

**FINANCIAL STRUCTURE AND FINANCIAL INTERMEDIATION EFFICIENCY
OF DEPOSIT TAKING, SAVING AND CREDIT COOPERATIVE SOCIETIES IN
KENYA**

BY

SHAAI LEDAMA BORNFAS

**A RESEARCH DISSERTATION SUBMITTED TO THE SCHOOL OF BUSINESS IN
PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF THE
DEGREE OF MASTER OF SCIENCE IN COMMERCE (FINANCE AND
ACCOUNTING OPTION) AT KCA UNIVERSITY**

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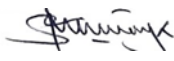
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DECLARATION

I declare that this dissertation is my original work and has not been previously published or submitted elsewhere for award of a degree. I also declare that this contain no material written or published by other people except where due reference is made and author duly acknowledged.

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ABSTRACT

Financial structure is a concept that generally describes the manner in which a firm finances asset through the combination of both debts, equity and any other hybrid security. “Financial intermediation within the financial sector is very crucial in promoting financial services access as well as ensuring the financial sector stability as a key component of the financial system. Financial sector firms normally tend to exhibit a higher level of financial intermediation efficiency than firms in other sectors due to their ability to transform savings received primarily from household economic units into credit or loans for companies and others to invest in buildings, equipment and other capital goods. Therefore, by enhancing their efficiency, commercial banks are in a position to offer their financial services more effectively. SACCOs in Kenya play a very significant role in financial intermediation as savings through them translates to around 48.55% of the gross national savings. However, despite these developments, SACCOs are still facing numerous challenges especially in terms of their overall financial structure. For example, there was an increase in the amount of non-performing loan ratio on SACCOS to 6.30 percent back in 2018 down from 6.14 percent of what had been reported in 2017. Therefore, the study bridged this research gap by examining the relationship between capital structure and financial intermediation efficiency of deposit taking SACCOs in Kenya. The study adopted a descriptive research design. The study target population were all 174 DT-SACCOs in Kenya. Simple random sampling technique was adopted. The study utilized secondary data taken from the financial statements submitted by each DTS to SASRA. STATA was used for data analysis. The research was based on balanced panel data from 2017 to 2021. The study findings observed that leverage had a positive and significant effect on financial intermediation efficiency of DTS operating in Kenya. The results also indicated that non-withdrawable deposits held had a negative but statistically significant effect on financial intermediation efficiency of DTS. Further, it was observed that share capital had a positive and in significant effect on financial intermediation efficiency of DTS operating in Kenya. It was concluded that maintaining high-level leverage is very crucial for deposit-taking SACCOs in order to enhance their financial intermediation efficiency. It was also concluded that the amount of share capital that a DTS has in terms of ordinary share capital, preference share capital and reserves play a very crucial role in determining its overall financial intermediation efficiency. It was recommended that DTS in Kenya should always ensure that they always maintain high leverage level so as to ensure that they are able to diversify their investments as well as helping them to set out a threshold for the expansion of their business operations. It was also recommended that policy makers in Kenya that are concerned with DTS regulation should ensure that that DTS across the country implement and adopt effective and sound financial structure decisions in order to enhance their financial intermediation efficiency and thus minimize the instances of DTS plunging into financial crisis that has caused many people across the country to lose a lot of money in the past.

Key Words: Leverage, Non-Withdrawable Deposits, Share Capital, Financial Intermediation Efficiency.

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ACRONYMS AND ABBREVIATIONS

ADF	Augmented Dickey Fuller
DTSs	Deposit Taking Societies
EU	European Union
FGLS	Feasible Generalized Least Squares
NPLs	Non-Performing Loans
OLS	Ordinary Least Squares
SACCOs	Savings and Credit Co-operative Societies
SMEs	Small and Medium Enterprises

OPERATIONAL DEFINITION OF TERMS

- Financial Intermediation:** It refers to a productive activity in which an institutional unit undertakes liabilities on its own behalf in order to acquire financial assets by engaging in monetary operations on the market (Ibrahim & Law, 2020).
- Financial Structure:** It refers to manner in which a firm finances asset through the combination of both debts, equity and any other hybrid security (Qin & Zhou, 2019).
- Long-Term Debts:** Long term debt is money that is owed to financiers for a period that is not less than one year (D’Amato, 2020).
- Non-Withdrawable Deposits:** These are types of deposits or saving that are accumulated by customers in their financial institutions are mostly used in obtaining credit facilities by acting as the safety collateral securities (Leonello et al., 2022).
- Share Capital:** Share capital refers to that amount of money that a firm raises through the issue of either common or preferred stocks (Dudycz, 2021).
- Short-Term Debts:** Refers to debts that are due within the year that the and are an excellent measure of a firm ’s liquidity and success (Della Morellec, & Zucchi, 2020).

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Financial structure is a concept that generally describes the manner in which a firm finances asset through the combination of both debts, equity and any other hybrid security (Qin & Zhou, 2019). Balancing the proportion of debt and equity of a firm is very crucial as unbalanced capital structure may cause a firm to fail to effectively economize the manner in which they use their capital. As a result, proper care must always be taken when making financial structure decisions in order for a company to be able to adapt more effectively to the ever-changing nature of their market. For this reason, financial structure decisions are increasingly taking a significant shift by incorporating other financial aspects especially one to do with intermediation efficiency (Mehmood, Hunjra & Chani, 2019).

Financial intermediation within the financial sector is very crucial in promoting financial services access as well as ensuring the financial sector stability as a key component of the financial system (Qin & Zhou, 2019). However, even though the positive relationship between financial structure and financial intermediation has been supported by a number of studies done across the globe, very limited research has been undertaken to determine the actual effect of financial structure on firm's financial intermediation efficiency. Due to their capacity to convert savings received primarily from household economic units into credit or loans for companies and others to invest in buildings, equipment, and other capital goods, financial sector firms typically demonstrate a higher level of financial intermediation efficiency than firms in other sectors. Therefore, a well-balanced financial structure is very crucial for firms within the financial sector to ensure high financial intermediation efficiency especially with financial institutions being at the forefront of economic development (Mehmood, Hunjra & Chani, 2019).

The traditional mode of financial institutions of obtaining finances at low cost and the spread between obtaining finances and issuing out loans and advances has greatly reduced. This is because traditional financial services were deemed to be less profitable forcing the institutions to seek new avenues for enhancing their overall financial intermediation efficiency (Ma & Yao, 2022). The increase in financial institutions efficiency has been made possible due to enhanced financial structure decisions where they are able to obtain more fee-based incomes and, thus, diversifying their overall financing risks. Therefore, financial institutions are more likely to report high financial efficiency when appropriate financial structure is maintained.

Leverage, also known as trading on the equity, is a financial technique that involves the use of additional borrowed funds to maximize investment profits. Financial leverage is the use of stock and debt financing to finance a company's assets (Rehman, 2013). On the other hand, non-withdrawable deposits are types of deposits or saving that are accumulated by customers in their financial institutions are mostly used in obtaining credit facilities by acting as the safety collateral securities (Leonello et al., 2022).

Share capital refers to that amount of money that a firm raises through the issue of either common or preferred stocks (Dudycz, 2021). As a result, the amount of share capital held by a firm can keep changing over time as firms keep issuing additional public offerings. Finally, Financial intermediation is a profitable venture in which an organizational unit assumes its own liabilities in order to acquire financial assets through market-based monetary operations (Ibrahim & Law, 2020). Financial intermediaries serve to smooth the transfer of funds between lenders and borrowers.

1.1.1 Financial Structure

The financial structure includes both liabilities and capital, in addition to all other sources of funding for the company. The financial structure basically involves how a company funds its assets, either through a combination of different sources or from a single source (Saad, 2019).

Balancing the proportion of debt and equity of a firm is very crucial as unbalanced capital structure may cause a firm to fail to effectively economize the manner in which they use their capital. As a result, proper care must always be taken when making financial structure decisions in order for a company to be able to adapt more effectively to the ever-changing nature of their market.

In the United States, Shubita and Alsawalhah (2020) observed that financial structure decisions are important in every business life, as they are important in determining the achievement of goals for different organizations. A survey in China in 2021 found it difficult to determine the optimal financial structure for a company due to the need to analyze multiple factors, including key factors such as risk and profitability. rice field. Decisions are even more difficult if the economic, social, technical and political environment in which the company operates shows a high degree of instability (Arora, 2020).

Bayai and Ikhide (2018) in their study in South Africa observed that the selection of a company's best financial structure is challenging since it requires a consideration of various elements, including risk and profitability. When the alternatives are limited, the decision becomes more difficult economic, social, technological, and political settings within which a business works demonstrates a high level of instability. Consequently, the choice of the most optimal proportion of debt to equity can alter the overall financial performance of a company (Bayai & Ikhide, 2018).

According to the findings of a study undertaken by Kimani et al. (2019), it was concluded that the efficiency of financial intermediation and the financial structure are related. Therefore, many commercial banks have failed to efficiently mediate because they have not implemented appropriate financial strategies. Factors contributing to the bankruptcy of commercial banks can be addressed through appropriate strategies to drive the growth and achievement of corporate goal. Great care and attention must be paid and careful when deciding

on the financial structure. Failure to do so can lead to financial difficulties (Singh & Faircloth, 2020). There may be multiple options, but to make the best decision in a given scenario for the benefit of the business, for someone to critically analyze the impact of the available options on the efficiency of the business's mediation.

1.1.2 Financial Intermediation Efficiency

Financial intermediation is a profitable venture in which an organizational unit assumes its own liabilities in order to acquire financial assets through market-based monetary operations (Ibrahim & Law, 2020). Financial intermediaries serve to smooth the transfer of funds between lenders and borrowers. It also refers to the transfer of funds from an economic unit with a surplus (saver) to an economic unit with a deficit (investor). In addition, financial intermediation efficiency refers to the mobilisation of cash from surplus units and their distribution to deficit units with minimal or no waste (Ibrahim & Law, 2020). It encourages resource conservation by prioritising cost reduction and maximising output for a given set of inputs and technologies.

Globally, the concept of financial intermediation aspect has increasingly become important in developed countries such as the United States due to its ability to address efficiency issues especially among financial institutions (Jiménez, Palazzo, & Sáez, 2019). Consequently, the cost of financial intermediation has greatly contributed to the enhancement of market competitiveness and the mobilization of efficiency within a specific financial system. Fair market competition provides market power to highly capitalized and large-sized commercial banks, allowing them to compete with other financial institutions within an economy, hence dominating in loan pricing due to a cheap cost of capital. Based on this, it is evident that financial intermediation efficiency has a substantial relationship with market rivalry, which simultaneously influences the total financial structure of financial institutions.

In Indonesia, Sirait and Rokhim (2019) observes that effective implementation of financial intermediation within the financial sector is based on the ability of financial institutions to transform savings received into credit/loans for companies and others to finance their operations. As such, implementation of financial intermediation efficiency function tends to influence the overall financial structure of a financial institution. Financial sector firms are therefore able to apply their financial intermediary role more optimally when a proper financial structure decisions are made.

Pantieliieva, Khutorna, Lytvynenko and Potapenko (2020) in their study that targeted EU finance firms observed that implementation of financial intermediation within the banking sector usually plays a very crucial role in lowering their investment costs, managing risks and financing their daily operations. Consequently, the ability to provide such services within the economy enables financial intermediaries to influence saving and allocation decisions in ways that can impact long-term growth rates. Consequently, countries whose financial institutions are able to implement effective financial intermediation that is better at acquiring information, exerting corporate control, managing risk, and mobilizing savings are able to experience faster economic growth than nations with less developed financial systems.

In Africa, Yakubu and Abdallah (2021) argue that maintaining a proper financial structure balance is very crucial for financial institutions since they play a very crucial role as financial intermediaries by channeling funds between borrowers and lenders in Nigeria. In this case, saver's deposits their money with financial institutions for which they are eligible to annual interest payment after which they are free to withdraw their money whenever they desire. In contrast, financial institutions provide loans to borrowers who are obligated to return the principal amount plus interest. Therefore, savers are surplus spending units because they have funds in excess of their needs, but borrowers are deficit spending units since they spend

more than they have. To increase the overall efficiency, however, financial institutions must act as a conduit between the two.

Further, the ability of a financial institution to operate efficiently is a key driving force behind their successful performance in Egypt (Mohieldin, Hussein & Rostom, 2019). As a result, commercial banks in majority of developing countries are nowadays more concerned with the financial efficiency. This has been influenced by the fact that financial development of commercial banks is not peculiar to a certain economy but indeed guided by universal guidelines. For this reason, commercial bank in developing countries must re-examine their financial efficiency on a continuous basis as required under Basel Regulations so as to keep pace with their counterparts operating in developed countries.

Studies done in South Africa have shown that when financial institutions such as banks are efficient, they enable the mobilization of savings from various sources and their allocation to more productive activities, which helps not just investors and beneficiaries of investments, but also the entire economy (Alhassan, Li, Reddy & Duppati, 2019). In fact, a banking system that efficiently puts financial resources to productive use is a potent economic growth driver. The efficiency of an institution reflects the thorough evaluation of all input and output projects, including the operational accomplishments that can be deduced from various types of financial reporting and the operating outcome that cannot be accounted for in financial analysis. Not only is financial institution efficiency the embodiment of a bank's entire competitive power, but it is also, to date, the most comprehensive measure of achievement evaluation.

Locally, Musau (2022) observes that numerous financial institutions have been unable to mediate effectively because they have not put in place suitable financial strategies. The factors that contribute to the failure of financial institutions can be addressed through the implementation of strategies that promote growth and the attainment of corporate objectives. When determining the financial structure, extreme caution and care must be exercised. Inability

to do so can result in financial difficulties. There could be numerous options, but to make the correct choice in a given scenario for the benefit of the firm, for somebody to critically assess the influence of the options available on the efficiency of the company's mediation.

Further, a financial institution is considered effective and efficient if it can produce the most output with the given amount of input, or if it can produce the least output with the same amount of input (Muriithi, Nasieku & Memba, 2022). As a result, the measures of efficiency are more accurate than those of productivity, as they include a comparison to the most efficient frontier; thus, they can complement those of productivity, which are based on the output-to-input ratio. As a result, a stable and efficient financial system pools, transfers, and eliminates risks while simultaneously enhancing liquidity and information flow through the use of increasingly complex financial products and technologies. When there exist robust institutions with the capacity to accommodate market demands while adhering to statutory and prudential limits, significant efficiency is realized.

Another local study by Mumo (2021) notes that Kenya's financial sector has become the largest and most developed in East Africa over the past four decades. Significant regulatory measures that aim to enhance the efficiency and competition of the financial sector have largely prompted the transformation. In order to boost profitability, capitalization, and efficiency as a result of economies of scale and the usage of specialist market sectors, policymakers support financial consolidation in the financial industry using voluntary or non-voluntary means. Nevertheless, despite this development, the banking sector in Kenya still faces numerous challenges, such as a relatively high ratio of non-performing loans (NPLs) in some banks, insufficient quantities of commercial bank loans to finance long-term infrastructural projects, declining profitability, overreliance on savings, and skewed lending towards government, public, and large entities, among others.

1.1.3 Deposit Taking, Savings and Credit Co-operative Societies in Kenya

In terms of access, savings mobilisation, and wealth generation, the Savings and Credit Cooperative Societies (SACCOs) have continued to play a crucial role in Kenya's financial industry. Vision 2030, Kenya's economic roadmap, identifies the subsector as a key participant in achieving the annual economic growth target of 10 percent (Charles & Zipporah, 2021). SACCOs are non-profit financial institutions owned and operated by their members for the promotion of saving, the provision of inexpensive credit, and the provision of other financial services. SACCOs have robust bases of small savings accounts that provide as a consistent, relatively inexpensive source of capital and have low administrative costs. In addition, SACCOs can reach clients in areas that are unattractive to big commercial banks, such as rural and disadvantaged areas. Importantly, the major objective of cooperative societies is to empower their members by encouraging savings and providing access to credit.

As per SASRA (2018), the SACCO subsector is two-tiered due to the variety of financial services offered to members and the regulatory regime. The conventional SACCOs known to by law as non-deposit accepting SACCOs offer a restricted selection of savings and credit products that are commonly referred to as back-office activities (BOSA). As they are registered and regulated under the Cooperative Societies Act, CAP 490, they are exempt from registration with SASRA. The deposit taking SACCOs (DTSs) provide basic 'banking' services (demand deposits, payments services, and channels such as quasi-banking services generally known as ATMs), FOSA, and are licenced and regulated under the SACCO Societies Act, 2008. The SACCO societies running FOSAs are representative of local retail banking activities.

Kenya's SACCO industry is the largest and most dynamic in Africa, accounting for 67 percent and 62 percent of the continent's total assets and deposits/savings, respectively (IMF, 2020). In total, there are 174 DTS operating across the Kenya, thus, making it one of the

countries with the largest concentration of SACCOs in Africa. Kenya trails behind Senegal in terms of population penetration, with 19 percent compared to 21,9 percent in Senegal. The subsector's membership has likewise decreased. DTSS account for 78 percent and 77 percent of the total assets and deposits of the entire SACCO subsector, respectively, highlighting that the SACCOs' development potential remains in the deposit taking SACCO industry. However, the overall performance of DTSS in Kenya in terms of their financial intermediation efficiency has been deteriorating over the years as indicated by their poor financial performance and collapse of some of them.

1.2 Statement of the Problem

Financial institutions usually play a very crucial role in financial intermediation (Mumo, 2021). However, these institutions are able to play this crucial role only if they are more efficient. Therefore, by enhancing their efficiency, commercial banks are in a position to offer their financial services more effectively. This implies that they must be regulated, controlled, and administered to ensure that they have a solid and secure financial base. Financial efficient financial institution tends to be more stable and thus being able to absorb any negative market shocks such as the financial crisis due to their strong capital adequacy (Muriithi, Nasieku & Memba, 2022).

SACCOs in Kenya play a very significant role in financial intermediation as savings through them translates to around 48.55% of the gross national savings. However, despite these developments, SACCOs are still facing numerous challenges especially in terms of their overall financial structure. For example, there was an increase in the amount of non-performing loan ratio on SACCOS to 6.30 percent back in 2018 down from 6.14 percent of what had been reported in 2017. This increase was reported to be caused by a significant increase provision for loans extended which rose from Shs 4.92 billion in the year 2017 to Shs 5.27 billion a year later in 2018 and further to Shs 8.99 in 2019 (Mumo, 2021). These statistics is a clear indication

that the financial intermediation efficiency of SACCOs is not as effective as it is supposed to be. Based on the above statistics, then it seems its very crucial to try and establish why the operational efficiency of SACCOs is not that effective despite them being very popular and key corner stone in the provision of financial services across the country.

There are a number of studies that have been undertaken both locally and internationally relating to the concept of financial structure and financial intermediation efficiency. Rahman et al., (2018) examined the relationship between capital requirements and the cost of financial intermediation among banks in Bangladesh and observed that a strong relationship existed between the two. In addition, Kamau (2018) examined the relationship between intermediation efficiency and productivity of banks in Kenya. Based on the above empirical studies, it is clear that there were limited studies that have been done examining the concept of financial structure and financial intermediation efficiency in Kenya. Therefore, the current study bridged this research gap by investigating the relationship between capital structure and financial intermediation efficiency of deposit taking SACCOs in Kenya.

1.3 Objectives of the Study

1.3.1 General Objective

The main objective of this study was to establish the relationship between financial structure and financial intermediation efficiency deposit taking SACCOs in Kenya.

1.3.2 Specific Objectives

- i. To examine the relationship between leverage and financial intermediation efficiency of deposit taking SACCOs in Kenya.
- ii. To establish the relationship between non-withdrawable deposits and financial intermediation efficiency of deposit taking SACCOs in Kenya.
- iii. To assess the relationship between share capital and financial intermediation efficiency of deposit taking SACCOs in Kenya.

1.4 Study Questions

- i. What is the relationship between leverage and financial intermediation efficiency of deposit taking SACCOs in Kenya?
- ii. What is the relationship between non-withdrawable deposits and financial intermediation efficiency of deposit taking SACCOs in Kenya?
- iii. What is the relationship between share capital and financial intermediation efficiency of deposit taking SACCOs in Kenya?

1.5 Significance of the Study

1.5.1 Management of SACCOs in Kenya

Managers of SACCOs in the country benefited from the survey findings as they adopted the study recommendation to formulate policies regarding the most effective financial structure ratio that is likely to enhance their financial intermediation efficiency. The study also added knowledge on which was the most effective financial structure ratio that financial SACCOs in Kenya adopted in order to minimise instances of bad debts.

1.5.2 Policy Makers

This study was also of great importance to the policy makers in the SACCO sector in the country particularly SASAR in understanding the best capital structure ratio that every licensed SACCO should have so as to enhance their operational efficiency by managing their finances well and be able to attain high operational efficiency.

1.5.3 Scholars and Academicians

This study's findings also acted as a basis of reference material for future scholars, analysts, and students who would wish to conduct research on a similar or closely related topic. Researchers and academics also utilised this research to recommend further fields of study and similar areas by identifying subjects requiring additional research and finding study gaps based on a review of the existing empirical literature.

1.6 Scope of the Study

The primary objective of this study was to investigate the relationship between financial structure and the effectiveness of financial intermediation among DT-SACCOs from across the country. Consequently, the population of this study consisted of all 174 deposit-taking SACCOs in Kenya that have been in operation over the past five years, from 2017 to 2021. leverage, non-withdrawable deposits, and share capital were studied as independent factors, while financial intermediation efficiency served as the dependent variable. The analysis was completed using secondary data gathered from the published financial statements of the targeted SACCOs that accept deposits. The secondary data spanned the years 2017 to 2021. The study was conducted between July and November of 2022.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section covered the empirical literature review of other scholars who have researched on the concept of capital structure and financial intermediation efficiency. The chapter also reviewed key theories that related to the topic. Lastly, the conceptual framework and operationalization of study variables was examined.

2.2 Theoretical Review

This section presents the four key theories regarded relevant to anchor this study. Specifically, the theories discussed under this section are Modigliani and Miller capital structure irrelevance theory, trade-off theory of capital structure, pecking order theory and theory of financial intermediation.

2.2.1 Modigliani and Miller Capital Structure Irrelevance Theory

Modigliani and Miller Capital Structure Irrelevance Theory was developed by Modigliani and Miller (1958). The theory states that the value of a firm is not affected by the proportion of its capital structure. According to the theory, the value of a firm remains the same irrespective of the leverage level of the firm such as loans and debts remaining unchanged as long as there is no any distress cost or income tax that a firm must pay. The key reason that the proponents of the theory argue as to why the value of a firm is not impacted by its leverage is because investment decisions of every firm are solely dependent on the asset class that they choose to invest in (Al-Kahtani & Al-Eraij, 2018).

As a result, in order for a firm to achieve optimal financing, there must be a balance between interest expenses and floatation costs related to the issuance of new debt (Sibarani, Ginarti, Tambun & Surianti, 2020). In addition, they argued that corporate value is determined by profitability and risk and not its capital structure. In fact, arbitrage opportunities largely

influence investing decisions as they usually exist in any investment opportunity with merit. Consequently, investors will incline to sell shares in highly valued firms and invest in undervalued businesses.

Due to the rationality of investors, Modigliani and Miller (1958) proposed that a negative correlation exists between cost of equity and gearing ratio and investors are averse to accept risks for which they cannot receive compensation. This is because in the case when the tax rate reaches zero, it will be difficult for businesses to access optimal capital structure. In addition, there is high likelihood of utilising debt funding due to the tax benefits associated with corporate taxes (Al-Kahtani & Al-Eraij, 2018).

The major strength of this theory is that it is a major breakthrough in the knowledge of optimal capital structure since it clearly illustrates financial decisions which are literally irrelevant to a firm and which are not likely to affect its overall value. However, the theory is greatly criticized since its application can only hold only in perfect and efficient market scenarios. In addition, the theory is considered not to consider the realism of the market in which firms operates as it excludes the effect that corporate taxes and cost of financial distress are likely to have on a firm capital structure.

Despite this, the theory was of great importance to the current study due to its critical assumption that the investment decisions that a firm need to make in order to enhance its financial efficiency must always be evaluated based on its financing choices. This is because, an increase in the market book value ratio of deposit-taking SACCOs is likely to trigger a firm value and thus enhancing its overall ability to borrow more and increasing their overall financial intermediation efficiency. The theory was used to support the variable share capital.

2.2.2 Trade-Off Theory of Capital Structure

Trade-off Theory was developed by Myers (1984). The theory provides that the corporate leverage of a firm is solely determined through effective balancing of its tax-saving benefits

against its overall dead-weight costs of bankruptcy. Therefore, the theory basically predicts that the debts of a firm are likely to increase in risk-free interest rate and if the tax code of the country in which the firm operates allows more generous interest rate tax deductions (Jarallah, Saleh & Salim, 2019). This is because corporate debts always tend to decrease due to dead-weight losses experienced in bankruptcy. Therefore, the theory assumes that the corporate debts of a firm are likely to decrease in the tax benefits and increase in risk-free interest rate.

A positive relationship usually exists between tax shield(benefits) and the firm debt financing (Dierker, Lee & Seo, 2019). As a result, a simple increase in the asset base of a firm will automatically increase its overall collateral security that enables a firm to obtain more debt financings. Therefore, the most important reason why firms opt to finance their day-to-day operations through debts is because its tax benefits. However, companies that rely on debt financings are always faced with costs associated with debt as well as its bankruptcy and non-bankruptcy costs such as staff turn-over, stockholders infighting among others. Therefore, firms are always forced to focus on the trade-off between marginal benefit of increasing debts financing and the associated marginal cost in order to be able to determine its financial structure proportion (Jarallah, Saleh & Salim, 2019).

The greatest strength of this theory is its ability to recognize that most firms are usually financed partly through debt and partly through equity. Acknowledging that firms are financed through debt and equity sources is very crucial as it allows firms to have alternative financing options and thus enhancing their operational efficiency. Despite this, the theory has been criticized through the argument that even though it is possible to predict both tax rate and bankruptcy code effects, it is still very challenging to establish a causal link between the two.

The theory was important to the current study since it there is need to establish a clear understanding as of deposit-taking SACCOs asset structure as this will play an important role in minimizing the issue of over or under valuation which ultimately enhances their overall

financial intermediation efficiency through enhanced capacity to borrow. The theory was used to support the variable on leverage as this is what many firms depend on in order to enhance their financial intermediation efficiency.

2.2.3 Pecking Order Theory

Pecking Order Theory was first proposed by Donaldson (1961) before being modified later by Myers and Majluf (1984). According to this theory, firms usually prioritize their financing sources based on the cost associated with each financing source with internal financing being their first priority and only turning to equity financing as the last resort. As a result, firms usually depend on internal funds to financing their operations until they are depleted after which they borrow debts and if this is not sustainable then they turn to equity financing (Frank, Goyal & Shen, 2020).

Pecking order theory is implied on the concept of asymmetric information since firm managers usually have more information regarding their firm such as risks, value and operational prospects than outsiders (Simatupang, Purwanti & Mardiaty, 2019). As a result, existence of asymmetric information affects the choice of the firms financing option between internal and external ones and between issue of debt or equity. For this reason, it is assumed that a pecking order usually exists when planning on how to finance new projects. Usually, asymmetric information favours financing projects through debts than equity as the firm management are more confident as debts signals that the planned project is likely to be profitable and that the prevailing stock price is undervalued. However, debt issue usually signals that the board is not confident and they consider stock price to be over-priced (Oktavina, Manalu & Yuniarti, 2018).

The major strength of Pecking Order Theory is that it clearly shows the finance manager of a firm is keen to maintain complete control over the firm by avoiding equity issue until it is the last resort, thus, helping to minimize agency problem. However, critics of the theory argue

that the theory ranking financing sources is a clear way of finance managers to try and avoid the consequences of finance managers with more information about the company than others such as shareholders. In addition, the theory limits the sources of financing that a firm may adopt to finance its operations.

The theory was very important to this study since it clearly shows that firms are always keen to maintain clear control of its financial structure, hence, helping to explain changes that are associated with firms' financing structure. This in turn allows big firms with massive revenues to maintain proper control over their company by utilizing internal funds and debt issue to financing their operations than diluting their company control over equity issue. The theory was used to support the variable on non-withdrawable deposits.

2.2.4 Theory of Financial Intermediation

Sealey and Lindley (1977) proposed the Theory of Financial Intermediation. According to the idea, the transformation process of a financial institution entails borrowing funds from surplus spending units and lending them to deficit spending units, i.e., financial intermediation. Therefore, the money associated with intermediation relates to the degree to which monetary institutions reconcile deficits and surpluses in spending units (Ndebbio, 2004). The essence of commercial banks is their role as intermediaries, wherein clients with excess capital deposit cash with banks, who then lend the funds to borrowers. Commercial banks have the advantage of screening applicants along multiple lines of inquiry to determine their potential to repay loans.

The financial intermediation theory is based on the assumption of information asymmetry as well as the agency theory. The essence of existence of financial intermediaries is thus explained by the presence of attributable factors such as: inadequate information, high transaction costs, and regulation methods (Scholtens & van Wensveen, 2003). Indeed, information symmetry is at the heart of financial intermediation theory whereby aspects such

as adverse selection problem, concomitant leading to moral hazard or the need for costly verification and auditing procedures. Thus, informational asymmetry in the financial markets leads to market imperfections, which are deviations from the perfect markets as described by Arrow-Debreu perspective. The process of financial intermediary that results in the expansion of financial institutions requires an extension of facilities to offer affordable financial services at the lowest costs possible in order to enhance deepening.

Financial innovations have thus been attributed to the minimization of costs of intermediation. The foundation of the financial intermediation theory is established on the notion of reductions in the costs of intermediation through transactions and elimination of informational asymmetries (Scholtens & van Wensveen, 2003). Therefore, the developments adopted by commercial banks in the form of financial innovations driven by technology are meant to enhance financial intermediation, intensify financial deepening, and also ease regulatory stringency. Financial intermediation should be viewed as a process to create economic value thus an important undertaking that commercial banks play in their everyday operations.

Theory of financial intermediation has over the years been criticized by some scholars such as Allen and Santomero (1997); Scholtens and Wensveen (2000) who argue that that it does not recognize the risk management role of lenders in the banking relationship. Scholtens and Van Wensveen (2000) also propagated that the world is not moving towards disintermediation, but instead towards reintermediation. Despite this, theory of financial intermediation will be of great significance to the current study since it recognizes the fact that by engaging in financial innovation, financial institutions stand at an advantageous position to help create efficient markets and lower the cost of doing business. Therefore, the theory will be used to support the variable on financial intermediation efficiency.

2.3 Empirical Review

This section provided a detailed analysis of what other scholars have already examined in relation to the concept of the study.

2.3.1 Leverage and Financial Intermediation Efficiency

In the United States, financial institutions willing to finance illiquid investments usually do so through short-term borrowing (Finger, Gaviols & Manos, 2018). For this reason, increasing illiquidity of the investments that are being financed is the one that allows them to obtain short-term financing even though this leaves them more susceptible to potential crises. As a result, once the illiquid investments are financed, financial institutions tend to ban short-term financing in order to avert crises. The study presents a conceptual gap as it was undertaken in the United States while the current one will be done in Kenya.

A study done among European companies to establish the role of financial leverage behind the sluggish post-crisis investment performance established that firms entering the financial crisis with higher debts level have to reduce their investment significantly after a financial crisis is over (Laeven, Kalemli-Özcan, & Moreno, 2018). However, this issue was observed to significantly affect firms with short-term debts than those with long-term debts especially in those countries whose financial institutions are weaker due to sovereign stress as well as those which are consistent with roll-over risk. Further, the problem was found to be affect the firms leverage on investment for several years after the crisis in those countries with sovereign stress. The study presents a conceptual gap as it targeted European countries while the current one will be done in Kenya.

In Turkey, it was observed that as SMEs' assets grow and efficiency increases, their overall financial debts rise as well (Delikanlı & Kılıç, 2021). While asset growth mostly results in long-term debts, increase in operational efficiency of SMEs is attributed to short-term borrowing. However, as SMEs continue to generate more revenue, their dependency on debt

financing decreases which is an indication that SMEs try to meet their financing needs based on the concept advocated under the Pecking Order Theory. The study presents a contextual gap as it targeted all the financial institutions in Turkey while the current study population will comprise only on DTS operating from across Kenya.

In India, borrowers are increasingly utilizing short-term debt as they are financing source given that they are much cheaper than long-term debts (Legesse & Guo, 2020). Since using short-term debts has been determined to lower borrowing costs, then borrowers are may decide to use them despite the fact that they are likely to increase their exposure to roll-over crises. In addition, short-term debts are preferred by many Indian borrowers since they tend to match the maturity of their liabilities to that of their assets. Firms are therefore increasingly utilizing long-term debt for financing fixed assets while preferring short-term debt for financing their working capital. The study presents a conceptual gap as it was undertaken in India while the current one will be done in Kenya.

In Ghana Musah (2018) observes that commercial banks in the country are highly leveraged as 84 percent of their total capital structure is composed of debt financing. However, despite this, most commercial banks still prefer financing their operations through short-term debts which accounts to around 77% of their financial structure. Commercial banks in the country continues to overly on short-term debts despite clear indications that relying on such is decreasing operational efficiency due to reducing profitability level. The study presents a conceptual gap as it was undertaken in Ghana while the current one will be done in Kenya.

Zelalem (2020) examined how the performance of commercial banks in Ethiopia are influenced by their financial leverage. The financial statements of 38 commercial banks out of the possible 44 commercial banks that were operating as of the 31st of December, 2015 were used in order to extract secondary data for the census of commercial banks that was conducted from 2005 to 2015. This was done in accordance with the CBK as a regulatory body. The years

2005 through 2015 were covered by the data collection. The design that was chosen was descriptive and analytical. According to the findings, there is an impeccable positive association between the debt equity ratio and returns on both equity and assets, as well as returns on equity. The scope of the study was restricted to commercial banks in Kenya; hence, the findings were only interpreted with reference to commercial banks in Kenya, and they will not be generalized to cover other types of financial institutions.

Locally, the complexity of business endeavour in developing nations such as Kenya necessitates that management place a greater emphasis on financial planning in order to secure and deploy capital resources in the quantity and proportion required to increase the productivity of the remaining elements of production (Omollo, Muturi & Wanjare, 2018). In this situation, short-term debt planning is essential in both dynamic and ideal economic environments, since it aids management in reducing waste by providing policies and processes that enable improved coordination across all business operations. This is because, empirical studies have indicated that inadequate short-term debt planning results in lower investment, resulting in weak cash flow and ultimately the demise of a firm. The study presents a knowledge gap as it examined the general businesses in the country whereas the current study will only target DTS operating from across the country.

Further, the concept of the most effective financial structure still remains a very controversial topic among researchers (Nyabaga & Wepukhulu, 2020). The disagreement mostly stems from differing perspectives, perceptions, and theories on how to attain the optimal financial structure in order to minimise firm's cost of capital and maximize its value. For example, financial institutions especially commercial banks have reached a crossroads in their pursuit of the optimal method of financial structure financing. This is despite the fact that decision of the mode of funding is crucial to the operational viability of commercial banks. However, research indicates that in the majority of cases, commercial banks fail to identify the

most suitable form of capital financing when their activities are disrupted, thus harming their financial intermediation efficiency. The study presents a knowledge gap as it indicates that different researchers in Kenya have different opinions when it comes to assessing the relationship between leverage and financial intermediation efficiency of financial institutions in the country.

2.3.2 Non-Withdrawable Deposits and Financial Intermediation Efficiency

Globally, Galletta, Mazzù, Naciti and Vermiglio, 2021) while examining whether the environmental policies taken by banks in the United States has an influence on customer deposits, it was observed that a negative relationship existed between customers choice to make deposits and the environmental policies taken by their respective banks. This is consistent with prior research indicating that the choice of customers to make deposit is normally influenced by both pricing policy of the bank and the overall switching costs that the depositors are likely to incur. The reason for negative relationship between banks environmental policies and customer policies was attributed to the fact that banks with such policies tend to pay lower interest rates on customers deposits. The study presents a conceptual gap as it was undertaken in the United States while the current one will be done in Kenya.

A study done by the European Union (EU) titled savings, efficiency and nature through which banks are run established that more non-withdrawable deposits usually make commercial banks much more stable especially when the runs are driven by market panics (Leonello, Mendicino, Panetti, & Porcellacchia, 2022). However, such deposits still make banks more fragile in the events where runs are driven by critical fundamentals. As a result, external savings causes under-saving among banks especially when such is driven by critical fundamentals. The study presents a conceptual gap as it was undertaken in the EU countries while the current one will be done in Kenya.

Dewi, Febrian, Effendi and Anwar (2020) while conducting a study in Indonesia observed that high investment financial needs in Indonesia have forced commercial banks to devise more optimal strategies to pool and mobilize savings from their customers so as to enhance both sustainable and their country's economic growth. However, banks in the country are still facing issues to effectively implement this plan due to issue to do with how to increase financial inclusion as well as to how to enhance their financial intermediation. As a result, banks have urged the government to establish strong financial system with enhanced financial intermediation efficiency so as to provide answer to various economic challenges. The study presents a conceptual gap as it targeted commercial banks while the current one will target DTS in Kenya.

Africa, non-withdrawable customer deposits are considered as a crucial source of operational funds among financial institution in Ghana (Baidoo, Bagina & Tobazza, 2019). This is because financial institutions normally utilize mobilized customers deposits to issue loans and advances to their clients which earns them interest and, thus, enhancing their capital adequacy in the long-run. For this reason, it was found out that a strong correlation between customers deposits and the ability of banks to provide loans and advances to customers since they use those deposits to lender the credits. The study presents a conceptual gap as it was undertaken in Ghana while the current one will be done in Kenya.

Zimbabwe, extensive utilization of mobile banking is seen as the most crucial through which financial institutions in Zimbabwe have been able to mobilize significant savings from their customers (Manyeruke, 2018). This is because, by using innovative mobile banking services, banks in the country have been able to bring speed, effectiveness and efficiency in terms of banking services by being able to reach a large number of customers even those who were unable to access traditional banking services before. This has in turn restored strong saving culture among Zimbabweans due to its cost-effective way of accessing banking deposit

services. The study presents a conceptual gap as it was undertaken in Zimbabwe while the current one will be done in Kenya.

Locally, a study examining the crucial determinants of savings mobilization among SACCO customers in terms of interest rates, income level and access to the financial institutions established that strong correlation existed between savings mobilization and interest rates than the other two (Isinta, Aduda, & Magutu, 2019). As a result, it was recommended that SACCOs in the country as well as other financial institutions should strive to increase their interest rates on customers deposit as a crucial strategy to increase savings mobilization which is crucial to enhancing their overall financial intermediation efficiency. The study presents a conceptual gap as it focused on savings mobilizations among SACCOs while the current one will only focus on non-withdrawable deposits among DTS.

Further, Daniel and Abdul (2018) examined the relationship between capital structure and the financial performance of DT-SACCOs in Kenya. The Pecking-Order Theory served as the foundation for this investigation. The research utilised a causal research methodology and utilised quantitative secondary data on a quarterly basis for 176 deposit-taking Savings and Credit Cooperative institutions during the years 2012-2016. The registration maintained by the Sacco Societies Regulatory Authority contained the audited financial statements and quarterly reports that the deposit-taking Savings and Credit Cooperative Societies were required to produce. The information was obtained from this registry. According to the findings of the study, the amount of debt held by deposit-taking savings and credit cooperative societies in Kenya has a negative and statistically significant effect on the societies' overall financial performance. It was also observed that the effect of equity was positive and that this effect was statistically significant, whereas we found that the effect of liquidity was negative but that this effect was statistically insignificant. Due to the fact that higher levels of debt result in lower levels of profitability, the findings of the study indicated that deposit-taking Savings and Credit

Cooperative Societies should restrict the amount of debt that is included in their capital structure. According to the findings of the study, deposit-taking Savings and Credit Cooperative Societies should prioritize recruiting new members in addition to encouraging the cooperative's current participants to increase the amount of money they put into the organisation in the form of share contributions.

2.3.3 Share Capital and Financial Intermediation Efficiency

Globally, a study done Poland examining whether the share capital of a firm can influence its overall performance established that such achievements can result from two key features of share capital (Dudycz, 2021). First, the author observed that a firm must always hold share capital in order to secure its creditors' claims. This means that a firm cannot simply redistribute its share capital while at the same time new shares cannot be issued at a less price than the par value. This aspect causes inflexibility on the part of the firm and such can easily affect the firm performance. On the other hand, the amount of share capital can be used by prospective shareholders to assess investment viability, thus, acting as a signaling tool for firms wishing to enhance their performance by attracting new investors. The study presents a conceptual gap as it was undertaken in Poland while the current one will be done in Kenya.

Abdullah and Tursoy (2021) while conducting a study in the United States observed that the most optimal capital structure that a firm should adopt has been found to be very difficult to determine among firms. As result, firms are forced to issue various securities and obtain various debts in order to arrive at a particular pre-determined proportion which they themselves may consider as optimal. However, irrespective of the fact that optimal capital structure has been a subject of intensive interest among American scholars and academicians since 1950's, there is no formula or theory that has been established that clearly provide decisively what actual optimal capital structure of a firm should be as some advocate for higher

equity while others for lower and vice versa for debt financing. The study presents a conceptual gap as it was undertaken in the United States while the current one will be done in Kenya.

Another study examining whether financial performance of large firms listed at Hong-Kong Stock Exchange was affected by their capital structure established that a small negative effect existed between the two (Iusola, Mengze, Chimezie & Chinedum, 2022). However, the results obtained was considered non-conclusive since Hong-Kong has a great different economic system and its economy has numerous characteristics that is completely different from other countries especially developing ones in terms of spending behaviour, consumer consumption level as well as households' savings habit. The study presents a contextual gap as it focused on general firms listed at Hong Kong Stock Exchange while the current study will specifically focus on DTS operating from across Kenya.

Africa, a study done in Morocco examining the key determinants of firm's capital structure and the most effective financing choices, it was observed that financial markets in developing countries are not likely to meet the full financial requirements of their business entities (Amraoui, Jianmu, & Bouarara, 2018). As a result of this, business entities are forced to rely mostly on long-term loans from commercial banks so as to operate more efficiently. This is mostly done in order to finance long-term investment projects which are likely to enhance the overall value of the firm. The study presents a conceptual gap as it was undertaken in Morocco while the current one will be done in Kenya.

Equity financing is extensively adopted by manufacturing entities in Nigeria as it is regarded as the most risk free and stress-free financing option for them (Owolabi, Kolawole, Ogungbade, & Adekoya, 2021). This is because many manufacturing entities in Nigeria constantly require huge financing in order to be able to finance for their fixed assets, bridge the gap between production and sales as well as to run day to day operation which can only be obtained through issue of equity. Despite this, the study noted that issuing of equities has

significantly diluted the ownership structure of many manufacturing entities in the country. However, the performance of firms issuing equities was found to be more profitable than those utilizing debt financing. The study presents a conceptual gap as it was undertaken in Nigeria while the current one will be done in Kenya.

Further, Mujwahuzi and Mbogo (2020) did a study in Tanzania that examined how the profitability of processing firms listed at Dar es Salaam Stock Exchange is influenced by their capital structure. For a period of ten years, beginning in 2009 and ending in 2018, the study utilised secondary data that was acquired from reports that were published on the DSE website. To investigate the connection between capital structure and corporate profitability, an Ordinary Least Squares (OLS) regression analysis and a Karl Pearson Coefficient of Correlation were carried out. According to the findings, the indicator of the company's capital structure had a marginal impact on the measures of business profitability, which was statistically insignificant. The researchers found that there was very little and no significant correlation between LTDR and any of the metrics of profitability that were utilised in their investigation. As a result, the findings of the study led the researchers to the conclusion that a company's capital structure is not a significant factor in determining the profitability of the company. In general, these findings are consistent with the predictions made by the Pecking Order Theory of capital structure decisions made by companies. In light of this, it is recommended that those in charge of financial management take a measured and cautious approach to issues pertaining to debt, despite the fact that they have the benefit of a tax shield, in order to reduce the likelihood of their businesses falling into a state of financial distress.

Locally, a study examining how share capital finance influence profitability of petroleum companies in Kenya observed that share capital has a positive impact on their profitability since it tends to represent that part of financial structure that is free of debt as it only represents shareholders ownership interest only (Omai, Memba & Njeru, 2018). Unlike

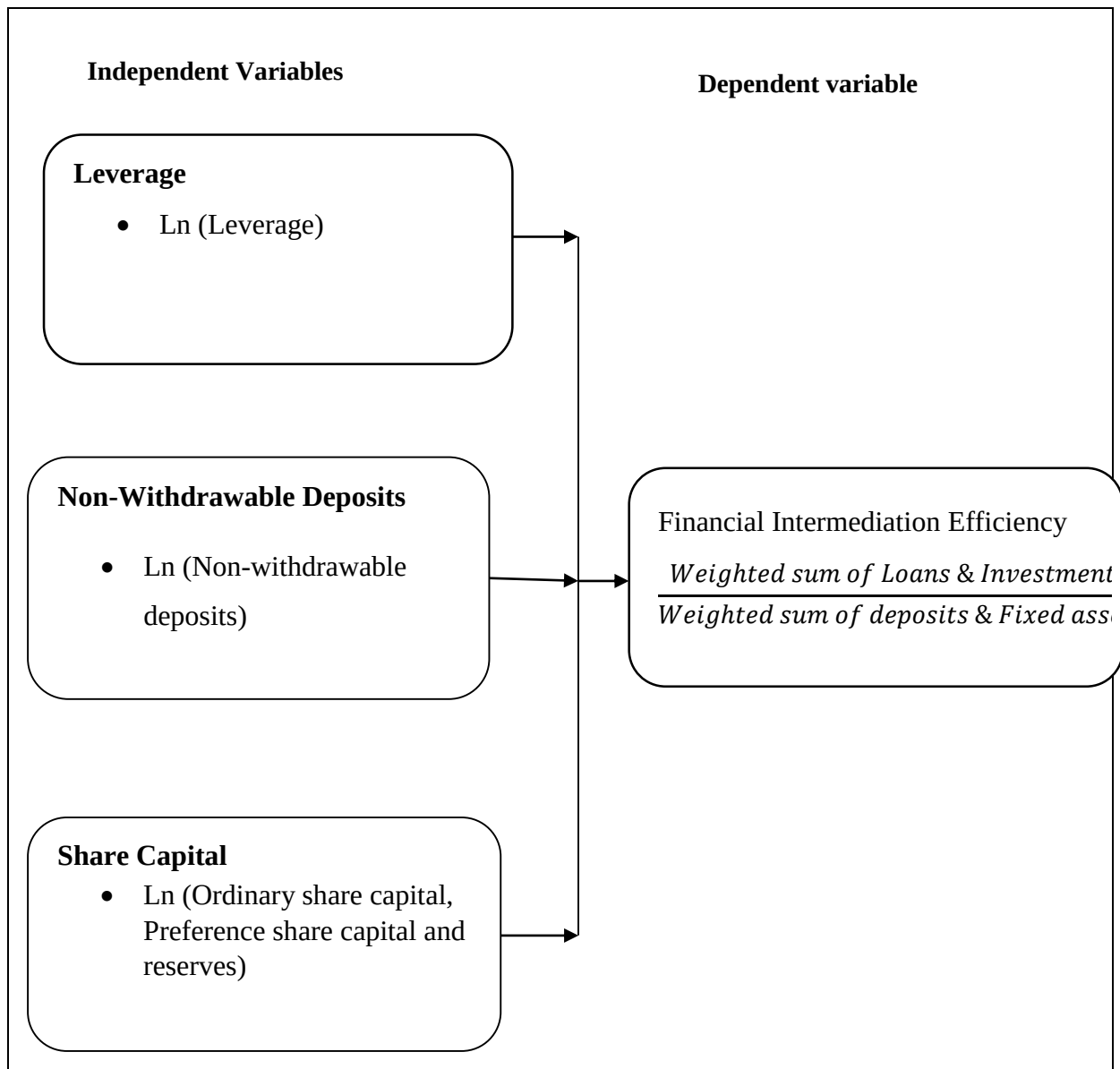
debts which studies have established to be negatively correlated with company's profitability, share capital finances are usually positively correlated with firms' profitability. Therefore, company's share capital value is very crucial feature that investors look at before deciding on whether or not to investment in a given firm. The study presents a contextual gap as it examined how share capital influence the profitability of petroleum companies while the current study will focus on how share capital influences the financial intermediation efficiency of DTS in Kenya.

In another study, Harrison, Ndung'u and Abayo (2021) examined the extent to which the financial performance of commercial banks in Kenya is influenced by their overall capital structure. A panel study design was chosen, and the eleven (11) commercial banks in Kenya that are listed on the stock exchange were the focus of the investigation between 2015 and 2019. An approach using a census was utilised in order to research all 11 commercial banks in Kenya that are listed. Descriptive statistics and panel regression analysis were used to analyse the data that was studied with the help of the STATA programme. It was discovered that retained earnings had a positive and significant influence on the financial performance of commercial banks, that there was a positive but insignificant relationship between short term debt and financial performance, and that long term debt had a positive and significant influence on the financial performance of listed commercial banks in Kenya. These findings were discovered through a study that was conducted in Kenya. In conclusion, the research revealed that there is a beneficial and statistically significant connection between the amount of share capital a commercial bank has and its level of financial performance among listed banks in Kenya. According to the findings of the study, the financial performance of listed commercial banks in Kenya had been erratic between the years 2015 and 2019; while some banks had been registering rising return on assets, others had been registering declining financial performance in terms of return on assets.

2.4 Conceptual Framework

This showed in a diagrammatical format the exact connection that exist between various variables under research. This relationship was between the independent and dependent variables as shown in Figure 1 below.

FIGURE 1
Conceptual Framework



2.4.1 Leverage

Leverage, also known as trading on the equity, is a financial technique that involves the use of additional borrowed funds to maximize investment profits. Financial leverage is the use of stock and debt financing to finance a company's assets (Rehman, 2013). According to Della Morellec and Zucchi (2020), financial leverage is the use of external cash to support corporate organisations with the intention of increasing their profitability. The returns on investment of shareholders can be boosted by the use of debt financing, which typically yields returns in terms of the tax imposed on borrowing. Companies employ financial leverage to increase investment returns. If not well handled, excessive reliance on leverage can be disastrous (Wang & Chiu, 2019).

2.4.2 Non-Withdrawable Deposits

These are types of deposits or saving that are accumulated by customers in their financial institutions are mostly used in obtaining credit facilities by acting as the safety collateral securities (Leonello et al., 2022). The amount of loan that a customer is able to obtain is greatly dependent on the amount and types of their non-withdrawable deposits which are multiplied by a certain percentage. Despite this, these types of deposits still remain non-withdrawable as long as the customer has an outstanding loan or has guarantorship obligations. However, customer can withdraw these deposits once they terminate their membership with the financial institution and fully repaid their dues and is free from guarantee.

2.4.3 Share Capital

Share capital refers to that amount of money that a firm raises through the issue of either common or preferred stocks (Dudycz, 2021). As a result, the amount of share capital held by a firm can keep changing over time as firms keep issuing additional public offerings. Additional public offerings might result in a fluctuating amount of share capital or equity financing for a corporation over time. Additionally, the actual amount of share capital reported by a company includes only payments paid for shares purchased directly from the company (Abdullah &

Tursoy, 2021). Later stock sales and purchases, as well as fluctuations in market prices, have no effect on the company's share capital. A company may choose to issue additional public offerings after its initial public offering (IPO), and the revenues from such sales will increase the amount of share capital recorded on its balance sheet.

2.4.5 Financial Intermediation Efficiency

Financial intermediation is a profitable venture in which an organizational unit assumes its own liabilities in order to acquire financial assets through market-based monetary operations (Ibrahim & Law, 2020). Financial intermediaries serve to smooth the transfer of funds between lenders and borrowers. It also refers to the transfer of funds from an economic unit with a surplus (saver) to an economic unit with a deficit (investor). In addition, financial intermediation efficiency refers to the mobilisation of cash from surplus units and their distribution to deficit units with minimal or no waste (Ibrahim & Law, 2020). It encourages resource conservation by prioritising cost reduction and maximising output for a given set of inputs and technologies.

Intermediation is the transformation or direct acquisition of a claim with a set of characteristics (maturity, denomination) from deficit spending units/DSUs into a claim with a different set of characteristics, which is subsequently sold to surplus spending units/SSUs (Ibrahim & Law, 2020). The bank's ability to transform deposits primarily from household economic units into credit or loans for firms and others to invest in buildings, equipment, and other capital goods demonstrates the implementation of financial intermediation within the financial sector.

2.5 Operationalization of Study Variables

TABLE 1
Operationalization Variables

Variable	Type	Indicators	Measurement Scale	Data Collection	Data Analysis
Leverage	Independent Variable	Ln (Leverage)	Ratio Scale	Panel Data	Correlation and Regression
Non-Withdrawable Deposits	Independent Variable	Ln (Non-withdrawable deposits)	Ratio Scale	Panel Data	Correlation and Regression
Share Capital	Independent Variable	Ln (Ordinary share capital, Preference share capital and reserves)	Ratio Scale	Panel Data	Correlation and Regression
Financial Intermediation Efficiency	Dependent Variable	Weighted sum of loans and Investments/ Weighted sum deposits and Fixed assets	Ratio Scale	Panel Data	Correlation and Regression

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The main purpose of this research was to look into the relationship between deposit-taking SACCOs' financial structure and their financial intermediation efficiency in Kenya. The research methodology for the study was presented in this chapter. It included information on the research strategy, the target population, the sample frame and survey techniques, the data gathering procedure and data analysis.

3.2 Research Design

Research design is described as the logical flow of the way a study is to be executed. It is also the blueprint set a benchmark by the researcher towards the implementation of the study on the basis of collected data and analysis to attain the set objectives. Research design in research seeks to determine the reasons behind the prevailing status quo in the phenomenon under the study. The study adopted a descriptive research design. The descriptive study design was adopted as the study involved investigating the financial structure and its relationship with the financial intermediation efficiency of DTS in Kenya. Descriptive research was further used to collect data on the existing state of a phenomena in order to describe "what exists" in relation to the variables or conditions of a scenario (Bloomfield & Fisher, 2019). Systematically and precisely, it depicted the features or behaviour of a certain population.

3.3 Target Population

Target population normally refers to the entire group of objects or individuals from which research strives to obtain a small number of the objects in order to act as the wholesome representation of the entire population (Howe & Robinson, 2018). Additionally, population is defined as the entire group of individuals, events or objects having a common observable characteristic. A portion of the population from which the researcher intends to extrapolate his

research findings following analysis is known as the target population. The target population of the study was all 174-deposit taking SACCOs licensed by SASRA to operate across Kenya as indicated in Appendix IV.

3.4 Sampling Technique and Sample Size

3.4.1 Sampling Technique

Sampling method or technique is regarded as a detailed approach that involves selecting or picking a sample as a representative of the larger object for the purposes of inclusion in a study (Sharma, 2017). Based on this, this study employed a simple random sampling technique. The sampling technique was adopted in order to avoid bias during data collection and thus giving all selected DT-SACCOs an equal chance of being selected for the purpose of completion of this study.

3.4.2 Sample Size

Sample size refers to the act of choosing the number of objects to include in the study out of the entire target population so as to include a clear and measurable statistical sample. In research, sample size is very crucial as it allows a researcher to choose a manageable sample from a large target population and be able to make inferences about the entire population based on the observation of the sample (Sharma, 2017). Therefore, the sample size of the current study was determined using Yamane (1967) formulae as follows:

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

Where;

n =Sample Size,

N=Population Size,

e= level of Precision

$$n = \frac{1 + 174(0.1)^2}{0.1}$$

$$n = 63$$

Therefore, the sample size of this study was 63 licensed DT-SACCOs operating across Kenya.

3.5 Data Collection Procedure

The study used secondary data taken from the financial statements submitted by each DTS to SASRA. Kalu, Unachukwu and Ibiam (2019) states that secondary data is data collected by others who have undergone statistical process. The data collection sheet was used to collect data from published audited annual reports, KNBS and CBK pertaining to the 63 sampled DT-SACCOs submitted to the regulator. The data for all 63 sampled DTS covered a 5-year period between 2017 and 2021.

3.6 Data Presentation and Analysis

Using STATA, descriptive statistics, correlation analysis and regression analysis were used to analyze the data. Because there was more than one independent variable in this study, regression analysis was used because it was effective in assessing the simultaneous effects of independent factors on a dependent variable (Purba & Bimantara, 2020). Using t-statistics at a 5% significance level, regression coefficients was evaluated for significance before conclusions were made. The predictor variable was deemed significant if the value P, which is the precise probability of rejecting null when it is true, is less than 5%. Numerous national and international researchers have employed the analytical techniques that were used in the past. The study's findings were displayed in tables.

3.6.1 Research Model

The research was based on balanced Panel data from 2017 to 2021. Panels are appealing as compared to merely cross-sectional data because they often include significantly more information than single cross-sections and thus allow for greater estimation precision (Purba & Bimantara, 2020). Panel data provided more useful data, more variability, less collinearity

across variables, more degrees of freedom, and greater efficiency by merging time series of cross-section observations. Panel data, however, present similar estimate and inference issues that afflict cross-sectional and time series data, despite their significant advantages. There are various estimating strategies that can be used to solve these issues. The first, pooled OLS, simply merges or pools all-time series and cross-sectional data and uses ordinary least squares to estimate the underlying model (OLS). Equation 3.1 represents the input-output model.

$$Y_{it} = \alpha + \beta X'_{it} + \epsilon_{it} \dots\dots\dots 3.1$$

Where;

ϵ_{it} = error term

Y_{it} = Weighted sum of loans and Investments/Weighted sum deposits and total assets for each firm i at time t

for i^{th} firm in t^{th} year.

X'_{it} = vector for independent variables for firm i in year t,

β = is the independent variables Vector of coefficients,

α is the intercept,

$i = 1, 2, \dots, 174$ (individual DTS),

$t = 1, 2, 3, 4$ (time factor).

3.6.2 Regression Analysis

According to Green (2010) equation model 3.2 was used for the analysis.

$$W_{it} = \beta_0 + \beta_1 X1_{it} + \beta_2 X2_{it} + \beta_3 X3_{it} + \epsilon_j \dots\dots\dots (3.2)$$

Where:

W_{it} – Weighted sum of loans and Investments/Weighted sum deposits for each firm i at time t

$X1_{it}$ = Leverage

$X2_{it}$ = Non-Withdrawable Deposits

$X3_{it}$ = Share Capital

β_i ($i=0,1,2, \dots, 9$) associated regression coefficients

ϵ_j = associated error term.

3.7 Diagnostic Tests

The numerous diagnostic tests that were performed in this investigation are discussed in this section.

3.7.1 Lagrange Multiplier Test

Lagrange Multiplier Test is used to find out whether some parameter restrictions are violated. As such, conducting this test makes it possible for the optimization to be solved without explicit parameterization in terms of the identified constraints. Since Lagrange Multiplier Test is used to test the null hypothesis, the null-hypothesis will be rejected if the score statistics will be deemed to have exceeded certain pre-determined critical level (Zhang & Bull, 2018). The null-hypothesis is the squared residuals are a sequence of white noise i.e., residuals are homoscedastic.

3.7.2 Testparm Test

Testparm Test in STATA usually provides a crucial alternative to test that permits varlist as opposed to using a list of coefficients and thus making it possible to use standard STATA notion including '-' and '*', which are given the expression interpretation by test. Testparm will therefore perform tests of joint significance of the independent variables after running the model regression (Oberfichtner & Tauchmann, 2021).

3.7.3 Auto Correlation Test

When the error terms across many time periods in a data set are associated, this is referred to as "auto correlation" (Liebhold & Sharov, 2020). The test statistic suffers as a result, invalidating the significance test and inferences, and the standard errors are twisted, decreasing

the estimator's effectiveness. To identify the issue, the Wooldridge F-test was used using the null hypothesis that there is no serial connection. A p-value less than the level of significance of 5% indicates the existence of autocorrelation.

3.7.4 Heteroscedasticity Test

The error term in a regression model is assumed to be homoscedastic, that is, it has a constant variance. There is heteroscedasticity in the data if this rule is broken. When a regression model is run without screening for heteroscedasticity, the standard errors are skewed, resulting in erroneous significance tests and conclusions (Rice, Wirjanto & Zhao, 2020). The null hypothesis of no heteroscedasticity was examined using the likelihood ratio test, and if the p-value is less than 5%, the null hypothesis will be rejected, implying the presence of heteroscedasticity. If no issue or autocorrelation was discovered, the Feasible Generalized Least Squares (FGLS) model be used to solve the problem. Because the true values of variance and covariances for the disturbance factors employed by the GLS estimate are unknown in reality, FGLS is preferable to GLS. As a result, the GLS estimator is not viable, practicable, or realizable estimator. As a result, FGLS ensures that the estimators for valid significance tests are efficient and consistent.

3.7.5 Hausman Test

The Hausman specification test was used to determine whether to run a fixed effects or random effects model (Hamaker & Muthén, 2020). The purpose of this test was to see if there is a link between the random effects of unobserved firm financial variables and the predictors. If there is no such association, the random effects hypothesis is favored. A failure to reject the null hypothesis indicates that the sampling variance in the estimates of fixed effects is too substantial to permit the conclusion of statistically significant differences.

3.7.6 Normality Test

The distribution of the variables under investigation was explained by the normalcy test. A normality test makes it simpler to identify noise and outliers in data (Kwak & Park, 2019). With a significance level of 5%, the Jarque-Berra test was performed to examine if the regression residuals follow a normal distribution under the null hypothesis that they are normally distributed.

CHAPTER FOUR

FINDINGS AND DISCUSSIONS

4.1 Introduction

The chapter presented data analysis, presentation as well as the interpretation of the findings in relation to financial structure and financial intermediation efficiency among DTS in Kenya. The chapter comprised of outputs from both descriptive and inferential data analysis, as well as interpretation of the results.

4.2 Descriptive Statistics

Descriptive statistics for the various data obtained on various study variables was provided under this section in terms of their mean, standard deviation, minimum and maximum values for all 63 DTS that were sampled under this study. A five years period data was obtained in terms of the study objectives pertaining to leverage (LEV), non-withdrawable deposits (NWD) share capital (SC) and the financial intermediation efficiency (FIE).

The results in Table 2 indicate that there was a total of 315 observations that were made from the 63 DTS that were sampled in this study for the five years period between 2017 and 2021. Results also indicated that the average financial intermediation efficiency (FIE) among the 63 DTS was 1.061 with a corresponding standard deviation of 0.261. The minimum financial intermediation efficiency was 0.178 and a maximum of 2.185. Regarding leverage, the study established that the average was 18.349 with a standard deviation of 1.817. The minimum leverage was 12.326 and a maximum of 21.498. The study findings are in agreement with the findings of a study done in Indonesia by Sirait and Rokhim (2019) who observed that effective implementation of financial intermediation within the financial sector is based on the ability of financial institutions to transform savings received into credit/loans for companies and others to finance their operations.

On non-withdrawable deposits, the study established that the average of the same was 20.330 with a standard deviation of 1.777. Further, the studied DTS had a minimum non-withdrawable deposit of 15.137 and a maximum of 23.160. The study results further indicated that the average share capital among the DTS was 20.471 and a standard deviation of 1.839. Minimum share capital among the studied DTS was established to be 15.235 and a maximum of 23.649. The study findings however contradict the findings of a study by Amraoui et al., (2018) in Morocco which for its part observed that the key determinants of firm's capital structure and the most effective financing choices, it was observed that financial markets in developing countries are not likely to meet the full financial requirements of their business entities. As a result of this, business entities are forced to rely mostly on long-term loans from commercial banks so as to operate more efficiently.

TABLE 2
Descriptive Statistics

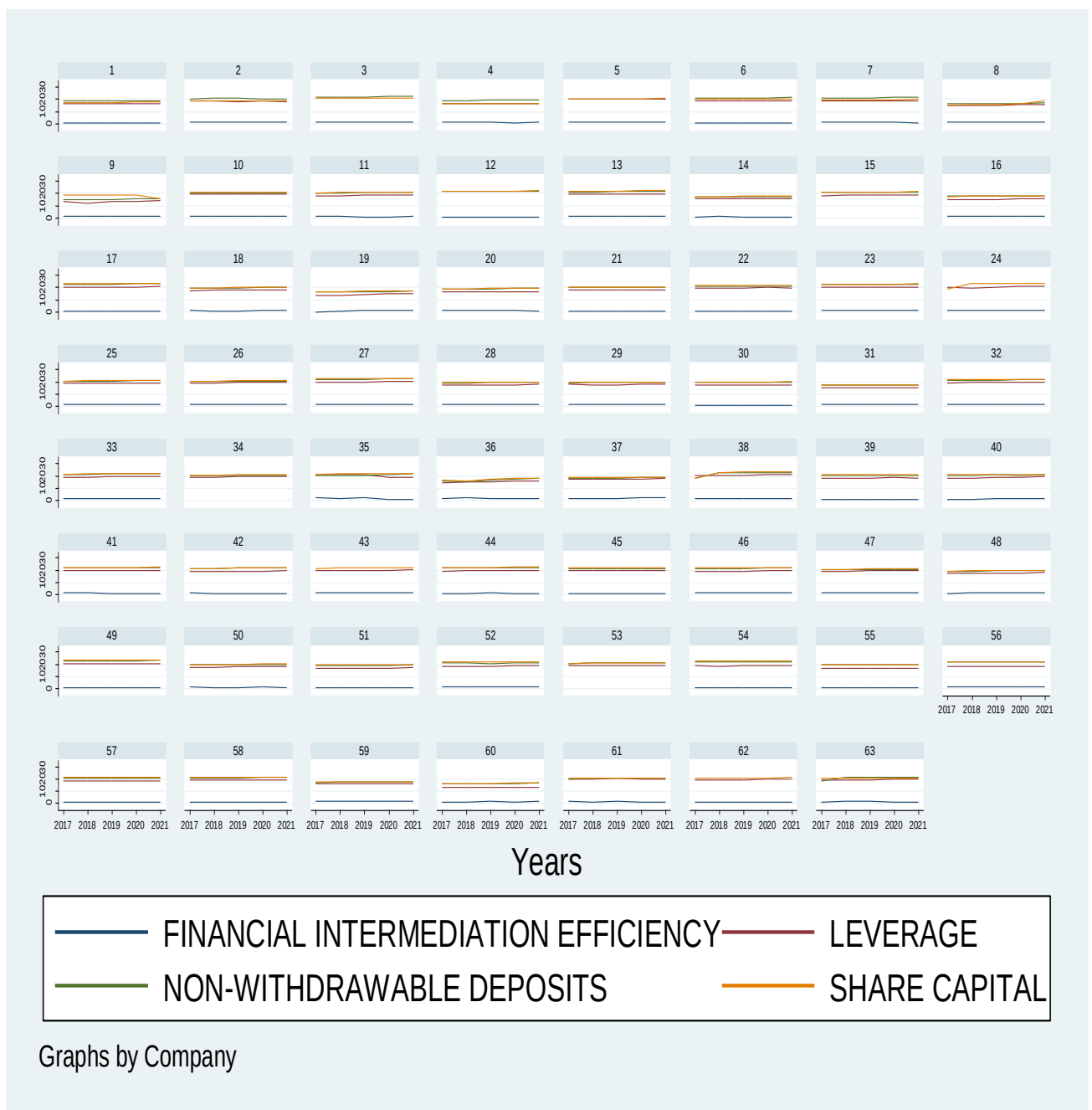
Variable		Mean	Std. Dev.	Min	Max	Observations
FIE	Overall	1.061	0.261	0.178	2.185	N = 315
	Between		0.223	0.578	1.588	n = 63
	Within		0.137	0.339	1.659	T = 5
LEV	Overall	18.349	1.8171	12.326	21.498	N = 315
	Between		1.809	13.237	20.694	n = 63
	Within		0.2617	17.138	19.165	T = 5
NWD	Overall	20.330	1.7765	15.137	23.160	N = 315
	Between		1.755	15.435	23.022	n = 63
	Within		0.3404	16.483	21.587	T = 5
SC	Overall	20.471	1.8391	15.323	23.649	N = 315
	Between		1.795665	16.322	23.295	n = 63
	Within		0.4461	16.549	22.689	T = 5

4.3 Trend Analysis

Trend analysis was undertaken in order to examine the heterogeneity across the DTS for the five years. The analysis was deemed essential as it made it possible to determine whether the utilization of the panel data model in the study pooled data regression model. Trend analysis

was undertaken using trend graphs. According to the findings, the observation of the plot indicated that the slopes were non-significantly different among the various factor except for leverage which seems to have less effect on the financial intermediation efficiency of the sampled DTS in Kenya.

FIGURE 2
Trend Analysis



4.4 Diagnostic Tests

This section presents various diagnostic tests that were done in order to assess the suitability of the regression model that was applied in this study. The various diagnostic tests done included auto-correlation, heteroscedasticity, stationarity, Hausman test and normality tests as discussed below.

4.4.1 Lagrange Multiplier Test

Lagrange Multiplier Test was done with a null hypothesis that there is no panel effect and an alternative hypothesis that there is panel effect. The results obtained indicating a Chi-Square value of 217.48 and P-Value of 0.0000 is an indication that the null hypothesis should be rejected for the alternative hypothesis. It was therefore concluded that there are panel and pool effect, hence, the regression least square model wasn't the most effective for examining the relationship between financial structure and financial intermediation efficiency of deposit-taking SACCOs in Kenya. The study findings concur with Delikanl and Kılıç (2021) whose study findings in Turkey established existence of panel and pool effect on a set of data among SMEs. However, the findings contradict Dewi et al., (2020) whose study didn't find pool and panel effect among financial firms in Indonesia.

TABLE 3
Lagrange Multiplier Test

	Var	sd = sqrt (Var)
FIE	0.0680197	0.260806
E	0.0185385	0.136156
U	0.0331327	0.182024
Var(u) =	0	
	chibar2(01) =	217.48
	Prob > chibar2 =	0.0000

4.4.2 Testparm Test

Testparm test was undertaken in order to determine whether to accept or reject the null hypothesis. Results in Table 4 indicates a P-Value=0.0000 which is an indication that null hypothesis should be rejected as there is strong evidence that at least one of the coefficients is not equal to zero. The study findings are consistent with Morellec and Zucchi (2020) whose study established the rejection of null hypothesis among Malaysian firms.

TABLE 4
Testparm Test

(1) LEVERAGE = 0
(2) NONWITHDRAWABLEDEPOSITS = 0
(3) SHARECAPITAL = 0
 F (3, 311) = 32.32
Prob > F = 0.0000

4.4.1 Auto-Correlation Test

Auto-correlation test was undertaken in order to establish whether any association existed between various study variables and their lagged version over the different time period. To achieve this, Wooldridge Test was used as illustrated in Table 5 below. The obtained results indicated a Chi-Square of 7.2 with a corresponding P-Value < 0.05. Therefore, the results indicates that the null-hypothesis need to be rejected and accept the alternative one which is an indication that serial-correlation existed in the data. The study findings contradict Dudycz (2021) whose study in the United States established the absence of serial-correlation.

TABLE 5
Wooldridge Test

F (3,311)	P value
7.2	0.0000

4.4.3 Heteroscedasticity Test

Heteroscedasticity test was carried out in order to establish whether the variance of errors is uniform or not along all levels of independent variables. To test this, Breusch-Pagan Cook-Weisberg test for group-wise heteroscedasticity was carried out as indicated in Table 6. The study results obtained indicated that a Chi-Square of 7.25 and $P < 0.05$ which indicates that there is sufficient evidence for the null-hypothesis to be rejected, thus, implying that the data set used was homoscedastic in nature. The findings concur with Omai et al., (2018) whose study targeting petroleum companies in Kenya also established that the data used was homoscedastic in nature.

TABLE 6
Breusch-Pagan Cook-Weisberg Test

F (3,311)	Prob < F
7.25	0.0001

4.4.4 Normality Test

Jarque Berra Test was applied in order to determine the error term. The results obtained indicated a chi-square of 16.38 and $P < 0.05$. The regression residuals follow a normal distribution under the null hypothesis as they are normally distributed. The results obtained is an indication that the error term wasn't normally distributed. As a result of this, robust standard errors were adopted while fitting regression model in order to enhance the efficiency of the estimators as emphasized by (Gujrat, 2003).

TABLE 7
Jarque Berra Test

Chi Square	Prob<Chi2
16.39	0.0003

4.4.5 Hausman Test

Hausman Test was also carried out in order to examine which was the most appropriate panel data model to adopt between fixed and random effects. As per the findings, the null-hypothesis was rejected as it was observed that the P-Value $P < 0.05$ which implied that there was no systematic difference between the various coefficients. Based in these results, the panel data model to be adopted was fixed effect model. The findings concur with Musah (2018) whose study in Ghana also established there was no systematic difference between the various coefficients. However, the findings disagree with Nyabaga and Wepukhulu (2020) whose study established that a systematic difference existed between the various study coefficients.

TABLE 8
Hausman Test

Test Summary	Chi-Sq. Statistic		Chi-Sq. d.f.	Sig
	35.17		3	0.0000
Variable	Fixed Effect	Random Effect	Difference	S. E
Leverage	0.2504	0.143	0.108	
Non-Withdrawable Deposits	-0.842	-0.155	0.711	
Share Capital	0.019	0.0257	0.007	

4.5 Inferential Statistics

Inferential analysis was used in the generation of correlation and regression outputs on the relationship between financial structure and financial intermediation efficiency of DTS in Kenya. Both the correlation analysis and regression model outputs were interpreted based on the p-values.

4.5.1 Correlation Analysis

Pearson correlation coefficient was applied by the researcher in order to determine the strength with which leverage, non-withdrawable deposits and share capital affected the financial

intermediation efficiency of DTS in Kenya as indicated Table 9. Based on the study findings as indicated above, it was revealed that leverage (LEV) had a positive and statistically significant effect on financial intermediation efficiency (FIE) of the DTS in Kenya (0.0126, P-Value<0.05). The findings also indicated that non-withdrawable deposits had an inverse and non-significant effect on the financial intermediation efficiency of DTS in Kenya (-0.1838, P-Value<0.05). Lastly, the results established that share capital had an inverse and non-significant effect on the financial intermediation efficiency of DTS in Kenya (-0.1055, P-Value < 0.05).

TABLE 9
Pearson Correlation Coefficient

	FIE	LEV	NWD	SC
FIE	1			
LEV	0.0126 0.8232	1		
NWD	-0.1838 0.001	0.9147 0	1	
SC	-0.1055 0.0614	0.8503 0	0.8971 0	1

4.5.2 Fixed Effect Regression Model

Figure 2 presents the fixed effects regression model results indicating the fitness, explanatory power and significance of the adopted model in explaining the extent to which various independent variables under the study predicts the dependent variable. The value of R-Squared as per the regression analysis was 0.2212 which is an indication that the it is only 22.12% of financial intermediation efficiency of DTS operating in Kenya between 2017 and 2021 had been affected by their leverage, non-withdrawable deposits and share capital respectively. The R-Squared of 22.1% is an indication that 77.9% of financial intermediation efficiency of deposit-taking SACCOs in Kenya is influenced by other factors other than their leverage, non-

withdrawable deposits and share capital respectively. F-Statistics ($F=10.5$) is an indication that the model was statistically significant ($P<0.05$), hence, it can be concluded that the model was significantly fit and also that at least one of the three key independent variables was significant in explaining the financial intermediation efficiency of DTS in Kenya.

On the objective on the effect of leverage on financial intermediation efficiency of DTS in Kenya, the regression results obtained indicates that leverage had a positive and significant effect on financial intermediation efficiency of DTS operating in Kenya as indicated by ($\beta = 0.250$, P-Value < 0.05). Pertaining to the effect of non-withdrawable deposits on financial intermediation efficiency of DTS in Kenya, it was established that non-withdrawable deposits had a negative but statistically significant effect on financial intermediation efficiency of DTS ($\beta = -0.084$, P-Value < 0.05). The last objective on the effect of share capital on financial intermediation efficiency of DTS in Kenya, it was found out that share capital had a positive and insignificant effect on financial intermediation efficiency of DTS in Kenya ($\beta = 0.019$, P-Value > 0.05).

Therefore, based on the obtained results, then the resulting study model was as follows:

$$\mathbf{FIE} = -2.202 + 0.250\mathbf{X}_{1\text{ it}} - 0.084\mathbf{X}_{2\text{ it}} + 0.019\mathbf{X}_{3\text{ it}}$$

FIGURE 3**Fixed Effect Regression Model**

```
. xtreg FINANCIALINTERMEDIATIONEFFICIE LEVERAGE NONWITHDRAWABLEDEPOSITS SHARECAPITAL, fe
```

```
Fixed-effects (within) regression      Number of obs   =       315
```

```
Group variable: firm                  Number of groups =        63
```

```
R-sq:                                Obs per group:
```

```
    within = 0.2212                    min =          5
```

```
    between = 0.0022                   avg =         5.0
```

```
    overall = 0.0071                   max =          5
```

```
F(3,249)                             =       23.57
```

```
corr(u_i, Xb) = -0.8199                Prob > F       =       0.0000
```

FINANCIALINTERMEDIATI~E	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
LEVERAGE	.2504017	.031276	8.01	0.000	.1888023	.312001
NONWITHDRAWABLEDEPOSITS	-.0842109	.0298821	-2.82	0.005	-.1430649	-.025357
SHARECAPITAL	.018585	.0232009	0.80	0.424	-.0271101	.0642801
_cons	-2.201879	.626619	-3.51	0.001	-3.436028	-.9677294
sigma_u	.40404529					
sigma_e	.13615602					
rho	.89802324	(fraction of variance due to u_i)				

```
F test that all u_i=0: F(62, 249) = 10.15                Prob > F = 0.0000
```

4.6 Discussion of the Findings

On the objective of the effect of leverage on the financial intermediation efficiency of deposit-taking SACCOs in Kenya, it was observed that leverage had a positive and significant effect on financial intermediation efficiency of DTS operating in Kenya as indicated by ($\beta = 0.250$, P-Value < 0.05). The result is a clear indication that DTS that maintained sufficient leverage levels had a high-level performance in terms of their financial intermediation efficiency than their counterparts who had low-level of leverage. Therefore, the findings clearly indicates that when DTS increases their leverage level by one unit, then this will automatically result in an

increased financial intermediation efficiency level by 25.5%, when all the other variables are held constant.

The study findings concur with the results of a study conducted in the United States by Finger, Gavious and Manos (2018) which informs those financial institutions in the country willing to finance illiquid investments usually do so through short-term borrowing. The financial institutions do so because once the illiquid investments are financed, financial institutions tend to ban short-term financing in order to avert crises with their leverage level.

Further, the results obtained were in agreement with Laeven, Kalemli-Özcan and Moreno (2018) who studied European companies to establish the role of financial leverage behind the sluggish post-crisis investment performance established that firms entering the financial crisis with higher debts level have to reduce their investment significantly after a financial crisis is over.

The findings concur with the results of a study done in Ghana by Musah (2018) who observed that commercial banks in the country are highly leveraged as 84 percent of their total capital structure is composed of debt financing. However, despite this, most commercial banks still prefer financing their operations through short-term debts which accounts to around 77% of their financial structure. Commercial banks in the country continues to overly on short-term debts despite clear indications that relying on such is decreasing operational efficiency due to reducing profitability level.

The study findings also agree with the findings of a study done in Turkey by Delikanlı and Kılıç (2021) which observed that SMEs' assets grow and efficiency increases, their overall financial debts rise as well. While asset growth mostly results in long-term debts, increase in operational efficiency of SMEs is attributed to short-term borrowing. However, as SMEs continue to generate more revenue, their dependency on debt financing decreases which is an

indication that SMEs try to meet their financing needs based on the concept advocated under the Pecking Order Theory.

The study findings however contradict the findings of another study undertaken locally by Nyabaga and Wepukhulu (2020) who observed that the concept of the most effective financial structure still remains a very controversial topic among researchers. The disagreement mostly stems from differing perspectives, perceptions, and theories on how to attain the optimal financial structure in order to minimise firm's cost of capital and maximize its value. For example, financial institutions especially commercial banks have reached a crossroads in their pursuit of the optimal method of financial structure financing. This is despite the fact that decision of the mode of funding is crucial to the operational viability of commercial banks. However, research indicates that in the majority of cases, commercial banks fail to identify the most suitable form of capital financing when their activities are disrupted, thus harming their financial intermediation efficiency. The contradiction between the current study findings and that one undertaken by Nyabaga and Wepukhulu (2020) stems from the fact that the two looked at different aspects of financial structure. Trade-Off Theory of Capital Structure supported the objective on the effect of leverage on financial intermediation efficiency of DTS in Kenya as the theory predicts that the debts of a firm are likely to increase in risk-free interest rate and if the tax code of the country in which the firm operates allows more generous interest rate tax deductions.

The findings also contradict Legesse and Guo (2020) results that established that in India, borrowers are increasingly utilizing short-term debt as they are financing source given that they are much cheaper than long-term debts. Since using short-term debts has been determined to lower borrowing costs, then borrowers are may decide to use them despite the fact that they are likely to increase their exposure to roll-over crises. In addition, short-term debts are preferred by many Indian borrowers since they tend to match the maturity of their

liabilities to that of their assets. Firms are therefore increasingly utilizing long-term debt for financing fixed assets while preferring short-term debt for financing their working capital.

The study further disagrees with Musah (2018) whose findings in Ghana established that commercial banks in the country are highly leveraged as 84 percent of their total capital structure is composed of debt financing. However, despite this, most commercial banks still prefer financing their operations through short-term debts which accounts to around 77% of their financial structure. Commercial banks in the country continues to overly on short-term debts despite clear indications that relying on such is decreasing operational efficiency due to reducing profitability level.

On the objective of the effect of non-withdrawable deposit on financial intermediation efficiency of deposit-taking SACCOs in Kenya, it was observed that non-withdrawable deposits had a negative but statistically significant effect on financial intermediation efficiency of DTS operating in Kenya as indicated by ($\beta = -0.084$, P-Value < 0.05). This suggests that DTS that held less non-withdrawable deposits tended to a high-level financial intermediation efficiency when compared to their counterparts that held large amounts of non-withdrawable deposits. The findings therefore indicate that whenever DTS decreased the amount of their non-withdrawable deposits by one unit and having all other variables held constant, their intermediation efficiency decreased by -8.4%.

The study findings that non-withdrawable deposits had a negative effect on financial intermediation efficiency of DTS in Kenya contradicts the results of a study done in EU countries by Leonello et al., (2022) who observed that more non-withdrawable deposits usually make commercial banks much more stable especially when the runs are driven by market panics. However, Leonello et al., (2022) study also observed some similar issue as with the current study when the authors noted that such non-withdrawable deposits still make banks more fragile in the events where runs are driven by critical fundamentals. As a result, external

savings causes under-saving among banks especially when such is driven by critical fundamentals. The contradiction in the study findings was caused by the fact that Leonello et al., (2022) study was carried out in EU countries where financial institutions enjoy strong financial structure unlike in Kenya where majority of small financial institutions such as DTS continuously face issue with their overall financial structures.

The findings also contradict those obtained by Dewi et al. (2020) who while conducting a study in Indonesia noted that high investment financial needs in Indonesia have forced commercial banks to devise more optimal strategies to pool and mobilize savings from their customers so as to enhance both sustainable and their country's economic growth. However, banks in the country are still facing issues to effectively implement this plan due to issue to do with how to increase financial inclusion as well as to how to enhance their financial intermediation. As a result, banks have urged the government to establish strong financial system with enhanced financial intermediation efficiency so as to provide answer to various economic challenges.

The study findings that non-withdrawable deposits although had a negative but statistically significant effect on financial intermediation efficiency of DTS in Kenya to some extent concurs with the findings observed in Ghana by Baidoo et al., (2019) that non-withdrawable customer deposits are considered as a crucial source of operational funds among financial institution in Ghana. This is because financial institutions normally utilize mobilized customers deposits to issue loans and advances to their clients which earns them interest and, thus, enhancing their capital adequacy in the long-run. For this reason, it was found out that a strong correlation between customers deposits and the ability of banks to provide loans and advances to customers since they use those deposits to lender the credits. Pecking Order Theory supported the objective on the effect of non-withdrawable deposits on financial intermediation efficiency of DTS in Kenya because the theory recognizes the fact that firms usually depend

on internal funds to financing their operations until they are depleted after which they borrow debts and if this is not sustainable then they turn to equity financing.

On the objective of the effect of share capital on the financial intermediation efficiency of deposit-taking SACCOs in Kenya, it was observed that share capital had a positive and in significant effect on financial intermediation efficiency of DTS operating in Kenya as indicated by ($\beta = 0.019$, P-Value > 0.05). The result is a clear indication that DTS that had maintained large amount of share capital had a high-level performance in terms of their financial intermediation efficiency than their counterparts who had less amount of share capital. Therefore, the findings clearly indicates that when DTS increases their share capital by issuing out a single share either ordinary or preference, then this will automatically result in an increased financial intermediation efficiency level by 1.9%, when all the other variables are held constant.

The study results are in agreement with the results of a study done in Poland by Dudycz (2021) which examined whether the share capital of a firm can influence its overall performance established that such achievements can result from two key features of share capital. First, the study observed that a firm must always hold share capital in order to secure its creditors' claims. This means that a firm cannot simply redistribute its share capital while at the same time new shares cannot be issued at a less price than the par value. This aspect causes inflexibility on the part of the firm and such can easily affect the firm performance. On the other hand, the amount of share capital can be used by prospective shareholders to assess investment viability, thus, acting as a signaling tool for firms wishing to enhance their performance by attracting new investors.

The results also agreed with the findings of a study done by Omai et al., (2018) that examined how share capital finance influence profitability of petroleum companies in Kenya observed that share capital has a positive impact on their profitability since it tends to represent

that part of financial structure that is free of debt as it only represents shareholders ownership interest only. Unlike debts which studies have established to be negatively correlated with company's profitability, share capital finances are usually positively correlated with firms' profitability. Therefore, company's share capital value is very crucial feature that investors look at before deciding on whether or not to investment in a given firm.

The findings also agree with the findings of a study done in Nigeria by Owolabi et al., (2021) which observed that equity financing is extensively adopted by manufacturing entities in Nigeria as it is regarded as the most risk free and stress-free financing option for them. This is because many manufacturing entities in Nigeria constantly require huge financing in order to be able to finance for their fixed assets, bridge the gap between production and sales as well as to run day to day operation which can only be obtained through issue of equity. Despite this, the study noted that issuing of equities has significantly diluted the ownership structure of many manufacturing entities in the country. However, the performance of firms issuing equities was found to be more profitable than those utilizing debt financing.

However, the findings contradict the results of a study done by Lusola et al., (2022) that examined whether financial performance of large firms listed at Hong-Kong Stock Exchange was affected by their capital structure established that a small negative effect existed between the two. However, the results obtained was considered non-conclusive since Hong-Kong has a great different economic system and its economy has numerous characteristics that is completely different from other countries especially developing ones in terms of spending behaviour, consumer consumption level as well as households' savings habit. The contradiction in the study findings of the current study and that previous one undertaken by Lusola et al., (2022) arose from the fact that the latter targeted large firms listed at Hong-Kong Stock Exchanges unlike the current one which targeted smaller DTS in Kenya. Modigliani and Miller Capital Structure Irrelevance Theory supported the objective on the effect of share

capital on financial intermediation efficiency of DTS in Kenya because the theory recognizes the fact that the value of a firm is not affected by the proportion of its capital structure.

The findings also contradict those of Amraoui, Jianmu and Bouarara (2018) who examined the key determinants of firm's capital structure and the most effective financing choices, it was observed that financial markets in developing countries are not likely to meet the full financial requirements of their business entities. As a result of this, business entities are forced to rely mostly on long-term loans from commercial banks so as to operate more efficiently. This is mostly done in order to finance long-term investment projects which are likely to enhance the overall value of the firm.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter provided a detailed summary, conclusion and recommendations made thereafter in regards to the relationship between various constructs of financial structure and the corresponding financial intermediation efficiency of deposit-taking SACCOs in Kenya. Therefore, the chapter is simply structured into summary of the findings, conclusion and recommendations.

5.2 Summary of Findings

The main objective of undertaking this study was to examine the relationship between financial structure and financial intermediation efficiency of deposit-taking SACCOs in Kenya. In chapter one the introduction part, the study provided a detailed introductory section in chronological order on the relation between financial structure and financial intermediation efficiency from global, regional and local settings. In addition, the statement of the problem that was identified and which the study sought to answer was analysed as well as the specific objectives, research question, significance and scope of the study.

Chapter two provided a detailed review of literature review. To start with, the study analysed the three key theories upon which the current study was grounded on which included Modigliani and Miller Capital Structure Irrelevance Theory, Trade-Off Theory of Capital Structure and Pecking Order Theory. The chapter also provided a detailed review of various empirical studies that related to the concept of financial structure and financial intermediation efficiency of various financial firms from global, regional and local settings. Lastly, the chapter analysed the conceptual framework which was presented in a diagrammatical format explaining the relationship that existed between the three concepts of financial structure and financial intermediation efficiency of DTS in Kenya.

The third chapter provided a detailed analyses of the methodological approaches that were followed while undertaking the current study. Research design, target population, sampling technique and sample size, data collection procedure followed, data analysis process as well as various diagnostic tests was explained under this section.

5.2.1 Leverage and Financial Intermediation Efficiency

On the effect of leverage on the financial intermediation efficiency of deposit-taking SACCOs in Kenya, it was observed that leverage had a positive and significant effect on financial intermediation efficiency of DTS operating in Kenya. The result is a clear indication that DTS that maintained sufficient leverage levels had a high-level performance in terms of their financial intermediation efficiency than their counterparts who had low-level of leverage. The study findings indicate that increasing the level of leverage will automatically result in enhanced of DTS in Kenya.

5.2.2 Non-Withdrawable and Financial Intermediation Efficiency

On the effect of non-withdrawable deposit on financial intermediation efficiency of deposit-taking SACCOs in Kenya, it was observed that non-withdrawable deposits had a negative but statistically significant effect on financial intermediation efficiency of DTS operating in Kenya. This suggests that DTS that held less non-withdrawable deposits tended to a high-level financial intermediation efficiency when compared to their counterparts that held large amounts of non-withdrawable deposits. The findings therefore indicate that whenever DTS decreased the amount of their non-withdrawable deposits by one unit and having all other variables held constant, their intermediation efficiency increases.

5.2.3 Share Capital and Financial Intermediation Efficiency

On the effect of share capital on the financial intermediation efficiency of deposit-taking SACCOs in Kenya, it was observed that share capital had a positive and insignificant effect on financial intermediation efficiency of DTS operating in Kenya. The result is a clear indication

that DTS that had maintained large amount of share capital had a high-level performance in terms of their financial intermediation efficiency than their counterparts who had less amount of share capital. Therefore, the findings clearly indicates that when DTS increases their share capital by issuing out a single share either ordinary or preference, then this will automatically result in an increased financial intermediation efficiency level when all the other variables are held constant.

5.3 Conclusion

Regarding the effect of leverage on financial intermediation efficiency of DTS in Kenya, the study concludes that maintaining high-level leverage is very crucial for deposit-taking SACCOs in order to enhance their financial intermediation efficiency. This is because, maintaining high-leverage level makes it possible for deposit taking SACCOs to increase their liquidity available to the company because when they give out loans to customers, they receive sufficient cash from the borrowers in terms of interest charge and that cash can be used for a variety of activities. Maintaining high leverage can also be very advantageous to deposit taking SACCOs as it enables them to diversify their investments as well as helping them to set out a threshold for the expansion of their business operations.

On the effect of non-withdrawable deposits on financial intermediation efficiency of DTS in Kenya, the study revealed inverse but statistically significant effect of non-withdrawable deposit on financial intermediation efficiency of DTS in Kenya. As such, the study findings indicate a negative contribution of non-withdrawable deposits on DTS financial intermediation efficiency. As such, it can be concluded that an increase in the amount of non-withdrawable deposits tends to inhibit the financial intermediation efficiency of DTS. This can be explained by the fact that an increase in the amount of non-withdrawable deposits will mean that DTS will likely issue out significant amounts of loans to their customers and this is likely

to impact their financial intermediation function especially where customers fail to honour their loans payment on due dates.

On the objective of the effect of share capital on financial intermediation efficiency of DTS in Kenya, it was concluded that the amount of share capital that a DTS has in terms of ordinary share capital, preference share capital and reserves play a very crucial role in determining its overall financial intermediation efficiency. As such, DTS which holds more amount of share capital are expected to report enhanced financial intermediation efficiency than their counterparts that have few investors. Indeed, an increase in share capital through sale of shares is very advantageous to firms since it ensures that the company does not have repayment requirements for the initial investment or for interest payments. This can make it more appealing than other forms, such as bank loans and bonds, that are debts of the company.

5.4 Recommendations

Based on the study findings, the following practical and policy recommendations were made:

5.4.1 Practical Recommendations

The study established that leverage had a positive and significant effect on financial intermediation efficiency of DTS operating in Kenya. Therefore, the study recommends that DTS in Kenya should always ensure that they always maintain high leverage level so as to ensure that they are able to diversify their investments as well as helping them to set out a threshold for the expansion of their business operations. This way they will be able to become more efficient while discharging their financial intermediations services.

The study established that non-withdrawable deposits held had a negative but statistically significant effect on financial intermediation efficiency of DTS operating in Kenya. Even though the effect of non-withdrawable deposits had a negative effect on the financial intermediation efficiency, the same was statistically significant, hence, the study recommends that DTS in Kenya should strive to enhance their marketing capability so as to attract more

customers and make their financial intermediation services more manageable by receiving non-withdrawable deposits from depositors and issuing out loans to creditors.

The study further established that share capital had a positive and in significant effect on financial intermediation efficiency of DTS operating in Kenya. As such, the study recommends that the managers of DTS in Kenya should ensure that an optimal equity level is maintained in order to enhance their entities operational efficiency. Management should not be too interested to issue more shares as this is likely to dilute their firm's ownership structure and such issue may hinder prospective investors from investing in their SACCOs in the future.

5.4.2 Policy Recommendations

The study findings were of great significant to the management of SACCOs in Kenya. The study therefore recommends that the management of DTS across the country need to ensure that they are involved in making their financial structure decisions that are very likely to effectively mitigate against any possible financial crisis which may arise due to lack of investment funds. This is because, ineffective financial structure decisions are likely to affect the leverage, non-withdrawable deposits and share capital all which may eventually lead to financial distress.

The study findings were of great significant to the policy makers such as SASRA who are concerned with the regulation of DTS. Therefore, the study recommends that policy makers in Kenya that are concerned with DTS regulation should ensure that that DTS across the country implement and adopt effective and sound financial structure decisions in order to enhance their financial intermediation efficiency and thus minimize the instances of DTS plunging into financial crisis that has caused many people across the country to lose a lot of money in the past.

The study was also of great significance to scholars and academicians who might be interested to carry-out further research on the relationship between financial structure and

financial intermediation efficiency. Therefore, the study recommends that interested scholars and academicians should look at the findings of this study and make sure that they are able to identify other aspects of financial structure that are likely to influence the financial intermediation efficiency role of various financial institutions in the country.

5.5 Limitations of the Study

The study was limited to examining the relationship between financial structure and financial intermediation efficiency of DTS in Kenya. As such, the study was theoretically, conceptually, contextually and methodologically limited. Theoretically, the study was limited to three major theories namely Modigliani and Miller Capital Structure Irrelevance Theory, Trade-Off Theory of Capital Structure and Pecking Order Theory. Although there were some weaknesses that were identified with these theories, their overall strengths significantly surpassed these weaknesses as a result of continued theoretical development as was supported by the empirical evidence.

The study was also limited conceptually given the fact that the study was undertaken in Kenya as there was no any other identified study that had been done examining the relationship between financial structure and financial intermediation efficiency of DTS. For this reason, the findings of this study were only limited to DTS operating in Kenya and therefore cannot be generalized for any other DTS operating outside the country.

Contextually, the study was limited to all 175 SASRA licensed and regulated DTS that operates from across the country, thus, limiting the study population. In addition, the study was also limited because it didn't sample all other non-deposit taking SACCOs that operate in Kenya; hence, the findings of the study were limited to DTS only and not to other SACCOs that operate in the country. However, this was mitigated since the study used data spanning over a five years period amongst the identified DTS.

Methodologically, the study was limited by the fact that it only randomly sampled 63 DTS as opposed to targeting all 175 of them in order to be able to draw a much more valid conclusion. In addition, the study was methodically limited since was based on linear regression technique which is based on linear assumptions; hence, one must possess sufficient interpretation skills in order to understand and interpret those assumptions. In addition, the linear regression technique upon which the study was based which may have significant limitations on the study findings if not properly interrupted.

5.6 Areas of Further Study

The core aim of this study was to examine the existing relationship between financial structure and financial intermediation efficiency of DTS in Kenya. To achieve this, the study only considered three aspects of financial structure. Therefore, it is recommended that further studies need to be undertaken incorporating more factors that are likely to affect the financial structure decisions within a financial institution setting. In addition, the study used data spanning over a five years period only, hence, the future studies should expand the study timeline to cover more years in order to be able to examine how financial structure is likely to impact financial intermediation efficiency of DTS over such an extended timeframe. Lastly, further research needs to be undertaken to examine the other factors that examine the remaining 77.9% of the financial intermediation efficiency of deposit-taking SACCOs in Kenya.

REFERENCES

- Abdullah, H., & Tursoy, T. (2021). Capital structure and firm performance: evidence of Germany under IFRS adoption. *Review of Managerial Science*, 15(2), 379-398.
- Ajibola, A., Wisdom, O., & Qudus, O. L. (2018). Capital structure and financial performance of listed manufacturing firms in Nigeria. *Journal of Research in International Business and Management*, 5(1), 81-89.
- Alhassan, A., Li, L., Reddy, K., & Duppati, G. (2019). The impact of formal financial inclusion on informal financial intermediation and cash preference: evidence from Africa. *Applied Economics*, 51(42), 4597-4614.
- Al-Kahtani, N., & Al-Eraij, M. (2018). Does capital structure matter. *International Journal of Financial Services Management*, 9(1), 39-46.
- Amraoui, M., Jianmu, Y., & Bouarara, K. (2018). Firm's capital structure determinants and financing choice by industry in Morocco. *International journal of management science and business administration*, 4(3), 41-51.
- Baidoo, W. T., Bagina, R. W., & Tobazza, S. (2019, May). The Effect of Customer Deposit on the Performance of Banks in Ghana. In *International Conference on Applied Science and Technology Conference Proceedings* (60-67).
- Bayai, I., & Ikhide, S. (2018). Financing structure and financial sustainability of selected SADC microfinance institutions (MFIs). *Annals of Public and Cooperative Economics*, 89(4), 665-696.
- Bannerman, S., & Fu, G. (2019). Analyzing access to long term debt effects on firm growth: Evidence of China. *European Journal of Social Sciences*, 58(1), 5-13.
- Bloomfield, J., & Fisher, M. J. (2019). Quantitative research design. *Journal of the Australasian Rehabilitation Nurses Association*, 22(2), 27-30.
- Bod'a, M., & Zimková, E. (2021). A DEA model for measuring financial intermediation. *Economic Change and Restructuring*, 54(2), 339-370.

- Charles, K., & Zipporah, O. (2021). Financial Engineering and Financial Performance of Deposit Taking Savings and Credit Co-operative Societies in Kenya. *Journal of Finance and Investment Analysis*, 10(1), 1-2.
- D'Amato, A. (2020). Capital structure, debt maturity, and financial crisis: empirical evidence from SMEs. *Small Business Economics*, 55(4), 919-941.
- Daniel, M. M., & Abdul, M. F. (2018). Capital structure and the financial performance of deposit-taking savings and credit cooperative societies in Kenya. *International Journal of Current Aspects in Finance*, 20(4), 10-19
- Delikanlı, İ., & Kılıç, S. (2021). Factors influencing SMEs' capital structure: a comparative analysis from Turkey. *Small Enterprise Research*, 28(1), 57-74.
- Della Seta, M., Morellec, E., & Zucchi, F. (2020). Short-term debt and incentives for risk-taking. *Journal of Financial Economics*, 137(1), 179-203.
- Dhita, S., Achsani, N. A., Sembel, R., & Purwanto, S. (2018). Equity market timing and Capital structure. *Journal of Technology Management*, 17(1), 1-9.
- Dierker, M., Lee, I., & Seo, S. W. (2019). Risk changes and external financing activities. *Journal of Empirical Finance*, 52, 178-200.
- Dudycz, T. (2021). Does share capital matter for company performance? *Economic Research-Ekonomska*, 1-25.
- Finger, M., Gaviols, I., & Manos, R. (2018). Environmental risk management and financial performance in the banking industry. *Journal of International Financial Markets, Institutions and Money*, 52, 240-261.
- Galletta, S., Mazzù, S., Naciti, V., & Vermiglio, C. (2021). Sustainable development and financial institutions: Do banks' environmental policies influence customer deposit. *Business strategy and the environment*, 30(1), 643-656.
- Hamaker, E. L., & Muthén, B. (2020). The fixed versus random effects debate and how it relates to centering in multilevel modeling. *Psychological methods*, 25(3), 365.
- Harrison, P., Ndung'u, S., & Abayo, R. (2021). Effect of Financial Structure on Financial Performance of Listed Commercial Banks in Kenya. *Journal of Finance and Accounting*, 5(3).

- Ibrahim, M. H., & Law, S. H. (2020). Financial intermediation costs in a dual banking system: The role of Islamic banking. *Bulletin of Monetary Economics and Banking*, 22(4), 531-552.
- Isinta, H. M., Aduda, J., & Magutu, P. (2019). Intervening Effect of Savings Mobilization on the Relationship between Bancassurance and Financial Performance of Commercial Banks in Kenya. *Journal of Finance and Investment Analysis*, 8(2).
- Jarallah, S., Saleh, A. S., & Salim, R. (2019). Examining pecking order versus trade-off theories of capital structure. *International Journal of Finance & Economics*, 24(1), 204-211.
- Jiménez-Hernández, I., Palazzo, G., & Sáez-Fernández, F. J. (2019). Determinants of bank efficiency: evidence from the Latin American banking industry. *Applied Economic Analysis*, 4(3) 184-206.
- Kolsrud, J., Landais, C., Nilsson, P., & Spinnewijn, J. (2018). The optimal timing of unemployment benefits: Theory and evidence from sweden. *American Economic Review*, 108(4-5), 985-1033.
- Kwak, S. G., & Park, S. H. (2019). Normality test in clinical research. *Journal of Rheumatic Diseases*, 26(1), 5-11.
- Laeven, L., Kalemli-Özcan, Ş., & Moreno, D. (2018). Debt Overhang, Rollover Risk, and Corporate Investment. *Journal of European Economic Association* 2(12), 21-30.
- Legesse, T. S., & Guo, H. (2020). Does firm efficiency matter for debt financing decisions? Evidence from the biggest manufacturing countries. *Journal of Applied Economics*, 23(1), 106-128.
- Leonello, A., Mendicino, C., Panetti, E., & Porcellacchia, D. (2022). Savings, efficiency and the nature of bank runs. *Journal of the European Economic Association*, 1(2), 1-2
- Liebhold, A. M., & Sharov, A. A. (2020). Testing for correlation in the presence of spatial autocorrelation in insect count data, 111-118.
- Ma, Y., & Yao, C. (2022). Openness, financial structure, and bank risk. *International Review of Financial Analysis*, 81, 102065.

- Manyeruke, 2018). Customer satisfaction with the electronic banking services in Zimbabwe: a case of Mashonaland West Province, Zimbabwe (Doctoral dissertation).
- McPeck, M. A., & Kalisz, S. (2020). Population Sampling and Bootstrapping in Complex Designs. *Journal of Design and Analysis of Ecological Experiments*, 232-252.
- Mehmood, R., Hunjra, A. I., & Chani, M. I. (2019). The impact of corporate diversification and financial structure on firm performance. *Journal of Risk and Financial Management*, 12(1), 49.
- Mohieldin, M., Hussein, K., & Rostom, A. (2019). On financial development and economic growth in Egypt. *Journal of Humanities and Applied Social Sciences*. 8(1), 20.
- Mujwahuzi, G. V., & Mbogo, C. J. (2020). Effects of capital structure on business profitability of processing enterprises listed on the Dar es Salaam Stock Exchange, Tanzania. *Journal of Finance and Accounting*, 8(4), 165.
- Mumo, J. A. (2021). Effect of Financial Innovation on Financial Intermediation Efficiency Within the Banking Sector in Kenya (Doctoral dissertation, University of Nairobi).
- Muriithi, P. K., Nasieku, T., & Memba, F. (2022). Influence Of Credit Management on Financial Intermediation Efficiency of Deposit Taking Saccos's in Kenya. *Journal of Accounting*, 5(1), 1-12.
- Musah, A. (2018). The impact of capital structure on profitability of commercial banks in Ghana. *Asian Journal of Economic Modelling*, 6(1), 21-36.
- Musau, S. (2022). Deepening financial inclusion and stability of commercial banks in Kenya: synergies and Trade-offs. *International Academic Journal of Economics and Finance*, 3 (7), 143-155.
- Nyabaga, R. M. I., & Wepukhulu, J. M. (2020). Effect of firm characteristics on financial performance of listed commercial banks in Kenya. *International Journal of Economics and Financial Issues*, 10(3), 255-268.
- Oberfichtner, M., & Tauchmann, H. (2021). Stacked linear regression analysis to facilitate testing of hypotheses across OLS regressions. *The Stata Journal*, 21(2), 411-429.

- Oktavina, M., Manalu, S., & Yuniarti, S. (2018). Pecking order and trade-off theory in capital structure analysis of family firms in Indonesia. *Jurnal Keuangan dan Perbankan*, 22(1), 73-82.
- Olusola, B. E., Mengze, H., Chimezie, M. E., & Chinedum, A. P. (2022). The Impact of Capital Structure on Firm Performance among Large Companies in Hong Kong Stock Exchange. *Open Journal of Business and Management*, 10(3), 1332-1361.
- Omai, M. D., Memba, F. S., & Njeru, A. G. (2018). The effect of share capital finance on profitability of petroleum marketing firms in Kenya. VI (1), 410-422.
- Omollo, B. A., Muturi, W. M., & Wanjare, J. (2018). Effect of Debt Financing Options on Financial Performance of Firms Listed at the Nairobi Securities Exchange, Kenya. *Research Journal of Finance and Accounting*, 9(10), 150-164.
- Owolabi, O. A., Kolawole, A. D., Ogungbade, O. I., & Adekoya, A. C. (2021). Equity Financing Options and Financial Performance of Listed Manufacturing Firms in Nigeria. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 18(7), 1730-1741.
- Pantieliieva, N., Khutorna, M., Lytvynenko, O., & Potapenko, L. (2020). FinTech, RegTech and traditional financial intermediation: *Data-Centric Business and Applications*.1-21.
- Purba, J. H. V., & Bimantara, D. (2020). The influence of asset management on financial performance, with panel data analysis. *International Seminar on Business, Economics, Social Science and Technology*, 150-155.
- Qin, X., & Zhou, C. (2019). Financial structure and determinants of systemic risk contribution. *Pacific-Basin Finance Journal*, 57, 101-183.
- Rice, G., Wirjanto, T., & Zhao, Y. (2020). Tests for conditional heteroscedasticity of functional data. *Journal of Time Series Analysis*, 41(6), 733-758.
- Rahman, M. M., Zheng, C., Ashraf, B. N., & Rahman, M. M. (2018). Capital requirements, the cost of financial intermediation and bank risk-taking: Empirical evidence from Bangladesh. *Research in International Business and Finance*, 44, 488-503.
- Shikumo, D. H., Oluoch, O., & Wepukhulu, J. M. (2020). Effect of Short-Term Debt on Financial Growth of Non-Financial Firms Listed at Nairobi Securities Exchange.

- Shrestha, N. (2020). Detecting multicollinearity in regression analysis. *American Journal of Applied Mathematics and Statistics*, 8(2), 39-42.
- Sibarani, J. L., Ginarti, C., Tambun, R., & Surianti, M. (2020). Analysis of the Influence of Capital Structure and Profit Ability on Corporate Value under Modigliani and Miller Theory of Investment Review. *European Journal of Business and Management*, 12(3), 164-170.
- Simatupang, H. J., Purwanti, L., & Mardiaty, E. (2019). Determinants of capital structures based on the Pecking Order Theory and Trade-off Theory. *Jurnal Keuangan dan Perbankan*, 23(1), 84-96.
- Sirait, R. A., & Rokhim, R. (2019). Capital adequacy requirement, the cost of financial intermediation and risk-taking behavior of the indonesia banking sector. *International Conference on Business and Management Research*, 99-104
- Wang, C. W., & Chiu, W. C. (2019). Effect of short-term debt on default risk from Pacific Basin countries. *Pacific-Basin Finance Journal*, 57, 101026.
- Yakubu, I. N., & Abdallah, I. (2021). Modelling the financial intermediation function of banks. *Journal of Money and Business*, 10(14), 46-58.
- Zelalem, D. (2020). The impact of financial leverage on the performance of commercial banks: Evidence from selected commercial banks in Ethiopia. *International Journal of Accounting, Finance and Risk Management*, 5(1), 62-68.
- Zhang, F., & Bull, D. R. (2018). Rate-distortion optimization using adaptive lagrange multipliers. *IEEE Transactions on Circuits and Systems for Video Technology*, 29(10), 3121-3131.
- Zhivomirov, H., & Nedelchev, I. (2020). A Method for Signal Stationarity Estimation. *Romanian Journal of Acoustics and Vibration*, 17(2), 149-155.

APPENDICES

Appendix I: Sheet for Data Collection

	2017	2018	2019	2020	2021
Leverage					
Long term debt					
Non-withdrawable Deposits					
Share Capital					
Weighted sum of loans and Investments/Weighted sum deposits and Fixed assets					

Appendix II: List of DT-SACCOs

Egerton Sacco Society Ltd
Elimu Sacco Society Ltd
Enea Sacco Society Ltd
Faridi Sacco Society Ltd
Fariji Sacco Society Ltd
Fortitude Sacco Society Ltd
Fortune Sacco Society Ltd
Fundilima Sacco Society Ltd
GDC Sacco Society Ltd
Golden Pillar Sacco Society Ltd
Good Faith Sacco Society Ltd
Goodhope Sacco Society Ltd
Goodway Sacco Society Ltd
Gusii Mwalimu Sac- co Society Ltd
Harambee Sacco Society Ltd
Hazina Sacco Society Ltd
Home Business Sacco Society Ltd
Ilkisonko Sacco Society Ltd
Imarika Sacco Society Ltd
Imarisha Sacco Society Ltd
Invest and Grow (IG) Sacco Society Ltd
Jacaranda Sacco Society Ltd
Jamii Sacco Society Ltd
Jamii Yetu Sacco Society Ltd
Jitegemee Sacco Society Ltd
Joinas Sacco Society Ltd
Jumuika Sacco Society Ltd
Kabiyet Sacco Society Ltd
Kencream Sacco Society Ltd
Kenpipe Sacco Society Ltd
Kenversity Sacco Society Ltd
Kenya Achievas Sacco Society Ltd

Kenya Bankers Sacco Society Ltd
2NK Sacco Society Ltd
Acumen Sacco Society Ltd
Afya Sacco Society Ltd
Agro-Chem Sacco Society Ltd
Ainabkoi Sacco Society Ltd
Airports Sacco Society Ltd
Amica Sacco Society Ltd
Ammar Sacco Society Ltd
Ardhi Sacco Society Ltd
Asili Sacco Society Ltd
Azima Sacco Society Ltd
Bandari Sacco Society Ltd
Baraka Sacco Society Ltd
Baraton University Sacco Society Ltd
Biashara Sacco Society Ltd
Biashara Tosha Sac- co Society Ltd
Bi-High Sacco Society Ltd
Bingwa Sacco Society Ltd
Boresha Sacco Society Ltd
Capital Sacco Society Ltd
Centenary Sacco Society Ltd
Chai Sacco Society Ltd
Chuna Sacco Society Ltd
Chuka University Sacco Society Ltd
Cosmopolitan D.T. Sacco Society Ltd
County Sacco Society Ltd
Daima Sacco Society Ltd
Defence Sacco Society Ltd
Dhabiti Sacco Society Ltd
Dimkes DT Sacco Society Ltd
Dumisha Sacco Society Ltd
Eco-Pillar Sacco Society Ltd

Edis Sacco Society Ltd
Kenya Highlands Sacco Society
Kenya National Police DT Sacco Society Ltd
Kimbilio Daima Sacco Society Ltd
Kimisitu Sacco Society Ltd
Kingdom Sacco Society Ltd
Kite Sacco Society Ltd
Kitui Teachers Sac- co Society Ltd
Kolenge Tea Sacco Society Ltd
Koru Sacco Society Ltd
K-Pillar Sacco Society Ltd
K-Unity Sacco Society Ltd
Kwetu Sacco Society Ltd
Lainisha Sacco Society Ltd
Lamu Teachers Sacco Society Ltd
Lengo Sacco Society Ltd
Mafanikio Sacco Society Ltd
Magadi Sacco Society Ltd
Magereza Sacco Society Ltd
Maisha Bora Sacco Society Ltd
Mentor Sacco Society Ltd
Metropolitan National Sacco Society Ltd
Mombasa Port Sac- co Society Ltd
Mudete Factory Tea Growers Sacco Society Ltd
Muki Sacco Society Ltd
Mwalimu National Sacco Society Ltd
Mwietheri Sacco Society Ltd
Mwito Sacco Society Ltd
Nacico Sacco Society Ltd
Nafaka DT Sacco Society Ltd
Nandi Farmers Sacco Ltd
Nation DT Sacco Society Ltd
Nawiri Sacco Society Ltd

Ndege Chai Sacco Society Ltd
Ndosha Sacco Society Ltd
New Fortis Sacco Society Ltd
Nexus Sacco Society Ltd
Ng'arisha Sacco Society Ltd
NRS Sacco Society Ltd
NSSF Sacco Society Ltd
Nufaika Sacco Society Ltd
Nyala Vision Sacco Society Ltd
Nyambene Arimi Sacco Society Ltd
Nyati Sacco Society Ltd
Ollin Sacco Society Ltd
Orient Sacco Society Ltd
Patnas Sacco Society Ltd
Prime Time Sacco Ltd
PUAN Sacco Society Ltd
Qwetu Sacco Society Ltd
Rachuonyo Teachers Sacco Society Ltd
Safaricom Sacco Society Ltd
Sheria Sacco Society Ltd
Shirika Deposit Taking Sacco Society Ltd
Shoppers Sacco Society Ltd
Simba Chai Sacco Society Ltd
Siraji Sacco Society Ltd
Skyline Sacco Society Ltd
Smart Champions Sacco Society Ltd
Smart-Life Sacco Society Ltd
Solution Sacco Society Ltd
Sotico Sacco Society Ltd
Southern Star Sacco Society Ltd
Stake Kenya Sacco Society Ltd
Stawisha Sacco Society Ltd
Stima DT Sacco Society Ltd

Strategic-Urembo Sacco Society Ltd
Suluhu Sacco Society Ltd
Supa Sacco Society Ltd
Tabasamu Sacco Society Ltd
Tabasuri Sacco Society Ltd
TAI Sacco Society Ltd
Taifa Sacco Society Ltd
Taqwa Sacco Society Ltd
Taraji Sacco Society Ltd
Telepost Sacco Society Ltd
Tembo Sacco Society Ltd
Tenhos Sacco Society Ltd
Thamani Sacco Society Ltd
Trans- Elite County Sacco Society Ltd
Trans Nation Sacco Society Ltd
Trans-Counties Sac- co Society Ltd
Trans-National Times Sacco Society Ltd
Ufanisi DT Sacco Society Ltd
Ukristo Na Ufanisi Wa Anglicana Sac- co Society Ltd
Ukulima Saco Society Ltd
Unaitas Sacco Society Ltd
Uni-County Sacco Society Ltd
Unison Sacco Society Ltd
United Nations Sacco Society Ltd
Universal Traders Sacco Society Ltd
Ushuru Sacco Society Ltd
Vihiga County Farmers Sacco Society Ltd
Viktas Sacco Society Ltd
Vision Africa Sacco Society Ltd
Vision Point Sacco Society Ltd
Wakenya Pamoja Sacco Society Ltd
Wakulima Commercial Sacco Society Ltd
Wana-anga Sacco Society Ltd

Wananchi Sacco Society Ltd
Wanandege Sacco Society Ltd
Washa Sacco Society Ltd
Waumini Sacco Society Ltd
Wevarcity Sacco Society Ltd
Winas Sacco Society Ltd
Yetu Sacco Society Ltd
Kanisa Sacco Society Ltd
