of 6.54. DT SACCO's sizes differed widely as indicated by standard deviation of 5.25. The findings concurred with Kariuki *et al.,* 2018) who reported that there are wider variations in sizes of DT SACCO's in Kenya where 50% has an asset base of less than 1 billion, 34% has between 1-5 Billion and 16% have more than 5 billion. This depicts skewed distribution of DT SACCO's in Kenya.

Table 4.1: Descriptive Statistics

	Capital Adequacy	**Credit Management**	**Investment Requirement**	**Disclosure Requirement**	**Size**	**CRSTE**	**VRSTE**	**FIE**
Mean	6.34	0.35	7.95	19.89	16.65	0.53	0.61	0.87
Median	5.03	0.35	13.36	20.10	16.79	0.50	0.58	0.92
Maximum	8.69	0.68	30.19	30.96	22.67	1.00	1.08	1.00
Minimum	2.00	0.01	1.17	7.73	6.54	0.00	0.01	0.09
Std. Dev.	4.33	0.14	7.65	2.68	2.18	0.26	0.27	0.14
Skewness	2.36	0.04	2.10	-1.86	-0.95	0.33	0.07	-1.53
Kurtosis	10.60	2.67	17.42	10.69	5.25	2.21	1.81	5.43
Jarque-Bera	2998.35	4.34	8461.59	2735.53	326.29	40.11	53.77	571.3
Probability	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00
Sum	5709.48	315.27	13457.68	17900.58	14986.84	476.1	549.7	781.9
Sum Sq. Dev.	16839.8	18.46	52629.04	6470.35	4291.79	61.59	66.63	18.77
Observations	900	900	900	900	900	900	900	900

4.3 Financial Intermediation Efficiency Analysis

The study examined financial intermediation efficiency through DEA approach where inputs were (operating expenses) and outputs (operating income). Similar approach was applied by Kariuki *et al.* (2018) and Panah, Melati and Norhan (2014) while examining the effect of firm financial characteristics on financial intermediation efficiency of DT SACCOs in Kenya.

4.3.1 Efficiency Scores over the Years

The trend analysis of financial intermediation efficiency of DT SACCOs in Kenya indicated that Constant Returns to Scale Technical Efficiency (CRSTE) recorded oscillating growth from 2014 to 2019 with the lowest mean growth of 0.50 in 2018 and highest average growth of 0.57 in 2014. Similar oscillation was noted on the mean growth of Variable Return to Scale Technical Efficiency (VRSTE) with the highest mean of 0.64 in 2014 and lowest average of 0.59 in 2018 and 2019. The mean financial intermediation efficiency was either 0.87 or 0.88 from 2014 to 2018. The least financial intermediation efficiency was reported in 2017 though FIE (financial intermediation efficiency) of 1 was recorded throughout the period under examination. A closer examination indicated that in 2016 most DT SACCOs recorded wider variation in their financial intermediation efficiency. This may be attributed with alignment to new political structures under new constitution in Kenya and compliance with SASRA regulations in 2014.

From the findings it can be deduced that DT SACCOs have sustained intermediation efficiency an aspect that can be associated with compliance with regulatory requirements. The average intermediation efficiency in the period under examination was higher than Mwangi (2014) who documented 0.775. DT SACCOs should develop measures to enhance their operational efficiency with 13% so as to achieve 100% financial intermediation efficiency.

Table 4.2: Efficiency Scores over the Years

Year		Minimum	Maximum	Mean	Std. Deviation
2014	CRSTE	0.03	1.00	0.57	0.27
	VRSTE	0.02	1.00	0.64	0.26
	FIE	0.36	1.00	0.87	0.14
2015	CRSTE	0.09	1.00	0.53	0.25
	VRSTE	0.08	1.00	0.60	0.27
	FIE	0.09	1.00	0.87	0.15
2016	CRSTE	0.00	1.00	0.54	0.28
	VRSTE	0.01	1.00	0.62	0.29
	FIE	0.36	1.00	0.88	0.13
2017	CRSTE	0.03	1.00	0.52	0.27
	VRSTE	0.09	1.00	0.61	0.28
	FIE	0.31	1.00	0.86	0.15
2018	CRSTE	0.02	1.00	0.50	0.24
	VRSTE	0.01	1.00	0.59	0.26
	FIE	0.34	1.00	0.86	0.15
2019	CRSTE	0.09	1.00	0.53	0.26
	VRSTE	0.09	1.00	0.59	0.27
	FIE	0.29	1.00	0.88	0.14

4.4 Panel Diagnostic Tests

Prior to modelling to examine the effect of regulatory framework on financial intermediation efficiency of DT SACCOs in Kenya. Panel diagnostic tests were carried out; they included unit root test, Lagragian multiplier test, heteroscedasticity, serial correlation, granger causality and Hausman test.

4.4.1 Panel Unit Root Test

Panel unit root test was applied to examine the null hypothesis that the data was not stationary against an alternative that the data was stationary. Stationarity means that the statistical properties of a time series (or rather the process generating it) do not change over time. Stationarity is important because many useful analytical tools and statistical tests and models rely on. Stationarity was examined using inverse chi-squared, inverse normal, inverse logit and modified inverse chi squared. Since the study findings in Table 4.3 has p value less than 0.05 for financial intermediation

efficiency, capital adequacy, credit management, investment management, disclosure requirements and DT SACCO size, it can be concluded that the data was stationary at levels and no need for integration prior to modelling. Similar findings were reported by Wanjau *et al.* (2018) in their examination on the effect of corporate transparency on financial performance of listed firms in East Africa securities exchanges. Further, they concurred with Wairumu *et al.,* (2019) and Mwai, *et al.*, (2019).

Table 4.3: Panel Unit Root Test

Variable	Test	Statistic	P value
Financial Intermediation Efficiency	Inverse Chi-squared	251.412	0.0000
	Inverse Normal	-6.541	0.0000
	Inverse logit	-9.215	0.0000
	Modified Inverse chi-squared	14.325	0.0000
Capital Adequacy	Inverse Chi-squared	284.315	0.0000
	Inverse Normal	-5.624	0.0000
	Inverse logit	-11.215	0.0000
	Modified Inverse chi-squared	21.541	0.0000
Credit Management	Inverse Chi-squared	325.814	0.0000
	Inverse Normal	-8.514	0.0000
	Inverse logit	-13.214	0.0000
	Modified Inverse chi-squared	25.514	0.0000
Investment Management	Inverse Chi-squared	314.512	0.0000
	Inverse Normal	-9.215	0.0000
	Inverse logit	-14.521	0.0000
	Modified Inverse chi-squared	28.654	0.0000
Disclosure requirement	Inverse Chi-squared	314.512	0.0000
	Inverse Normal	-8.541	0.0000
	Inverse logit	-41.541	0.0000
	Modified Inverse chi-squared	22.514	0.0000
Sacco Size	Inverse Chi-squared	308.214	0.0000
	Inverse Normal	-11.215	0.0000
	Inverse logit	-15.624	0.0000
	Modified Inverse chi-squared	25.321	0.0000

4.4.2 Langragian Multiplier Test

The study adopted Langragian multiplier test to choose between fitting random effects regression and simple ordinary least squares model. The study adopted Langragian multiplier test to choose between fitting random effects regression and simple ordinary least squares model. The study hypothesed that there are panel effects against an alternative there is not. Findings in with the models with and without moderation p values were less than 0.05.

Consequently, it was not appropriate to fit simple ordinary least squares model. Findings in Table 4.4 indicates that the models with and without moderation p values were less than 0.05. Consequently, it was not appropriate to fit simple ordinary least squares model. The findings were in support of Githira *et al.* (2019) who did not fit simple OLS while examining the causality between micro economic characteristics and leverage of listed companies in East Africa. Further, the findings agreed with Nasieku *et al.*, (2015) who fitted random effects model while examining financial intermediation efficiency of commercial banks in Kenya.

Table 4.4: Langragian Multiplier Test

Model	χ^2**–Value**	**P value**
Without Moderation	128.73	0.00
With Moderation	124.87	0.00

4.4.3 Heteroscedasticity

Heteroscedasticity is a condition in which the variance of the error term is not constant (Greene, 2008). Variance of the error term will not be constant when error learning curve model is fitted, changes in levels of income among respondents, changes in the capacity of data collection, skewness of one or more regressors under consideration, presence of outliers in the model and incorrect data transformation (Baltagi, 2005). If regression model is fitted in violation of heteroscedasticity condition, then OLS estimation and regression predictors are unbiased but consistent

and regression estimators are not the best linear unbiased estimators thus regression prediction is not efficient. Moreover, due to inconsistencies of covariance matrix generated estimated regression coefficients, T and F test are no longer valid (Gujarati & Porter, 2008).

Results in Table 4.5 indicates that model with and without moderation was not homoscedastic since p values were less than 0.05. Thus, the null hypotheses were rejectedand concluded that the data was heteroscedastic thus, regression model with robust standard errors were fitted. The findings were similar with Mwai *et al.* (2019) who documented that panel data of commercial banks in Kenya was not homoscedastic. This was in contravention of Wanjau *et al.* (2018) who documented that financial data from listed companies in East Africa was homoscedastic. Heteroscedasticity of financial data from DT SACCOs can be attributed to variation of their sizes that would have implication on other variables under examination.

Table 4.5: Heteroscedasticity

Model	χ^2**–Value**	**P value**
Without Moderation	213.454	0.00
With Moderation	454.761	0.00

4.4.4 Serial Correlation

Serial correlation is a condition in which adjacent periods error terms or across observations are related (Greene, 2008). In time series data serial correlation occurs whenever certain period error terms spills over to future time periods. Hence, current period variable under or overestimation spills over to subsequent periods. According to Baltagi (2005) though serial correlation has no effect on unbiasedness or consistency of OLS estimators, it may affect its efficiency. When serial correlation is positive then standard errors will be smaller hence thereare higher odds of accepting parameters, which are not true. Moreover, null hypothesis willbe accepted when it ought not.

Serial correlation was examined using likelihood ratio with a null hypothesis that there is no serial correlation against an alternative of the presence of serial correlation. Findings in Table 4.6 indicates that both models with and without moderation had p value greater than 0.05. Consequently, there was no first order serial correlation.

Table 4.6: Serial Correlation

Model	F–Value	P value
Without Moderation	0.645	0.541
With Moderation	0.901	0.247

4.4.5 Panel Granger Causality

Panel granger causality was used to examine causality relationship among variables under examination. Granger causality is a time series analysis test evaluating whether one time series is appropriate in forecasting another. Study findings in Table 4.7 indicate that therewas no. It can be concluded that there was no causality between capital adequacy, credit management, investment management, disclosure requirement, size and financial intermediation efficiency because it was small than the standard critical values, then one should reject H0 and conclude that Granger causality exists.

These findings were in contrast with Ngware, Muturi and Olweny (2020) who reported that bank portfolio diversification has no causality with financial performance of banks in Kenya.

Table 4.7: Panel Granger Causality

Null Hypothesis:	F-Statistic	Prob.
Capital adequacy does not Granger Cause FIE	1.26	0.28
FIE does not Granger Cause capital adequacy	0.26	0.77
Credit management does not Granger Cause FIE	1.08	0.34
FIE does not Granger Cause credit management	0.47	0.63
Investment management does not Granger Cause FIE	1.54	0.22
FIE does not Granger Cause investment management	0.39	0.68
Disclosure requirements does not Granger Cause FIE	0.16	0.85
FIE does not Granger Cause disclosure requirements	0.68	0.51
Size does not Granger Cause FIE	1.17	0.31
FIE does not Granger Cause size	1.03	0.36
Credit management does not Granger Cause capital adequacy	1.10	0.33
Capital adequacy does not Granger Cause credit management	0.19	0.83
Investment management does not Granger Cause capital adequacy	3.26	0.04
Capital adequacy does not Granger Cause investment management	3.83	0.02
Disclosure requirements does not Granger Cause capital adequacy	6.11	0.00
Capital adequacy does not Granger Cause disclosure requirements	1.54	0.21
Size does not Granger Cause capital adequacy	3.83	0.02
Capital adequacy does not Granger Cause size	0.29	0.75
Investment management does not Granger Cause credit management	1.76	0.17
Credit management does not Granger Cause investment management	0.02	0.98
disclosure requirements does not Granger Cause credit management	0.98	0.38
Credit management does not Granger cause disclosure requirements	1.37	0.26
Size does not Granger Cause credit management	0.07	0.93
Credit management does not Granger Cause size	1.90	0.15
Disclosure requirements does not Granger Cause investment management	1.20	0.30
Investment management does not Granger Cause disclosure requirements	1.82	0.16
Size does not Granger Cause investment management	2.42	0.09
Investment management does not Granger Cause size	0.77	0.46
Size does not Granger Cause disclosure requirements	14.93	0.00
Disclosure requirements does not Granger Cause size	0.21	0.81

4.4.6 Hausman Test

Hausman test is applied while choosing between fitting random or fixed effects regression model (Greene, 2008). The Hausman test was used to differentiate between fixed effects model and random effects model in panel analysis. In this case, Random effects (RE) is preferred under the null hypothesis due to higher efficiency, while under the alternative Fixed effects (FE) is at least as consistent and thus preferred. The test has a null hypothesis that the most preferred model is random effects against an alternative of fitting fixed effects. Findings in Table 4.8, indicates that for models with and without moderation the -p value was greater than 0.05. Hence, there was no enough evidence for rejection of null hypothesis and consequently random effects models was fitted.

Table 4.8: Hausman Test

Model	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Without moderation	2.85	4	0.584
With moderation	10.60	9	0.30

4.5 Karl Pearson Correlation Analysis

Karl Pearson correlation coefficient was fitted to examine the strength of the influence of regulatory framework on financial intermediation efficiency of DT SACCOs in Kenya. According to Sekaran and Bougie (2013) correlation coefficient examines the strength of causality between variables under examination. The strength is measured using correlation coefficient that ranges from +1 to -1. If the correlation is -1, then there is an inverse effect between independent and dependent variable. If +1, then there is a perfect relationship between independent and dependent variables. If there is no relationship between variables, then correlation coefficient will be zero. Saunders *et al.,* (2014) alludes that correlation coefficient would be significant if its p values is less than 0.05 or any selected level of significance.

Findings in Table 4.9 indicates that there was a strong positive significant influence of capital adequacy on financial intermediation efficiency of DT SACCOs (rho = 0.820, p value < 0.05). Credit management has strong positive and significant influence on financial intermediation efficiency of DT SACCOs (rho = 0.782, p value < 0.05). Investment management have strong and positive influence on financial intermediation efficiency of DT SACCOs in Kenya (rho = 0.757, p value < 0.05). Disclosure requirements has positive and significant influence on financial intermediation efficiency of DT SACCOs in Kenya (rho = 0.792, p value < 0.05). Size has positive and significant influence on financial intermediation efficiency of DT SACCOs in Kenya (rho = 0.654, p value < 0.05).

The findings confirm allusion by Almazari and Alamri (2017) that capital adequacy can be adopted as tool for examination of financial institution liquidity. Though, the ratio is heterogeneous across industries organization compliance and non-compliance with it have significant contribution on achievement of its core objectives. This is mainly because of its core movement with asset quality, leverage, liquidity and asset base (Olalekan & Adeyinka, 2013). Furthermore, capital adequacy is a yardstick for examination of management efficiency in deployment of financial assets in optimization of shareholder's return. Almazari and Alamri (2017) recommended the need for not over exceeding compliance ratios so as to minimize odds of recording firm performance.

DT SACCOs primary objective is receipt of deposits for lending thus they leverage financial intermediation role. There is no surety that lent cash will be paid back due to uncertainties associated with client's cash flows. This has implication on credit management policies and quality of loan book that can negatively impact on financial intermediation (Ombaba, 2013). The quality of credit management policies in a financial institution are contingent to its achievement of financial intermediation objectives since increased non-performing loans may threaten credit creation (Ombaba, 2013). Caution should be exercised in credit management since increase in it has effect on operational efficiency that trickles down to profitability, liquidity, credit crunch, bank failures and panic.

Positive effect of investment requirement on financial intermediation efficiency was in agreement with Karago and Okibo (2014) who reported that SACCOs performance is contingent to investment decisions, loan default and fund misappropriations. The alluded that there is need for SACCOs to continuously evaluate their investment decisions on working capital items and capital structure so as to optimize their financial intermediation objectives. According to SASRA (2012) DT SACCOs can raise capital in addition to institutional capital which is achievable through voting during annual general meeting to authorize board of directors to borrow on their behalf and in most instances access to credit facility is dependent on collateral security. This escalates the need for SACCOs to accumulate more assets that may threaten compliance with regulatory requirements (Karanja, 2014).

Positive and significant effect of size on financial intermediation of DT SACCOs was in support of Kibet and Ngaba (2018) who documented positive significant effect of firm size on performance of commercial banks. They recommended that achievement of optimal performance of commercial banks would be possible through expansion of their branch networks and accumulation asset related investment so as to enhance their market share. Further, the findings confirmed Tharu and Shretha (2019) who reported that commercial banks in Nepal optimized their performance through accumulation of their asset. Since DT SACCO's members and customers differs from commercial banks, they may consider adoption of blended model that is linked to their client's needs.

Table 4.9: Karl Pearson Correlation Analysis

		FIE	Capital Adequacy	Credit Management	Investment Requirement	Disclosure Requirement	Size
FIE		1					
Capital Adequacy	Correlation Coefficient	0.820	1				
	Sig. (2-tailed)	0.002	-----				
Credit Management	Correlation Coefficient	0.782	-0.027	1			
	Sig. (2-tailed)	0.009	0.421	-----			
Investment Requirement	Correlation Coefficient	0.757	-0.069	0.056	1		
	Sig. (2-tailed)	0.042	0.037	0.093	-----		
Disclosure Requirement	Correlation Coefficient	0.792	0.085	-0.014	-0.01	1	
	Sig. (2-tailed)	0.043	0.010	0.681	0.77	-----	
Size	Correlation Coefficient	0.654	0.078	-0.009	-0.06	0.134	1
	Sig. (2-tailed)	0.010	0.019	0.782	0.08	0.000	

_Correlation is significant at the 0.01 level (2-tailed).

4.6 Capital Adequacy and Financial Intermediation Efficiency

The first objective of the study examined the influence of capital adequacy on financial intermediation efficiency of DT SACCOs in Kenya. Simple linear regression model was fitted as shown in Table 4.10. An R squared of 0.673, indicates that 67.3% of changes in financial intermediation efficiency of DT SACCOs in Kenya can be explained by capital adequacy while the remaining percentage can be accounted for by other factors excluded in the model. Further, there was a positive and significant influence capital adequacy on financial

intermediation of DT SACCOs in Kenya (β= 0.042, p value < 0.05). This indicates that an increase in capital adequacy is associated with an increase in financial intermediation efficiency.

The findings contradicted Kariuki *et al.,* (2018) who found that capital adequacy did affect financial intermediation efficiency of DT SACCOs in Kenya. They alluded those financial institutions only holds minimum capital adequacy thus it has varying influence on financial intermediation. This was in contrast to Gudmundsson *et al.,* (2013) who argued that financial institutions that hold higher proportion of capital ratios are more prepared to support their business operations in turbulent moments. Conclusiveness of the role of capital adequacy on financial intermediation can be authoritatively reported since the findings concurs with buffer capital theory that asserts financial institutions attain minimum capital as an insurance against penalties associated with breach of capital regulations (Ochei, 2013). Moreover, DT SACCOs may have no capacity to build up their buffer capital and those that may have achieved may have diversified their operational activities thus mitigating against their levels of risk exposure.

Financial Intermediation Efficiency = 0.87 + 0.042*Capital Adequacy

Table 4.10: Capital Adequacy and Financial Intermediation Efficiency

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Capital adequacy	0.042	0.001	42.04	0.000
C	0.870	0.010	88.107	0.000
R-squared	0.673	Mean dependent variable		0.869
Adjusted R-squared	0.657	S.D. dependent variable		0.145
S.E. of regression	0.125	Akaike info criterion		-1.162
Sum squared residuals	11.764	Schwarz criterion		-0.351
Log likelihood	674.762	Hannan-Quinn criterion.		-0.852
F-statistic	2.951	Durbin-Watson stat		2.012
Prob(F-statistic)	0.000			

4.7 Credit Management and Financial Intermediation Efficiency

The second objective of the study examined the influence of credit management on financial intermediation efficiency of DT SACCOs in Kenya. Findings in Table 4.11, has an R squared of 0.612, that shows that 61.2% of changes in financial intermediation efficiency of DT SACCOs was associated with credit management. Credit management has positive andsignificant influence on financial intermediation efficiency of DT SACCOs in Kenya (β= 0.010, p value < 0.05).

The findings were in support of Arora (2014) who found that in India commercial banks that has high levels of asset quality had high efficiency. Similar results were showed by Odunga, Nyangweso, Carter and Mwarumba (2013) who documented significant influence of credits risks ration on operating efficiency of commercial banks. To alleviate the level of risk exposure among commercial banks they were need for management of agency problems and conflict among different stakeholders. This was achievable through recruitment of management that have experience in management of banking affairs. Further, the results confirmed Burki and Niazi (2010) who alluded that state, private and foreign owned banks inPakistan financial intermediation efficiency was associated with bank size, asset quality andbranch networks. Further, positive increase by at least 10% of non-performing loans decreased financial intermediation efficiency by at least 6%.

The resultant equation was of the form:

Financial Intermediation Efficiency = 0.865 + 0.010*Credit Management

Table 4.11: Credit Management and Financial Intermediation Efficiency

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Credit management	0.010	0.0031	3.314	0.004
C	0.865	0.013	66.537	0.000
R-squared	0.612	Mean dependent var		0.869
Adjusted R-squared	0.598	S.D. dependent var		0.145
S.E. of regression	0.125	Akaike info criterion		-1.162
Sum squared residuals	11.765	Schwarz criterion		-0.351
Log likelihood	674.731	Hannan-Quinn criterion.		-0.852
F-statistic	2.950	Durbin-Watson stat		2.010
Prob(F-statistic)	0.000			

4.8 Investment Management and Financial Intermediation Efficiency

The third objective studied the influence of investment management on financial intermediation efficiency of DT SACCOs in Kenya. Results in Table 4.12 indicates an R squared of 0.5738, indicating that 57.38% of changes in financial intermediation efficiency of DT SACCOs was contributed by investment management. Further, there was a positive and significant influence of investment requirement on financial intermediation of DT SACCOs in Kenya ($\beta = 0.071$, p value < 0.05).

The results confirmed 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. Further, there were in agreement with Okwee (2011) whose study focused on effect of cash management, Loan Repayment, investment in non-core business, liquidity decisions, management competency and quick ratio log of total assets as the independent variables. The study found that SACCOS undertook strict cash flow forecast, affect cash management which poses a greater risk in the operations of the SACCO. The findings further revealed that financial performance

as measured by profit before tax over total assets is positively related to Liquidity. SACCO's through their policy of building savings for members have enabled their member's access to credit at fairly competitive rates. This is after giving them an opportunity to mobilize their limited resources (Cheruiyot, 2012). In Kenya Sacco's have played a key role in individual financial development? As a result, Sacco's have extended their services to include banking services and to a wider clientele which includes non- members. Sacco's have provided the chance for pooling of resources for reinvestment in homes, healthcare, benevolence and education (Gweyi & Karanja, 2014).

The resultant equation is of the form:

Financial Intermediation Efficiency = 0.858 + 0.071*Investment requirement.

Table 4.12: Investment Management and Financial Intermediation Efficiency

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Investment management	0.071	0.0227	3.1233	0.002
C	0.858	0.0116	73.6878	0.0000
R-squared	0.5738	Mean dependent var		0.8687
Adjusted R-squared	0.5474	S.D. dependent var		0.1445
S.E. of regression	0.1254	Akaike info criterion		-1.1625
Sum squared residuals	11.7547	Schwarz criterion		-0.3514
Log likelihood	675.1179	Hannan-Quinn criterion.		-0.8527
F-statistic	2.9569	Durbin-Watson stat		2.0154
Prob(F-statistic)	0.0000			

4.9 Disclosure Requirement and Financial Intermediation Efficiency

Further, the effect of disclosure requirement on financial intermediation efficiency was studied. Results in Table 4.13 indicates that disclosure requirements have positive and significant influence on financial intermediation efficiency of DT SACCOs in Kenya (β= 0.0013, p value < 0.05). Further, an R squared of 0.6342, indicates that 63.42% of changes in financial intermediation efficiency of DT SACCOs was accounted for by disclosure requirements.

The findings were in support of Aljifri (2008) which found that the level of disclosures by companies in the United Arab Emirates was regulator-driven as opposed to market-driven. Depending on the strictness or laxity of the regulator, this affected the extent to which firms complied with disclosure requirements. Further, Spiegel and Yamori (2004) argued that since disclosure enhances market discipline, regulatory authorities attempted to design regulations and accounting standards to enhance the level of disclosure. Spiegel and Yamori focused on voluntary disclosures of bad loans by Japanese small credit associations.

The resultant equation is:

Financial Intermediation Efficiency = 0.8421 + 0.0013*Disclosure requirements

Table 4.13: Disclosure Requirement and Financial Intermediation Efficiency

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	Prob.
Disclosure requirement	0.0013	0.0005	2.7862	0.4319
C	0.8421	0.0340	24.7663	0.0000
R-squared	0.6342	Mean dependent var		0.8687
Adjusted R-squared	0.6274	S.D. dependent var		0.1445
S.E. of regression	0.1254	Akaike info criterion		-1.1616
Sum squared residuals	11.7646	Schwarz criterion		-0.3506
Log likelihood	674.7397	Hannan-Quinn criterion.		-0.8518
F-statistic	2.9502	Durbin-Watson stat		2.0092
Prob(F-statistic)	0.0000			

4.10 Regulatory Framework and Financial Intermediation Efficiency

An examination on the effect of regulatory framework on financial intermediation efficiency is shown in Table 4.14. Study findings has an R squared of 0.77141, that shows that 77.14% of changes in financial intermediation efficiency can be accounted for by capital adequacy, credit management, Investment managements and

disclosure requirements while the remaining percentage can be explained by other factors.

The first hypothesis of the study stated that capital adequacy has no significant influence on financial intermediation efficiency of DT SACCOs in Kenya. Study findings indicates capitaladequacy has positive and significant influence on financial intermediation efficiency ($\beta = 0.0212$, p value < 0.05). This indicates that unit increase in capital adequacy increases financial intermediation efficiency by 0.0212 units.

The global financial crisis in 2008 highlighted the importance of having an adequate level of capital to prevent a company from becoming bankrupt. Capital requirement can be in the form of regulatory capital (capital amount required by regulators) economic and actual capital. Whilst regulatory capital model has certain weaknesses with implications to different stakeholders, there are certain ways for regulators and/or companies to address these weaknesses. Capital requirement is the determination of how much capital is needed to sustain operating losses while meeting liabilities demand. For instance, to guide the determination of capital amount, Basel Committee on Banking Supervision issued Basel II which includes recommendations on banking laws and regulations. Basel II set up capital management requirements to ensure that a bank has adequate capital for the risks it is exposed to through its lending and investment practices. In general, the higher the risk level, the greater the amount of capital required and this is the principle of risk-based capital management (Ho, 2012).

Generically, though the concepts have been evolving with various Basel Accords, regulatory capital for various debt instruments is 8% of the financial institution's risk-weighted assets.It can also be defined as the amount of capital a bank or other financial institution has to hold as required by its financial regulator. This is usually expressed as a capital adequacy ratio of equity that must be held as a percentage of risk-weighted assets (Barrios & Blanco, 2002). Regulatory Capital Management provides solutions to address the shortage of capital available to entities that have minimum capital requirements to satisfy prudential regulatory 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 emanate from the likely panic withdrawals from other solvent but illiquid banks due to collapse of a known financial institution.

The second hypothesis stated that credit management has no significant influence on financial intermediation efficiency of DT SACCOs in Kenya. There is a positive and significant influence of credit management on financial intermediation efficiency of DT SACCOs in Kenya ($\beta = 0.0701$, p value < 0.05). This indicates that unit increase credit management increases financial intermediation efficiency of DT SACCOs by 0.0701 units.

SACCO credit requirement is postulated by the level of non-performing loans to Total assets. Credit risk is the probability that a loan will not be repaid according to the terms and conditions of the contract (Mutua, 2014). Moreover, Roselyne (2007) conducted a study which found that factors that influenced repayment of loans in SACCOs were salary, nature of loans, and control recovery measures that the SACCO has put in place to check defaulters. The study recommended that there was need for SACCOs to implement sound credit management, sound control and loan recovery measures. Loan advance should be based on past repayment history of the borrower, salary levels and contributions; and there should be diverse loan products.

Growth in loan and advance is Non-financial measure of performance of Deposit taking SACCOs. SACCO's through their policy of building savings for members have enabled their member's access to credit at fairly competitive rates. However, many Sacco's still continue to offer limited services to members only, but a few others, which are larger, have opened up their common board and allowed non-members to join the SACCOS by establishing FOSAs, which offer a broader range of financial services (Birchall, 2013). Sacco's are now adopting new strategies in innovation and product development. The Sacco's have been in the forefront in mobilizing savings from the members to cater for their credit needs. In addition to that the Sacco's are moving into co-operative banking commonly referred to as FOSA. The flexibility of Sacco's offering FOSA to offer a wide range of products

and services have enhanced their faster growth in comparison to their non-deposit taking counterparts. FOSA Sacco's account for 75 percent of the total's industry assets and deposits. This is an implication that this new business model has become attractive and are able to meet financial needs of their members. Apart from deposit taking Sacco's having the lion's share of assets and deposits, they also account for 76.4 percent of all loans in the Sacco sub-sector (CBK, 2012).

The third hypothesis stated that Investment management has no significant influence on financial intermediation efficiency of DT SACCOs in Kenya. There is a positive and significant influence of Investment management on financial intermediation efficiency of DTSACCOs in Kenya ($\beta = 0.0371$, p value < 0.05). This indicates that unit increase in Investment management increases financial intermediation efficiency of DT SACCOs in Kenya by 0.0371

The fourth hypothesis states that disclosure requirement has no significant influence on financial intermediation efficiency of DT SACCO's in Kenya. There is a positive and significant influence of disclosure requirement on financial intermediation efficiency of DT SACCO's in Kenya ($\beta = 0.0313$, p value < 0.05). This indicates that unit increase in disclosure requirement increases financial intermediation of DT SACCO's by 0.0313 while holding constant capital adequacy, credit management and Investment management constant. The findings rhyme with Kaleshu (2008) who identified lack of financial regulations as a major setback to the financial performance of cooperatives societies saying that group action is more difficult to coordinate than individual action. He therefore averred that with proper government interventions SACCO's are likely to perform much better and with a lot of discipline. Further, Kilonzi (2012) found that that ROE, capital ratio, liquidity and management efficiency improved in the second period compared to the first. There was no difference in ROA in the two periods. Furthermore, Dempsey *et al.* (2002) posited that cooperatives "destroy value" since few cooperatives have changed the way they operate. They said that several financial ratios for cooperatives (revenue growth, return on assets and operating margins) were calculated which indicated weak financial performance in the cooperative sector. Another financial performance measure, "value created" was also analyzed; it was based on "return on invested

capital" this also reported a low financial performance in cooperative societies. In their conclusion, they realized that firms which wereregulated performed better than cooperatives which were left unregulated.

The resultant equation was:

Financial Intermediation Efficiency = 0.8313 + 0.0212*Capital Adequacy + 0.0701*Credit management + 0.0371*Investment management + 0.0313*Disclosure requirement.

Table 4.14: Regulatory Framework and Financial Intermediation Efficiency

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Capital adequacy	0.0212	0.0066	3.2016	0.001
Credit management	0.0701	0.0314	2.2299	0.005
Investment management	0.0371	0.012	3.0837	0.002
Disclosure requirement	0.0313	0.011	2.7747	0.004
C	0.8313	0.0370	22.4624	0.0000
R-squared	0.7741	Mean dependent var		0.8687
Adjusted R-squared	0.7547	S.D. dependent var		0.1445
S.E. of regression	0.1256	Akaike info criterion		-1.1563
Sum squared residuals	11.7488	Schwarz criterion		-0.3292
Log likelihood	675.3468	Hannan-Quinn criterion.		-0.8404
F-statistic	2.8916	Durbin-Watson stat		2.0150
Prob(F-statistic)	0.0000			

4.11 SACCO Size Moderating Effect on the Influence of RF and FIE

The fifth hypothesis stated that DT SACCO size has no significant moderating effect on the influence of regulatory framework on financial intermediation efficiency in Kenya. Regression results in Table 4.15 indicates that 84% of changes in financial intermediation efficiency can be explained by regulatory framework, size and moderated regulatory framework while the remaining portion is related to other factors excluded in the model. R squared increased by 6.59% after moderation with

size indicating has moderation on the effect of regulatory framework on financial intermediation. An F statistic of 2.871 and p value of 0.00 indicates that regulatory framework and DT size has significant contribution on financial intermediation of SACCOs in Kenya. DT SACCO size has positive and significant effect on financial intermediation efficiency (β = 0.001, p value <0.05).

After DT SACCO size moderation on capital adequacy, CA*Size there was positive and significant effect on financial intermediation efficiency (β = 0.001, p value <0.05). Secondly, DT SACCO size has positive and significant moderating effect on credit management, CM*size (β = 0.009, p value <0.05). Thirdly, DT SACCO size has positive and significant moderating effect on Investment management, IR*size (β = 0.037, p value <0.05). Moreover, DT SACCO size has positive and significant moderating effect on disclosure requirements (β = 0.025, p value <0.05).

Financial Intermediation efficiency = 0.857 + 0.019 * Capital adequacy + 0.145 * Credit management + 0.007* Investment management + 0.005*Disclosure requirement + 0.001* DT SACCO size + 0.001*CA*Size + 0.009 * CM*Size +0.037*IR*Size +0.025*DR*Size

DT SACCO size moderating effect was confirmed through comparison of moderated and non-moderated coefficients with marginal change of regulatory framework effect on financial intermediation efficiency of DT SACCOs in Kenya. DT SACCO size moderating effect was present if marginalized coefficients differ from non-moderated regression coefficients. The following equations were adopted:

$$\frac{\delta\ Financial\ Intermediation\ efficiency\ i,t}{\delta\ Capital\ Adequacy\ i,t} = \beta_1 + \beta_6 DTS = 0.019 + 0.001*16.65 = 0.03565.$$

$$\frac{\delta Financial\ Intermediation\ efficiency\ i,t}{\delta\ Credit\ management\ i,t} = \beta_2 + \beta_7 DTS = 0.145 + 0.009* 16.65 = 0.29485.$$

$$\frac{\delta\ Financial\ Intermediation\ efficiency\ i,t}{\delta\ Investment\ requirementi,t} = \beta_3 + \beta_8 DTS = 0.007 + 0.037 * 16.65 = 0.62305.$$

$$\frac{\delta\ Financial\ Intermediation\ efficinecy\ i,t}{\delta\ Disclosure\ requirements\ i,t} = \beta_4 + \beta_9 DTS = 0.005 + 0.025 * 16.65 = 0.42125.$$

Comparison between marginalized coefficients and those in equation 4.5 (Financial Intermediation Efficiency = 0.8313 + 0.0212*Capital Adequacy + 0.0701*Credit management + 0.0371*Investment management + 0.0313*Disclosure requirement), these coefficients differed. Hence, it can be concluded that DT SACCO size has moderating effect on the influence of regulatory framework and financial intermediation efficiency of DT SACCOs in Kenya.

The findings supported Heshmaiti *et al.* (2011) who argues that larger SACCO have higher ROE and operational self-sufficiency. In relation to this study the size of the DTS is viewed as dummy Variable with 0 being Small-sized DT-SACCO's and 1 being large and Medium- sized DT-SACCO's. SACCO's are owned and managed by their members in order to offer services to them. One of their key objectives is to maximize the range of services they offer to their members. The other is to optimize the benefits to members, for example by charginga relatively lower rate of interest as compared to other financial institutions. Consequently, the objective of SACCO's is not to maximize the wealth of their owners. This implies that profit maximization is not a major objective of SACCO since there are no significant non- members to exploit (Mwangi, 2014).

SACCO's in Kenya are required to adhere to regulations set out by the Sacco Societies Regulatory Authority (SASRA). These SASRA regulations provide the minimum operational regulations and prudential standards required of SACCOs operating Front Office Savings Activity (FOSAs) or DTS. These include: DTS to apply for a license from SASRA renewable yearly; SACCO shall maintain adequate capital; credit management; risk classification and provisioning; investment return disclosures requirements; corporate governance); contribution to SASRA Deposit guarantee fund and submit Sasra reports(SASRA1/001- SASRA1/0008) these include capital adequacy return reports, liquidity statement reports, Statement of financial position ,Statement of deposit return, risk classification and provisioning, Return on investments report and other disclosure on need basis(SACCO Society Act, 2010).

While there have been several reform initiatives in the SACCOs subsector in the past, the introduction of SACCOs specific law is in recognition of the unique financial intermediation function that SACCOs play in an economy. Thus, the operational regulations and performance standards are specific and prescriptive; not to make SACCOs non-competitive and stifle their growth but to ensure that they operate and grow within a framework that promotes sound financial and business management practices (Mwaura, 2005). Consequently, a wide range of measures of SACCO performance such as profitability (for example net profit, return on equity), growth (represented by market share, turnover, and growth in branch network) and survival have been used by researchers. However, there has been little consensus on the measurement of performance (Carton & Hofer, 2010).

Table 4.15: SACCO Size Moderating Effect on the Influence of RF and FIE

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Capital adequacy	0.019	0.010	2.007	0.004
Credit management	0.145	0.055	2.627	0.003
Investment management	0.007	0.003	2.403	0.002
Disclosure requirement	0.005	0.002	2.375	0.003
Size	0.001	0.001	2.061	0.005
CA*Size	0.001	0.000	2.996	0.001
CM*Size	0.009	0.003	2.647	0.002
IR*Size	0.037	0.016	2.273	0.003
DR*Size	0.025	0.011	2.303	0.005
C	0.857	0.304	2.819	0.001
R-squared	0.84	Mean dependent var		0.869
Adjusted R-squared	0.81	S.D. dependent var		0.145
S.E. of regression	0.125	Akaike info criterion		-1.157
Sum squared residuals	11.609	Schwarz criterion		-0.303
Log likelihood	680.717	Hannan-Quinn criterion.		-0.831
F-statistic	2.871	Durbin-Watson stat		2.003
Prob(F-statistic)	0.000			

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The study examined the influence of regulatory framework on financial intermediation efficiency of DT SACCOs in Kenya. The chapter presents summary of major findings, conclusion and policy and management recommendations. Summary is as per objectives and hypotheses. Policy and management recommendations are in line with conclusions. Further, suggestion for subsequent studies is given.

5.2 Summary of Findings

The study findings showed that on average, financial intermediation efficiency was maintained by DT SACCOs from 2014 to 2019. Achievement of financial intermediation efficiency was associated with compliance with regulatory framework. A clear indicator that most DT SACCOs complied with regulatory framework guiding their operations. Throughout the period under consideration scale efficiency exceeded technical efficiency an indicator that management underperformance eroded odds of DT SACCO's optimal performance. Further, there was more disparity on financial intermediation efficiency of DT SACCOs since it was anticipated that big DT SACCOs may benefit from economies of scale in pursuance of their financial intermediation objectives.

5.2.1 Capital Adequacy and Financial Intermediation Efficiency

The study sought to examine the influence of capital adequacy and financial intermediation efficiency of DT SACCOs in Kenya. Past empirical review was applied in selection of measure of capital adequacy as core capital to total deposits. Study findings indicated that financial intermediation efficiency was positively and significantly influenced by capital adequacy. This implies that capital adequacy has significant influence on financial intermediation efficiency of financial institutions.

The underlying argument was that most institutions seek to hold at least the minimum requirements in capital adequacy ratios. The finding confirms that buffer capital theory is appropriate in management of DT SACCOs in Kenya.

5.2.2 Credit Management and Financial Intermediation Efficiency

The second objective of the study evaluated the influence of credit management on financial intermediation efficiency of DT SACCOs in Kenya. Study findings indicated that there was apositive and significant influence of credit management on financial intermediation efficiency of DT SACCOs in Kenya. This implies that improved credit management strategies have significant contribution on financial intermediation efficiency of DT SACCO's in Kenya. The findings predict that reduction in proportion of non-performing loans would lead to improvement of DT SACCO's financial intermediation efficiency. The results confirm the existence of bad management hypothesis in operations of DT SACCO's and in conformity of information asymmetry theory. Furthermore, decrease in proportion of NPL erodes oddsof moral hazard and adverse selection.

5.2.3 Investment management and Financial Intermediation Efficiency

The third objective examined the influence of Investment Requirement and financial intermediation efficiency of DT SACCO's in Kenya. Study findings indicated that Investment management have positive and significant influence on financial intermediation efficiency of DT SACCO's in Kenya. The results indicated that DT SACCO's are in compliance with Investment management and some have reduced their ratio to below requirements thus enhancing their credit creation capacity. DT SACCO's have significant different proportion ofland, plant and equipment to total assets. This has higher odds of decreasing monitoring and agency costs and increasing optimization of shareholder's wealth.

5.2.4 Disclosure Requirement and Financial Intermediation Efficiency

The fourth objective examined the influence of disclosure requirement and financial intermediation efficiency of DT SACCO's in Kenya. Study findings indicated that

disclosure requirements have positive and significant influence on financial intermediation efficiency of DT SACCO's in Kenya. An increase in disclosure requirements has a positive trajectory on financial intermediation efficiency. This depicts that disclosure requirements compliance enhances financial intermediation efficiency through decline in agency and monitoring costs. This is in support of signaling hypothesis that argues that disclosure of positive information to members of the public decreases information access costs and minimize levels of information asymmetry that would enhance management performance. Furthermore, Wanjau *et al.,* (2018) alludes that ease of information access have significant contribution on performance of respective organizations.

5.2.5 Size and Financial Intermediation Efficiency

The fifth objective of the study examined moderating effect of DT SACCO's size on the influence of regulatory framework on financial intermediation efficiency of DT SACCO's in Kenya. The study found positive and significant effect of size on financial intermediation efficiency of deposit taking SACCO's in Kenya. Further, size has positive and significant moderating effect on the influence of capital adequacy, credit management, Investmentmanagements and disclosure requirements on financial intermediation efficiency of DT SACCOs in Kenya. The study findings imply that if DT SACCOs optimizes their size, then they may enhance their financial intermediation role.

5.3 Conclusion

The study examined the influence of regulatory framework on financial intermediation efficiency of deposit taking savings and credit cooperative societies in Kenya. In the initial stage, the financial intermediation efficiency of DT SACCOs was examined through data envelopment approach. The study showed that there was a persistent increase in financial intermediation efficiency within the period under consideration. Thus, it can be concluded that as DT SACCOs complied with regulatory framework their efficiency improved. Hence, it can be concluded that financial institutions compliance with prudential guidelines enhances their financial intermediation efficiency. Since pure efficiency was lower than scale efficiency

throughout the period under examination, then there is need for management to examine their performance inefficiencies so as to minimize wastages and spillage of performance opportunities.

In secondly the study examined the influence of regulatory framework on financial intermediation efficiency and moderating effect of size on DT SACCOs. The study found that capital adequacy has positive and significant influence on financial intermediation efficiency of DT SACCOs in Kenya. It can be concluded that compliance with core capital to total deposits enhance efficiency of financial institutions. Hence, the management of respective DT SACCOs should develop models on core capital to total deposits to adopt the most optimal ratio that would enhance their level of financial intermediation.

Since there is a positive and significant influence of credit management on financial intermediation efficiency of DT SACCOs in Kenya, there is need for DT SACCOs to enhance their credit evaluation criterion to manage the odds for adverse selection and moral hazard that may injure their financial intermediation efficiency. Further, it can be concluded that there is need for DT SACCOs to enhance their surveillance of customers who are seeking for credit services and ensure they vet their credit worthiness prior to loan disbursement to minimize odds of increasing proportion of non-performing loans.

Thirdly, Investment management have positive and significant influence on financial intermediation efficiency of DT SACCOs in Kenya. Consequently, it can be concluded that compliance with prudential guidelines on Investment management enables DT SACCOs to create their credit capacity and minimize odds of facing bank panic and runs. Hence, financial institutions ought to ensure that they limit the amount of cash they have invested in less liquid assets so to mitigate situations of running out of cash when clients are in need ofit.

Further, there was a positive and significant influence of disclosure requirements on financial intermediation of DT SACCOs in Kenya. Hence, it can be concluded that the level of information disclosure among DT SACCOs in Kenya have contribution on their financial intermediation role. Consequently, there is need for enhancement

of compliance with prudential guidelines on information disclosure on matters that would enhance management and other stakeholder's decision making on financial intermediation related issues.

Size of DT SACCOs has positive and significant moderating effect on the influence of regulatory framework on financial intermediation efficiency of DT SACCOs in Kenya. Thus, there is need for DT SACCOs to optimize their sizes so as to enhance their financial intermediation efficiency in their respective areas of operations. Since, DT SACCOs serves different clients as compared to other financial institutions there is need for adoption of customized policies that may enhance respective DT SACCOs financial intermediation.

5.4 Recommendations

Kenya's development blue print vision 2030 forecasts creation of vibrant and competitive financial sector that may enhance level of savings and financial investment needs that may change with implementation of development goals. Achievement of development agendas and implementation of four agenda of Jubilee government administration agendas would only be possible with efficiency by financial institution in pursuance of their intermediation role. DT SACCOs have a pivotal role in wealth creation through savings mobilization and ease in access of credit among different stakeholders. DT SACCOs advance credit to their members' contingent to their deposits and ability to raise collateral on their debts. Owing to their friendly lending terms as compared to other financial institutions have led to increased demand of credit by its members. Consequently, policy makers should develop policies that would enable to collate deposits and advance credit to its members through the cheapest financing option. Further, there is need for provision of deposit security so as to minimize incidences of bank panic and runs in DT SACCOs.

Regarding financial intermediation efficiency, results indicates that the average was less than one. This clearly indicated that DT SACCOs had opportunity and capacity to provide loans and invest their resources to optimize their performance. Since the sources of inefficiency was attributed to management related issues. Thus, it's

recommended that managers and policy makers should develop measures aimed at improving management efficiency in DT SACCOs. This can be through examination on the quality of governance and leadership.

There is need for emphasis on the level of academic and professional qualifications of top- level leadership in DT SACCOs.

From the findings that capital adequacy has positive and significant contribution on financial intermediation efficiency of DT SACCO's calls for monitoring of compliance with prudential guidelines on capital adequacy ratios. This would ensure that management develops cautionary measures that would minimize odds of failure to meet financial intermediation needs.

Secondly, there was a positive and significant influence of credit management and financial intermediation efficiency of DT SACCOs. Therefore, there is need for continued monitoring of the quality of loan portfolio in DT SACCOs. Respective SACCO's management ought to develop measures aimed at minimizing odds of increasing levels of non-performing loans. DT SACCOs ought to continuously evaluate their credit policy framework and adopt dynamic credit appraisal process. This may ultimately minimize odds of moral hazard and adverse selection due to reliance on information for decision making.

Thirdly, there is need for management of DT SACCOs to enhance compliance with Investment management policy guidelines and procedures. This would be achieved through management of working capital items such as management of cash balances. Dependent on investment policies in place DT SACCO's management may adopt investment models that would enable ease conversion of investment in non-tangible assets into cash.

Further, there is need for development of guidelines on disclosure measures that may be adopted by DT SACCOs. Management and policy makers should develop measures aimed at minimizing level of information of asymmetry among different stakeholders. Management should provide qualitative information and off-balance sheet items that may guide in decision making. Through management of disclosure

levels DT SACCOs, it would be easier to collateand gather information that may aid in decision making between members and management of DT SACCOs.

Finally, size has positive and significant moderating effect on financial intermediation efficiency of DT SACCOs. The size enhanced the influence of credit management, Investment management and disclosure requirements on the influence of financial intermediation efficiency. Moreover, size weakened the influence of capital adequacy on financial intermediation efficiency. Thus, there is need for management to develop measures aimed at accumulating assets that may not injure capital adequacy measures of DT SACCOs. Since there was positive co-movement between credit management, Investment management and disclosure requirements and size.

5.5 Suggestion for Further Study

The study examined the influence of regulatory framework on financial intermediation efficiency of deposit taking SACCOs in Kenya. Future study may segregate DT SACCOs according to sectors and examine the influence of regulatory framework on financial intermediation efficiency of DT SACCOs in Kenya. This may have contribution on different R squared and explain contribution effect of regulatory framework on financial intermediation efficiency. The study was limited to period within which regulations havebeen in place, the study focused on period 2012-2017. Future studies should consider data over a longer period of time, so as to examine short and long run influence of regulatory framework on financial intermediation efficiency. Further, future scholars may consider examination of financial intermediation efficiency in other players of financial sectors such as insurance companies and investment banks.

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APPENDICES

Appendix I: Letter of Introduction

Date……

To Chief Executive Officer

Name of the SACCO……...

P.O. Box ……

Dear Sir/Madam,

RE: RESEARCH DATA ON "REGULATORY FRAMEWORK AND FINANCIAL INTERMEDIATION EFFICIENCY OF DEPOSIT TAKING SAVINGS AND CREDIT COOPERATIVE SOCIETIES IN KENYA"

I am a student pursuing a Doctorate Degree in accounting at Jomo Kenyatta University of Agriculture and Technology. I' am required to undertake a research as partial fulfilment for the award of this higher degree. My research topic is as stated above and I kindly request for your assistance in making my research a success. The purpose of this letter is to request you to grant permission to collect relevant data from your SACCO record and your staff. The information collected will be treated with utmost confidentiality and will be used for the purposes of this research only.

Thank you in advance for your time and cooperation.Yours Sincerely,

Perminus Kariuki MuriithiHD439-1053/2015

Appendix II: Secondary Data Collection Sheet

		2014	2015	2016	2017	2018	2019
Financial intermediation efficiency	Interest income						
	Profitability						
	Labour cost						
	Overhead expenses						
	Operating expenses						
Capital Adequacy	Core capital						
	Total deposits						
Credit management	Non-performing loans						
	Gross loan portfolio						
Investment management	Plant property & Equipment						
	Total assets						
Disclosure requirements	Loan's loss provisions						
SACCO size	Financial Investment						

Appendix III: List of DTS in Kenya

	County	Number DTS
1	Bomet	5
2	Baringo	2
3	Bungoma	2
4	Busia	1
5	Elgeyo/ Marakwet	1
6	Embu	5
7	Narok	2
8	Homabay	2
9	Taitataveta	1
10	Kajiado	2
11	Kakamega	6
12	Kericho	6
13	Kiambu	14
14	Kilifi	2
15	Kirinyaga	5
16	Kisii	3
17	Kisumu	4
18	Kitui	2
19	Nandi	3
20	Laikipia	3
21	Lamu	1
22	Machakos	2
23	Nyandarua	3
24	Marsabit	1
25	Meru	14
26	Migori	1
27	Mombasa	9
28	Murang'a	2
29	Nairobi	40
30	Nakuru	14
31	Nyeri	8
32	UasiGishu	3
33	Samburu	2
34	Siaya	1
35	Nyamira	1
36	Tran nzoia	1
37	Total	174