FINANCIAL DISTRESS FACTORS, FIRM SIZE AND FINANCIAL PERFORMANCE OF DEPOSIT TAKING SACCOS IN KENYA

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UNIVERSITY OF KABIANGA

OCTOBER, 2024

DECLARATION AND APPROVAL

Declaration

This thesis is my original work and has not been presented for the conferment of a degree or for the award of a diploma in this or any other university:

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DEDICATION

I dedicate this thesis to my wife; Getrude Cherono Ngetich and children; Godrick Kipkorir Iletaach and Godwin Kipkemoi Iletaach for the continuous financial, emotional and moral support. Thank you.

ABSTRACT

Savings and Credit Cooperative Societies (SACCOs) have increasingly employed various financial models to evaluate their financial performance. Nevertheless, recent studies indicate a rise in the number of SACCOs facing financial difficulties and a continued decline in performance. According to the 2022 report by the SACCO Societies Regulatory Authority (SASRA), 51% of SACCOs in Kenya were registered poor financial performance due to financial distress from 2018 to 2022. Many SACCOs have failed to identify the factors contributing to this financial distress, particularly the impact of liquidity, leverage, operational efficiency, asset quality, and capital sufficiency on their overall financial performance. This study aimed to investigate the relationships among these financial distress factors, firm size, and the financial performance of Deposit Taking SACCOs in Kenya. Specifically, it sought to analyze the relationships between liquidity, leverage, operational efficiency, asset quality, capital sufficiency, and financial performance, as well as to examine the moderating effect of firm size on these relationships. The study was grounded in four theories: Wrecker's financial distress theory, Agency theory, Keynes' Liquidity Preference theory, and Economies of Scale theory. A correlation research design was employed, incorporating a longitudinal approach to assess the relationships among the variables. A census study was conducted on 176 Deposit Taking SACCOs registered with SASRA, focusing on five years of deposit records. Data were collected from audited financial reports, ensuring validity and reliability, and confirmatory factor analysis was utilized to enhance validity and identify latent variables. An overall Cronbach's alpha coefficient of 0.792 was obtained from a pilot study of commercial banks in Kericho, indicating reliability, as it exceeds the threshold of 0.7. Descriptive analysis included mean and standard deviation, while inferential analysis included multiple linear regression techniques and correlation analysis using STATA software version 15. The findings revealed that liquidity had no statistically significant relationship with the financial performance of Deposit Taking SACCOs ($\beta1=0.015$, $p=0.499>0.05$). In contrast, leverage exhibited a statistically significant positive relationship with financial performance ($\beta2=0.315$, $p=0.000<0.05$). Additionally, operational efficiency had a significant positive impact on financial performance ($\beta3=0.492$, $p=0.000<0.05$), while asset quality and capital sufficiency showed significant negative relationships ($\beta4=-1.118$, $p=0.000<0.05$; $\beta5=-0.393$, $p=0.000<0.05$). Firm size also had a statistically significant moderating effect on the relationship between financial distress factors and financial performance ($\beta6=-1.170$, $p=0.00<0.05$). The study concluded that financial distress factors, including liquidity, leverage, operational efficiency, asset adequacy, and capital sufficiency, collectively influenced financial performance, although liquidity alone did not. The findings highlight the importance of increasing financial leverage, maintaining adequate liquidity, and focusing on operational efficiency, capital sufficiency, and asset quality to enhance financial performance. Additionally, firms should consider growth strategies to mitigate financial distress and achieve sustainable financial performance.

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LIST OF ABBREVIATIONS AND ACRONYMS

BOSA	Back Office Savings Activity
BSE	Bombay Stock Exchange
CAMEL	Capital Adequacy, Asset Quality, Management, Earnings and Liquidity
CFROI	Cashflow Return on Investment
CR	Cash Ratio
CVA	Cash Value Added
DE	Debt to Equity Ratio
DT SACCO	Deposit Taking Savings and Credit Cooperative Organization
EPS	Earnings Per Share
ERP	Enterprise Resource Planning
FGLS	Feasible Generalized Least Squares
FOSA	Front Office Savings Activity
GDP	Gross Domestic Product
GOI	Government of India
IC	Intellectual Capital
ICA	International Cooperative Alliance
IMF	International Monetary Fund
KEBs	Kenya Bureau of Standards

LEV	Leverage
LIQ	Liquidity
MDA	Multiple Discriminant Analysis
MFB	Micro Finance Banks
MSMEs	Micro, Small and Medium Enterprises
MVA	Market value added
NPL	Non-Performing Loans
OER	Operating Expense Ratio
OLS	Ordinary Least Squares
OPE	Operation Efficiency Ratio
PSX	Pakistan Security Exchange
RBI	Reserve Bank of India
ROA	Return on Assets
ROE	Return on Equity
SACCOs	Savings and Credit Cooperative Organization
SAIL	Steel Authority of India Limited
SASRA	SACCO Societies Regulatory Authority
STATA	Statistics and Data Analysis Software package
VAIC	Value Added Intellectual Coefficient
VIF	Variance Inflation Factor

WOCCU	World Council of Credit Unions

OPERATIONAL DEFINITION OFTERMS

Asset Quality according to Barus et al, (2018) is a measure of the ratio a bank's advances and non-performing loans (NPLs). According to this study, it is the ratio of total NPL to gross loans and the ratio NPL Provision to Operating income.

Capital Sufficiency refers to the ratio of a financial institution's primary capital to total assets (Adeyinka and Olalekan, (2019). This study defines it as core capital to total asset ratio and core capital to total deposits.

Financial Distress Factors are the economic indicators or financial distress determinants which have a detrimental impact on an organization's performance and profitability (Thorley, Perry, & Andes, 2012). In the study they are the variables which was determined by the study and they are; liquidity, leverage, operational efficiency, asset quality and capital sufficiency.

Financial Distress is when the company's operational cash flow is insufficient to cover the firm's negative net assets. This signifies that the firm is experiencing financial difficulties (Geng, Bose, & Chen,

2015). In the study it is when a SACCO is unable to meet its obligations when they are due. Altman (1968) model was employed on the prediction of financial distress in this study.

Financial Performance according to this study is the measure of how firm use assets from its primary mode of business to generate revenues. It measures the financial health of an organization across time that can be used to compare similar firms in the same industry as well as whole industries or sectors (Kang & Kinyua, 2016). Common indicators of financial performance are; profits, return on investment, return on assets, value added and margins among others. Financial performance guides management on the strategies and policies to adopt to improve sustainability of the organization (Almazari, 2018). In the study it is the financial performance of SACCOs based on return on asset and return on equity

Firm Size may be measured by the total number of employees per firm, it means the size of a business firm. It means the scale or volume of operation turned out by a single firm, (Yadav, 2022). In this study, it is the measure of both

	market value and fundamental variables, such as total asset and sales ratio.
Leverage	is the process of enhancing the potential rate of return on an investment by combining numerous financial instruments or borrowed funds (Saleh, 2015). In the study it is the process of enhancing the possible return on an investment by using a range of financial instruments or borrowing money. This study used proxy leverage with debt-to-equity ratio and debt to asset ratio.
Liquidity	Is the ability of a corporation to fund asset expansion and meet both anticipated and unplanned cash and collateral requirements at a fair cost and without suffering unacceptable losses (Mwangi, 2017). In the study, it is capacity of a SACCO to meet these obligations without suffering unacceptable losses, this study was based on quick assets to total deposit ratio and total loans to total deposit ratio.
Operational Efficiency	Is the ability of a corporation to deliver products or services to its clients in the most timely- and money-saving manner possible while maintaining a consistently high level of quality

across all of its offerings (products, services, and support) (Olalere, Temitope, and Oluwatobi (2018). In the study, it is the performance of SACCOs based on operating efficiency and net worth turnover ratios.

SACCOs- are an entirely independent collection of individuals who have committed to collaborate to satisfy their common economic, social, and cultural needs and objectives through a jointly owned and democratically run organization, and they have registered with the Department of Co-operatives (SASRA, 2011). In the study, it is a financial institution that offers basic investment products such as savings accounts and certificates of deposit, as well as receiving deposits, making loans to businesses and people, and financing automobiles.

CHAPTER ONE

INTRODUCTION

1.1 Overview

This chapter presents the background of the study which is discussed based on the global perspective, regional perspective and Kenyan perspective on financial distress factors and the financial performance of SACCOs. The chapter also gives the statement of the problem, objectives of the study, research hypothesis, significance and limitation of the study.

1.2 Background of the Study

SACCOs play an important role in a country's economic development because they manage the majority of the money supply in circulation thus fostering liquidity (Mutunga & Owino, 2017; Pasara, Makochekanwa & Dunga, 2021). They are cooperatives that are formed around a common interest, such as a geographical area, an economic effort, or employment. Members of the SACCOs are inextricably linked by a common economic activity. This establishes the framework for organization membership or ownership (SASRA, 2022).

Globally, sources and records show the Ancient Babylonian and Chinese practiced cooperative farming and lending. Historical records depict that Planting, harvesting and storing were all done in North America in 1752, some 25 years before Independence, as the first organized co-operative firm created in the United States (Iwasaki, Kočenda, & Shida, 2021; Li, Musah, & Kong, 2020).

According to the International Monetary Fund (IMF), cooperative financial institutions had a 14 percent market share of total banking sector assets in developing nations in 2004, which is a considerable part in today's society (Adeyemi, & Delhougne, 2019). Almeida (2023) found that SACCOs did better during the financial crisis because of their more cautious investing methods which were less speculative.

Conversely, the Bank for International Settlements (2018) found out that large firms were better positioned to handle adverse economic conditions and financial shocks compared to smaller firms. Additionally, they found that financial institutions in industrialized nations tend to be more stable during financial crises than those in non-industrialized nations. In industrialized nations, cooperative financial institutions have a steadier funding supply that is less influenced by monetary policy and market rates. Additionally, cooperative financial institutions provide cheaper costs than commercial banks, making loans more accessible to the poor while simultaneously decreasing the cost of remittances (Feather & Meme, 2019).

Regionally Father John Mcnulty established the first SACCO Society in Africa in Ghana in 1959. The SACCO was established to help communities better their economic circumstances (Wanyonyi, Kamau, & Sasaka, 2019; Li, Musah, & Kong, 2020). SACCOs were originally used in English-speaking countries. Ghana, Uganda, Nigeria, Tanzania, and Kenya were among the first to join the SACCO community. Most non-English-speaking African countries began to value SACCOs as from the 1960s through to the 1970s. SACCOs are still in their early stages in Africa, as they are among the institutions that offer saving facilities as well as credit.

When compared to other companies in financial service offering, their size and market share are low (Gomber, et al., 2018). Each country's legislation governs the financial distress procedure in South Africa. The "Judicial Management" in sections 327 to 440 of the enterprises Act of 1973, did not help financially challenged enterprises (Joubert, 2013). As a result, the Companies Act was revised, aligning South Africa's turnaround procedure with those of foreign countries such as the United States of America (USA), United Kingdom (UK), and Australia among other developed nations (Joubert, 2013).

In Uganda, Musiita et al. (2023) found that improved liquidity management practices significantly enhance the financial performance of SACCOs. The study revealed a positive association between cash and liquidity ratios and financial success, highlighting the importance of comprehensive liquidity management, including cash budgeting and debtor management. This suggests that better liquidity management can optimize cash utilization, positively impacting financial performance.

In Kenya, several studies have explored the factors affecting DT-SACCOs' financial performance. Wanjiru and Jagongo (2022) identified liquidity risk as a factor leading to fluctuations in financial performance, measured by return on assets (ROA), while Munene, Ndegwa, and Senaji (2020) established that board composition, tenure, and education negatively impact financial distress. Atsango (2018) found that asset quality and operational efficiency significantly affect profitability, while leverage and capital sufficiency have an insignificant impact. These findings underscore the importance of managing liquidity, improving operational efficiency, and maintaining asset quality to enhance financial performance and reduce financial distress in DT-SACCOs in Kenya.

SACCO societies in Kenya play a pivotal role in the country's economic development, particularly within the financial sector. These societies are under the supervision of the Ministry of Co-Operatives and Micro, Small and Medium Enterprises (MSMEs) Development, which ensures the growth of Kenya's cooperative sector through legal and policy frameworks. The Cooperative Societies Act of 2012 established the groundwork for the registration, development, and expansion of SACCOs. Financial cooperatives, including SACCOs, aim to pool members' resources to provide loans in alignment with their bylaws. SACCOs became especially important during the economic difficulties of the early 1990s when many Kenyans in the middle and lower income brackets found it challenging to maintain bank accounts due to high minimum operating balances required by commercial banks. As a result, SACCOs introduced the Front Office Service Activity (FOSA), providing quasi-banking services at low costs, which marked the beginning of deposit-taking SACCO operations (Barus, Muturi, & Kibati, 2017; SASRA, 2022).

SACCOs continue to be a significant force within Kenya's financial environment, contributing to both personal and economic development, particularly among small and micro enterprises. The subsector includes both large SACCOs with assets exceeding Ksh 15 billion and smaller SACCOs with assets of less than Ksh 10 million, spread across both urban and rural areas. SACCOs are rooted in cooperative principles, adhering to the International Co-operative Alliance's seven Co-operative Principles (Ribas, 2022). However, despite the growth of the SACCO subsector, challenges such as high failure rates persist. By the end of 2021, 37 deposit-taking SACCOs were dormant, with only 215 out of 3280 operational SACCOs being licensed to undertake deposit-taking activities. Several SACCOs, such as Miliki, Nandi Hekima, and Sukari

SACCOs, failed to renew their licenses, indicating the operational challenges faced by some SACCOs (SASRA, 2022). The uneven distribution of SACCOs across Kenya, with Nairobi and the former Rift Valley region hosting 61% of active SACCOs, further highlights regional disparities in SACCO operations.

1.2.1 Financial Distress Factors and Financial Performance of SACCOs

Financial distress is a term used to describe financial difficulties such as default, flunk and inability to discharge all debts as they fall due. (Pozzoli and Paolone, 2017). Kumaraswamy (2016) posits that though there is no general term, financially distressed firms show the following features in two successive years' negative gross income before depreciation and tax and negative net income before special items. Palinko and Svoob (2016), on the other hand, explain the stages that a company takes before being liquidated. Their model identified continuous lack of wealth growth as the primary cause of bankruptcy, followed by excessive debts and, lastly, firm liquidity.

Financial distress in an institution is indicated by the financial distress factors that are major role players (Wanderi, 2016). Companies experiencing financial distress are indicated by deteriorating operating conditions which leads to heavy financial burdens and downwards renegotiation of wages (Singh, 2023). Idrees and Qayyum (2018) postulated that, recovery and resurgence are entirely possible if proper management measures are implemented and financial distress factors are effectively utilized. According to Adeyemi (2019), financial distress is defined as an institution having operational, managerial, and financial issues. However, financial distress elements are expenses that impair an organization's performance, resulting in an investment choice that is different from what was originally planned (Shisia, 2014).

Liquidity in one of financial distress factor that is used to evaluate the ability of a firm to meet its short-term obligations, has been shown to significantly affect financial performance. Gladys (2021) found that liquidity had positively relationship with the return on assets in manufacturing, construction, and allied firms listed on the Nairobi Securities Exchange. Adequate liquidity enables firms to maintain smooth operations and avoid financial distress, as supported by the cash management theory, which posits a direct relationship between liquidity and performance. On the other hand, poor liquidity can lead to operational disruptions and increased vulnerability to financial challenges, a critical consideration for deposit-taking SACCOs in Kenya, which depend on liquidity to fulfill member withdrawals and operational obligations.

Financial leverage, another critical factor, has been widely studied in relation to financial distress. Ahmad (2020) found that high financial leverage, or excessive reliance on debt, exacerbates financial difficulties and negatively impacts firm performance, as seen in non-financial enterprises listed in Pakistan. Similarly, Lucky and Michael (2019) demonstrated that leverage significantly increases the risk of financial distress in Nigerian manufacturing firms by affecting operational profits. High debt levels strain a firm's resources and diminish operational efficiency, leading to reduced profitability and greater financial vulnerability.

Additionally, operational efficiency, reflected in the ability to minimize costs and maximize output, asset quality (which indicates how well assets generate revenue), and capital sufficiency (adequate equity to cover potential losses), are key to mitigating financial distress and enhancing the long-term financial performance of firms. These factors are crucial for deposit-taking SACCOs in Kenya, where efficient operations and

prudent asset and capital management are essential for maintaining stability and member confidence.

Financial distress, according to Sporta (2018) are scorecards on an organization's financial performance which show the potential for volatility. Thorley, Perry and Andes (2012), posit that factors for financial distress are indicators, causes, and variables of financial distress that might impact an organization's performance. Scholars throughout the world have proposed a variety of endogenous and exogenous factors that serve as proxies for financial hardship and influence corporate performance.

These include technological innovation and operational efficiency (Atsango, 2018) capital adequacy, asset quality, leverage, and liquidity. Thinwa, and Matanda, (2023) age, Micro and Macro levels (Mburu, 2018) profitability (Pozzoli & Paolone, 2017), inventory conversion/collection period (Onchangwa, 2019), and debt service coverage (Ufo, No, & Sodo, 2015) liquidity, profitability, leverage, dividend payments, and quantifiable opinion (Ufo, 2015). According to Jati, et al., (2021) financial leverage, and liquidity all contribute to financial hardship in enterprises. Kangogo (2021) stated that liquidity, inventory conversion period and firm leverage are major elements defining corporate financial distress.

The poor performance of financially distressed enterprises makes them inefficient producers, leading to excessive debt and cash flow problems, (Mburu, 2018). According to Farooq, Noor and Fatima (2020) there is a negative correlation between financial distress and corporate financial performance. Though several SACCOs were dissolved or placed under statutory administration as a result of poor financial performance, others have yet to encounter the same problems. Using data mining

approaches while constructing financial distress models, Geng, Bose, and Chen (2015) found that metrics such as net profit margin, profits per share, return on assets and cash flow per share, play a significant role in forecasting the profitability of all enterprises, regardless of their financial distress condition.

Multiple discriminant analysis (MDA) was employed in distress prediction in this study as postulated by Altman (1968) who was the first to apply this method to the prediction of financial distress. Altman's Z-Score model has grown in popularity and acceptance as a measure of financial distress. The model utilized a sample of 33 solvents and 33 finically distressed businesses and developed a Z-score bankruptcy prediction model and calculated a Z-score cut point of 2.99 to differentiate between healthy and finically distressed enterprises. The firms with a Z-score at the range of 1.81 to 2.99 were considered as at the grey region which meant they need to be on the lookout whereas the firms having a Z-score below 1.81 were considered as financially distressed firms. MDA tries to find a linear or quadratic combination of attributes that best distinguishes between various groups of financially distressed firms.

Five financial ratios were weighted in Altman's (1968) model, according to Altman two ratios were to be sourced from the two major parts of statement of comprehensive income and three other ratios from the statement of financial position to increase the model's capacity for prediction of financial distress. Similarly, the current study used the following five financial ratios in the prediction of financial distress in the DT SACCOs; Financial leverage, operational effectiveness, asset quality, capital sufficiency, and liquidity ratios.

Financial distress can be attributed to various factors such as profitability, leverage, company age, asset tangibility and loss rate (Isayas, 2021) asset quality, inadequate capital structure, poor financial management, management efficiency (Ndinda, 2021) and operational efficiency, equity and economic competence (Mayr, Mitter, Kücher, & Duller, 2021); liquidity, asset quality, capital sufficiency Sporta (2018), capital sufficiency, leverage, liquidity, and inflation, Naoaj (2023); Imran, et al., (2021), asset quality, income structure, macro-economic variables.

In the current study, companies are considered to be in financial distress if their liquidity, solvency, and profitability measures have deteriorated. This definition is used since the target population consists of active enterprises that have not been liquidated or have not commenced the process of legal failure. The study focuses on financial distress rather than bankruptcy since acquiring information on insolvent companies that no longer exist is exceedingly difficult (Altman, et al,.2019). The situation is much more problematic in Kenya due to limited access to bankruptcy information (Kogei, & Jagongo, 2021).

A corporation that is always in the state of illiquidity is more likely to experience a more serious situation and is referred to as being in financial distress. Liquidity is a crucial element influencing the company's financial distress. Liquidity is a company's capacity to pay its bills, or rather, discharge its financial commitments, as they become due. SACCOs require liquidity not just to meet their daily commitments, but also to conduct their primary operation of providing loans and advances to consumers (Altman, et al,.2019). This study looked at liquidity as one of the predictors of financial distress in DT SACCOs in Kenya.

In addition to liquidity, leverage is a factor that influences the company's financial difficulty, leverage is the amount of debt owned by the business. These debts are generally paid with interest, which is a cost to the firm. If debts are not adequately handled, it may lead to financial troubles such as default or renegotiation of other loans, which might finally lead to bankruptcy (Dirman, 2020). SACCOs take out loans from other financial institutions, such as banks, to fund their operations and expand their businesses, and if these external borrowings are not well managed, they can lead to financial distress (Jepkorir, 2022) Therefore, the current study evaluated leverage as one of the financial distress factors.

Asset quality and capital sufficiency have been identified as indicators of financial distress (Muchori, & Wanjala, (2020); Forgione, & Migliardo, 2018). Hersugondo, Anjani, and Pamungkas (2021) found that the non-performing loan ratio, which represents asset quality and capital sufficiency, is the most influential predictor of financial distress. Gjuzi (2018) revealed that more capital is connected with increased lending, liquidity creation, better bank values, and greater chances of surviving crises This study investigated finance distress factors of asset quality and capital sufficiency since they have been identified as influential predictors of financial distress.

Sporta, (2018) identified operational efficiency a predictor of financial distress. The study asserts that the most fundamental strategic goals of businesses are based on operational efficiency. Improving customer satisfaction and boosting shareholder value both need operational efficiency. As a result, one of the top priorities for businesses is to improve operational efficiency. This study focused on operational efficiency as one of the factors of financial distress.

Financial distress and its effects on Deposit Taking SACCO financial performance are not well-understood in the SACCOs business. According to Kariuki (2013) study, the majority of previous studies adopt a simple perspective to financial distress-performance relationships, which is true for both the banking industry and the SACCOs. There is just a few empirical research on Kenyan SACCOs' financial problems and the bulk of empirical studies have focused on financial performance of commercial banks.

1.2.2 Firm Size

Firm size has been widely recognized as a critical factor in determining the performance of financial institutions, including SACCOs. Mutunga and Owino (2017) acknowledged the significance of firm size in the performance of banks, indicating that larger firms often have better access to financial resources and economies of scale, which enhance their ability to withstand financial distress. Dalci, Tanova, Ozyapici, and Bein (2019) further explored this relationship, identifying firm size as a moderating factor between working capital management and profitability in non-financial firms. Larger firms typically possess greater diversification in both funding and customer base, which allows them to mitigate distress factors more effectively. Conversely, smaller firms, due to limited resources and narrower portfolios, may be more vulnerable to financial shocks, as their exposure to specific sectors or regions leaves them less equipped to handle economic disruptions.

Moreover, the moderating effect of firm size on performance during financial crises has been supported by Kocenda, Iwasaki, and Yoshisada (2021), who argue that larger banks are more likely to survive financial downturns due to their ability to attract

additional capital and liquidity. This resilience is often attributed to the perception that larger banks are "too big to fail," allowing them to maintain stability despite distress factors. In contrast, Alipour, Sheikhi, and Agajani (2019) found that while firm size had no significant effect on the relationship between financial leverage and bankruptcy for companies listed on the Tehran Stock Exchange, the firm's size did significantly influence the relationship between long-term debt ratios and financial insolvency. This suggests that while firm size may not directly impact all financial distress factors, it plays a crucial role in moderating the effects of certain variables, particularly during periods of financial instability.

The relationship between firm size and financial distress is further idealized by Muigai and Muriithi (2017), which found that larger firms in Kenya experience a shift from negative to positive impact of debt on financial distress as firm size increases. This highlights the importance of considering firm size in determining optimal leverage strategies, especially as larger firms may benefit from long-term debt financing. Studies by Swalehe, Odock, and Wainaina (2020) and Oyugi (2013) confirmed that firm size positively influences financial performance, although the relationship may be weak. These findings collectively emphasize the moderating role of firm size in the performance of financial institutions, particularly in the face of distress factors like financial leverage and liquidity challenges.

Examining firm size as a moderator in the relationship between financial distress factors and financial performance is crucial due to its impact on resource availability, risk management, and operational efficiency. Larger firms generally possess more resources, including access to diverse funding sources, skilled personnel, and advanced technology, enabling them to better absorb and manage financial distress factors such

as liquidity shortages, high leverage, and operational inefficiencies. Studies by Mutunga and Owino (2017) and Dalci, Tanova, Ozyapici, and Bein (2019) confirm that larger firms can leverage economies of scale and have greater access to capital, reducing their vulnerability to financial distress. These advantages position larger firms to withstand economic shocks more effectively, while smaller firms with limited resources may struggle, facing heightened exposure to distress factors. Therefore, the current study sought to examined whether firm size has a moderating effect on the relationship between distress factors and financial performance of Deposit Taking SACCOs.

1.3 Statement of the Problem

Financially sound SACCOs are characterized by high liquidity, high profitability, revenue streams that are growing, ability to meet obligations as they fall due to ease of raising capital, compliance with statutory requirements, high employee stability both at management and support level and payment of attractive dividends to its members. Over the world, financial stress is a major issue that cannot be disregarded. It results in financial institution failures ultimately due to bankruptcy. Financial crisis has led to the failure of numerous financial institution, including SACCOs in Kenya. Despite close supervision by SASRA, 51% of SACCOs in Kenya have not been operational as they suffer from financial distress (SASRA, 2022). This is evidenced by cash flow problems, failure to meet their obligations as they fall due such as payment of interest on borrowed loans, remitting statutory deductions of employees such as Pay as you earn and contributions to SACCOs, declining profits, payment of low dividends, if any, to their members, failure to meet the demands of their clients for loans and withdrawal of

savings, decline in membership and withdrawal of members, among others. Extent literature indicates that such symptom of poor financial performance might be associated to financial distress of the SACCOs, however, these distress factors are trivial and inconsistent with mixed results. A study in Nairobi County's Deposit Taking SACCOs that there was a correlation between the financial distress of Deposit Taking SACCOs. However, there is mixed relationship among different measure of financial distress with financial performance. In another study purposed to look into how Kenyan Deposit Taking-SACCOs' financial performance is impacted by liquidity risk it was revealed that, as determined by ROA, the financial performance of Deposit Taking-SACCOs has been unstable and inconsistent over time. Further, in an investigation on how company factors affected the Deposit Taking savings and credit cooperative societies' profitability in Kenya, it was discovered that leverage had a statistically insignificant effect on Deposit Taking-SACCO profitability in Kenya. Return on equity and return on asset were employed in a study as dependent variables, and it was found that the quantity of distressed non-bank financial institutions is rising quickly. Therefore, the current study identified different measures of financial distress these are liquidity, leverage, operation efficiency, asset quality and capital sufficiency as potential factors. The study also firm size was considered as a key variable that could moderate financial distress factors and financial performance of the SACCOs. For these reasons the purpose of this study, therefore, is to investigate the relationship between identified financial distress factors, firm size and financial performance of Deposit Taking SACCOs in Kenya.

1.4 General Objective of the Study

The general objective of the study was investigated the relationship between financial distress factors, firm size and financial performance of Deposit Taking SACCOs in Kenya.

1.5 Specific Objectives

i. To determine the relationship between liquidity and financial performance of Deposit Taking SACCOs in Kenya.

ii. To evaluate the relationship between leverage and financial performance of Deposit Taking SACCOs in Kenya.

iii. To establish the relationship between operational efficiency and financial performance of Deposit Taking SACCOs in Kenya.

iv. To evaluate the relationship between asset quality and financial performance of Deposit Taking SACCOs in Kenya.

v. To determine the relationship between capital sufficiency and financial performance of Deposit Taking SACCOs in Kenya.

vi. To examine the moderating effect of firm size on the relationship between financial distress factors and financial performance of Deposit Taking SACCOs in Kenya.

1.6 Research Hypotheses

H_o1: Liquidity has no statistically significant relationship with financial performance of Deposit taking SACCOs in Kenya.

H_o2: Leverage has no statistically significant relationship with financial performance of Deposit taking SACCOs in Kenya.

H_o3: Operational efficiency has no statistically significant relationship with financial performance of Deposit taking SACCOs in Kenya.

H_o4: Asset quality has no statistically significant relationship with the financial performance of Deposit taking SACCOs in Kenya.

H_o5: Capital sufficiency has no statistically significant relationship with the financial performance of Deposit taking SACCOs in Kenya.

H_o6: Firm size has no statistically significant moderating effect on the relationship between financial distress factors and financial performance of Deposit Taking SACCOs in Kenya.

1.7 Justification of the Study

In Kenya's, SACCO societies play an important role by contributing to a country's economic growth and development because they manage the majority of the money supply in circulation thus fostering liquidity. They are among the sectors that fairly contribute to the GDP of Kenya and are key to the realization of sustainable development goals and the Africa's 2063 agenda. Financial performance of SACCOs has a significant impact on economic growth in any nation and is often seen as an indicator of the country's financial and economic conditions, separate from its intermediation function in the economy. Despite close supervision by SASRA, 51% of SACCOs in Kenya have not been operational as they suffer from financial distress as pointed in SASRA (2022) report. Researches done have attributed this to cash flow

problems, failure to meet their obligations as they fall due such as payment of interest on borrowed loans, remitting statutory deductions of employees i.e., Pay As You Earn and contributions to SACCOs, declining profits, payment of low dividends, if any, to their members, failure to meet the demands of their clients for loans and withdrawal of savings, decline in membership and withdrawal of members, among others.

This has necessitated the need for SACCOs to manage their financial distress elements since they impair their performance, resulting in an investment choice that is different from what was originally planned. Further, the place of factors such as liquidity, leverage, operational efficiency, asset quality and capital sufficiency extracted from various studies such as Kocenda, Iwasaki and Yoshisada (2021), Mutunga and Owino (2017) and Olaniyi, et al., (2017) Kangogo (2021) in the financial distress of majority of Kenyan SACCOs have not been established. The study on distress factors is necessary because of their ability to predict failure, meaning they have the potential to reverse the trend of failing SACCOs. There is need therefore, for a study to determine the relationship between liquidity, leverage, operational efficiency, capital sufficiency and asset quality on financial performance of deposit-taking SACCOs in Kenya.

1.8 Significance of the Study

Results of this study would be beneficial to regulators throughout the world who would use the results of the study to better their methods of managing financial distress and produce new prudential rules and legislation. Preventing SACCO's financial performance from deteriorating would be aided by the implementation of these methods. A regulatory agency like SASRA would understand the significance of making proactive and anticipatory changes to its policies in order to reverse the current

observed high failure rate of SACCOs in Kenya. SASRA would be able to identify which distress factor should be considered and develop appropriate policies that would identify SACCOs in distress. This will assist in reducing further damage to members and investors if such problem identified early.

This study's findings would assist SACCOs in keeping tabs on important indicators of financial distress and in figuring out how these indicators could influence SACCOs financial performance. Investors and customers would benefit from this study's results by better understanding the primary financial distress issues in the SACCOs and how they impact their financial performance as well as methods of overcoming the effects of financial distress factors. Hence their investment decisions would be based on solid information. Policymakers in the SACCOs sector, would benefit from the findings of this study by strengthening policy considerations and the regulatory environment.

This study would also be important to scholars as it would provide important literature on the financial performance of SACCOs. It would also be of much importance to management of SACCOs as it would inform them on the financial distress factors that leads to distress among their organizations and thereby assist them avoid such organizations suffering the fate of the majority who have closed. The literature would assist researcher while conducing further research and would form part of references especially in financial distress factors, firm size and financial performance.

1.9 Scope of the Study

The study sought to investigate the relationship between financial distress factors, firm size and financial performance. The study expounded on financial distress in the context of liquidity, leverage, operation efficiency, asset quality and capital sufficiency. The

financial performance was also examined using return on asset and return on equity. It targeted all the SACCOs licensed by the SASRA in Kenya and which have been in operation from 2018 to 2022. Panel data that was collected for use in this study pertained the period 2018 to 2022. This period has been chosen in order to examine how SACCOs have changed over time by examining their financial performance through their financial statements. The registered SACCOs by SASRA consist of 181 non withdrawable Deposit Taking SACCOs and 176 Deposit taking SACCOs. The study concentrated on the 176 DT SACCOs only. The study might be limited by some of the entities presenting their data in aggregate form which might warrant use of estimates or further disintegration of data, other entities might deny access of data.

Liquidity, leverage, operational effectiveness, asset quality, and capital sufficiency are the determinants of financial distress that the research looked at. Additionally, the study examined the moderating effect of firm size on the relationship between financial distress and financial performance of deposit-taking SACCOs in Kenya. The research relied on secondary sources of information and was undertaken between the months of July and September 2023.

1.10 Assumptions of the Study

A variety of other microeconomic and macroeconomic factors may have an impact on Deposit Taking SACCOs financial performance. During the course of this analysis only liquidity, leverage, operational efficiency, asset quality, and capital sufficiency was considered. The study used secondary data and thus omitted qualitative aspects of the research. The study assumes that the population is heterogeneous in terms of size, capital, and their formation background. However, the research findings enhanced for

purposes of generalization by conducting the study in all the Deposit Taking SACCOs registered by SASRA in Kenya. General findings may not be extrapolated to other firms within the industry or outside the industry.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents related literature on distress factors of deposit-taking SACCOs. It begins with Empirical review, Theoretical review and conceptual framework so as to establish existing relationships among the variables in this study. The empirical review together with embedded critique existing in the literature was reviewed before giving the identification of research gap.

2.2 Review of Related Literature

The following literatures have been reviewed based on the study variables;

2.2.1 Financial Performance

Almazari (2018) conducted study on the economic performance of seven commercial banks in Jordan between 2010 and 2017. The study employed return on assets (ROA) as a measure of bank performance, and it discovered that ROA was impacted by three independent variables: bank size, asset management, and operational efficiency. A simple regression study indicated a substantial negative relationship between ROA and bank size. The asset management ratio, on the other hand, has a high positive link with ROA and a modestly negative relationship with operational efficiency.

According to Kang and Kinyua (2019), financial performance of a corporation may be described as a monetary appraisal of the organization's policies and activities. Hence, financial performance is an internal determinants of corporate performance. Otieno, Namusonge, and Mugambi (2018) conducted research in Kenya to determine how the

strategic planning process affected the financial performance of SMEs providing professional services. The study design used was cross-sectional. Both secondary and primary data were used by the researcher, and both types of data were statistically analyzed using descriptive and inferential techniques. From a research sample of 51287 participants, 381 responses were selected using the Krejcie and Morgan table. The study discovered that the use of strategic planning greatly impacts financial performance.

According to Otieno et al. (2018), SMEs should establish and apply strategic planning processes, such as strategy assessments, strategy implementation, strategy creation, and environmental scanning, in order to increase their financial performance. However, annual profit and sales were used to gauge financial performance. Al-Musali and Ku Ismail (2019) investigated the relationship between intellectual capital (IC) and the financial performance of major Saudi Arabian institutions. IC was assessed using the VAIC, while financial performance was assessed using ROE and ROA. Results showed that human capital efficiency has a significant impact on Saudi Arabia's commercial banks' financial performance. According to the study, the banking industry, which is a service industry that strongly relies on human capital, should take advantage of the empowerment of its important personnel to enhance their competence and service delivery and, as a result, raise their productivity to promote profitability. However, the study was only concerned with the concept of intellectual capital; the current study addressed financial distress.

Kangogo (2019) aimed to investigate the effect of ERP on financial performance of Kenyan banking institutions. Additionally, the study period between 2013 and 2017 included 56 authorized financial institutions utilizing ERP as the unit of analysis. The collection of secondary and primary data was analyzed using a descriptive study

approach. It was shown that independent variables such as business size, managerial effectiveness, enterprise resource planning, and capital sufficiency had a beneficial impact on performance. The study's focus is managing distress causes, not investing in software, hence the research is significant in emphasizing the impact of ERP on an institution's performance.

According to Kang and Kinyua (2016) a firm's financial performance may be used to track and evaluate its progress toward its strategic plan and goals. Comparing similar companies within the same industry, as well as whole industries or sectors, may be done using financial performance, according to their results. Satisfaction and perceptions of value are strongly influenced by a company's financial success, according to Steven and Gray (2015). Tanggamani, et al (2018) posits that accounting and strategic management literature, performance is defined as a company's ability to match its plan with the business environment as well as its internal structure and control system.

According to Kang and Kinyua (2016), a company's policies and operations may be measured by its financial performance. The success of an organization in achieving its aims and objectives may also be considered when measuring financial performance (Busch, Bauer, & Orlitzky, 2015). Busch et al. (2015) noted that financial performance cannot be detached from social goals. Academic research and stakeholders in Kenya's SACCOs have been interested in the financial performance of SACCOs. In part, this is because financial performance has a significant impact on economic growth in any nation and is often seen as an indicator of the country's financial and economic conditions, separate from its intermediation function in the economy (Gatuhi, 2015). A company's worldwide competitiveness is also a factor in its financial performance (Omrani, Jafari, & Mansori, 2019). Marketing-based measurements, accounting-based

measures, and survey-based measures are indicators of financial success, such as stock performance on the stock exchange, market returns, and market value to book value, represent shareholder satisfaction (Busch, Bauer, & Orlitzky, 2015). Measures derived from accounting are based on the company's internal efficiency and utilize data from previous years. Asset utilization and asset turnover are example that are included in accounting measures. Survey-based measurements include survey respondents who provide subjective estimates such as an opinion on how a firm's assets should be used (Busch, et al., 2015). In their studies, Bani-Khaled, et al., (2021) discovered that market and accounting measurements were the most often utilized.

Economic value added, market value added (MVA), cash flow returns on investment (CFROI), and cash value added (CVA) are some of the newer financial performance indicators that have replaced ROA, ROE, EPS, P/E, and other traditional financial performance measures (Sporta,2018). For insurance companies, Juster (2022) found a favorable correlation between ROA and ROE and corporate governance parameters. The CAMEL metrics of capital adequacy, asset quality, managerial competency, and earning analysis, according to Ketema(2021) may be used to assess the financial performance of banks. SACCOs financial performance choices may be made more effectively with the use of parameter ratios, such as CAMEL, which show a good trend in bank financial performance if they are over the minimal standards. Profitability is the ultimate aim of banks, and ROA, ROE, and net interest margin are some of the primary performance indicators used to evaluate banks' profitability. ROA and ROE are financial performance measures that have a substantial association with corporate social responsibility, Marte et al. (2012) Evaluated Kenyan SACCOs' financial performance using ROA and ROE. San and Heng (2011) say that these indicators (ROA

and ROE) are a good indicator of a company's productivity, growth and even customer happiness.

According to Dzenopoljac, et al., (2017) one approach to assess an organization's financial management success is to look at how quickly its revenues are growing. This reflects the overall progress of the organization. ROE is used to assess an organization's profitability by displaying the amount of profit generated by a corporation from the money invested by its equity owners. This is accomplished by comparing the amount of earnings gained to the amount of capital invested by equity shareholders. Return on assets (ROA), according to Kavalić, et al. (2021) is another indicator that may be used to assess a company's financial success. This indicator forecasts how the firm performed in relation to its total assets and gives insight into the efficiency with which management utilized assets to generate earnings. According to Sangmi, (2019) an earnings ratio is a frequent metric used to assess a company's financial success by dividing earnings by profits to generate an earnings ratio.

2.2.2 Liquidity and Financial Performance of SACCOs

SACCOs are quite interrelated and lack of liquidity in one SACCO might trigger a crisis that impacts in the whole sector. The liquidity of SACCOs encourages asset expansion as well as debt repayment (SASRA, 2018). Mwangi (2017) defines liquidity as the ability of a financial institution to fund asset development as well as meet both planned and unplanned money and guarantee commitments at a fair cost and without incurring excessive losses. Furthermore, the financial institution is not at risk of suffering excessive losses. According to Kosikoh (2018), liquidity ratios assess a

company's ability to repay loans issued over a short period of time. Financial ratios include, for instance, the current ratio, quick ratio, and working capital expressed as a proportion of sales. Current Assets that cannot be swiftly converted into cash was excluded from a more conservative liquidity ratio, such as the fast assets to total deposits ratio. This is due to the fact that each ratio is calculated using many types of current assets. Investors anticipate that the company was able to pay down its short-term creditors while continuing to fund its operations.

Yameen, Farhan and Tabash (2019) investigated the influence of liquidity on profitability of Bombay Stock Exchange-listed pharmaceutical companies (BSE). For the years 2008 to 2017, financial data was retrieved from the ProwessQ1 database. There were 150 pharmaceutical businesses cited on the BSE in the study population, including 82 businesses in the study sample. The current liquidity ratio, as well as quick ratio, has significant positive impact on pharmaceutical company profitability (measured by ROA), whereas leverage, firm size as well as age have negative impact on pharmaceutical company profitability. Nonetheless, the study was limited to pharmaceutical companies which might be different from Deposit Taking SACCOs in terms of liquidity requirements.

In Pakistan, Ahmad (2016) evaluated the association between liquidity and profitability of Standard Chartered Bank. Current ratio, net-working capital as well as quick ratio were employed to measure the relation. Quantitative research design was employed as a tool. The unit of analysis was standard chartered bank situated in Pakistan. The research was based on financial statements between 2004 and 2014. The study used data from standard chartered banks over the last ten years as a sample. The researcher employed a secondary data collection strategy. The information was gathered from

Standard Chartered Bank Pakistan's yearly reports. According to the findings, there is weak positive association between liquidity and banks' profitability. Nonetheless, the study was conducted in Standard Chartered Bank in Pakistan between 2004 and 2014, the period mention is long gone, and the results may not be applicable to the current development s especially Deposit Taking banks hence there is need for a current study be carried out to fill the existing gaps.

Samo and Murad (2019) investigated the influence of liquidity and financial leverage on firms' profitability among 40 listed firms in the Pakistan textile sector. Using a quantitative approach, yearly data from textile sectors of Pakistan between 2008 and 2018 was used to create pooled panel regression as well as descriptive statistics models. Secondary data was acquired from business' financial statements. Findings indicate that liquidity and profitability have positive association, but financial leverage and profitability have negative association. The liquidity measure CR had positive significant effect on ROA, while measure of financial leverage, DE ratio had negative insignificant influence on ROA. Besides being limited to textile sector of Pakistan, the study used a descriptive research design, which cannot be used to establish relationships.

Using time-series data from Turkish retail companies (consisting of BIST) quoted retail merchandising enterprises) from 2006 to 2016, Demirgüneş (2018) examined effect of liquidity on firms' financial performance (profitability). Study's data ranged from 2006 to 2016 for Turkish retail industry, which consists of BIST-quoted retail merchandising enterprises. In Turkish retail industry, the researcher discovered statistically significant as well as positive association between firms' profitability and liquidity. However, the

study was limited to Turkish retail industry and hence its findings cannot be utilized in Deposit Taking SACCOs in Kenya.

For a case study of DLF Ltd, a construction and contracting-a real estate company located in India, Sahni and Kulkarni (2018) investigated whether financial leverage as well as liquidity influences profitability. Five construction & contracting- real estate companies were taken under consideration. According to the study, liquidity and profitability are inversely associated; more liquidity causes funds to be blocked in current and liquid assets, causing them to lose value. Nonetheless, the study was conducted in India, and hence its findings cannot be utilized in Kenya due to differences in macroeconomic environment as well as the current area of this study.

Yameen and Pervez (2016) conducted research to evaluate the Impact of Solvency, Liquidity and Efficiency on Profitability of Steel Authority of India Limited (SAIL). Analytical research design was used in this study. Moreover, the study covered duration of 10 years between 2005-06 and 2014-15. SAIL data was gathered from different public yearly reports and financial statements, Ministry of Steel (GOI) documents, World Steel Association documents, RBI, BSE, and other Indian government websites. Results of the study showed decline in financial performance of SAIL during study period. However, the study was limited to Indian Steel Authority Limited, and hence its findings cannot be used in the Deposit Taking SACCOs in Kenya due to differences in the operating business environment and the sector of the firm.

Li, Musah and Kong (2020) assessed the association between liquidity and feasibility of Ghana's non-financial firms. The study used panel data derived from yearly reports of fifteen businesses for years 2008 and 2017. All Ghana’s non-financial firms formed

the study population. Findings established that liquidity has significant negative impact on a firm's ROE, but only a minor positive impact when measured by the cash flow ratio. Having been conducted in Ghana, the findings of the study cannot be extrapolated to Kenya due to differences in macroeconomic environment also the study was carried out on non-financial firms unlike the current study on Deposit Taking SACCOs which are financial firms.

Yameen, Farhan, and Tabash (2019) explored liquidity's influence on profitability among pharmaceutical companies listed on the Bombay Stock Exchange (BSE) from 2008 to 2017, finding significant positive impacts of liquidity ratios on profitability, but their study is not directly related to deposit-taking SACCOs in Kenya. Onyekwelu, Chukwuani, and Onyeka (2018) investigated the impact of liquidity on deposit money bank profitability in Nigeria. The study included a sample of five banks. Ex-post facto research was employed in this report. This study relies heavily on secondary data gleaned from yearly reports as well as statements of accounts of several Nigerian deposit money institutions. Secondary data was gathered from businesses over a ten-year period, from 2007 to 2016. Liquidity has significant positive effect on bank profitability ratios, as well as a positive significant effect on Return on Capital Employed, according to the findings. Nonetheless, the study used ex-post facto research design, which is different from correlation research design.

In Kenya, Mwaura (2019) conducted research on the effect of liquidity on financial performance of construction and related companies listed on NSE. Descriptive research design was employed in this study. Moreover, secondary data was collected from yearly financial statements of target companies listed on NSE from 2005 to 2014 in order to achieve research's goal. Results of multiple regression analysis showed that liquidity,

current ratio, and improvement in operating cash flow ratio have positive impact on financial performance. However, the study employed a descriptive research design and was for construction and related companies listed on NSE, thus differs with the current study which employed correlation research design and the area of study was Deposit Taking SACCOs in Kenya.

Irungu (2019) examined the effect of liquidity on financial performance of all the 64 firms quoted at NSE. ANOVA was used to evaluate the associations between the variables in a cross-sectional study design. The analysis's findings showed that liquidity has a favorable and significant impact on financial success. The author also asserted that an adequate liquidity policy is a guarantee of sound financial condition and presented liquidity as a powerful instrument for monitoring and forecasting financial performance. The study also advised management of the companies listed on the NSE to focus more on liquidity because it was discovered to have a substantial impact on financial performance. The study made a connection between liquidity and financial performance but neglected to take into account how liquidity as a component of financial distress affected performance. In addition, the study used cross-sectional research design.

Wekesa (2019) investigated the impact of competition, corporate governance, and liquidity on the profitability of sugar companies. Census was employed to reach the study's target population, which consisted of five sugar businesses. Twelve years of secondary data collection, from 2007 to 2017, was conducted. For this study, a cross-sectional retrospective research approach was used. The findings indicated a negative relationship between managerial effectiveness, age of the company, competitiveness, and corporate governance. Monetary policy had a detrimental impact on company

performance, but firm size had a beneficial influence. There was a negative and statistically insignificant relationship between financial performance and the coverage ratio of current liabilities. The study's dependent variable, which is distinct from financial performance, was the competitiveness of sugar companies.

Waswa, Mukras and Oima (2018) examined the effect of liquidity on financial performance of the Sugar Industry in Kenya. The study employed a cross-sectional retrospective research design where data for use in the study was collected, over the period 2005 and 2016, from five sugar companies purposively sampled. The authors used Pearson correlation, multiple regression and random effect empirical model to analyze secondary data. Results of correlation analysis found negative correlation between liquidity and financial performance. Results showed that the studied enterprises' capital structures had a significant proportion of debt and had low or negative cash flows, which indicated serious financial distress.

The report advised businesses to think about implementing an adequate capital structure, equity-based financing, and a minimum level of operational cash flows. The study fell short of highlighting the troubling impact of liquidity on enterprises' financial performance, which is the topic of the current study. However, the study used a cross-sectional retrospective research design, which cannot be used to establish relationships between variables, unlike correlation research design which the current study proposes to adopt.

Waswa, Mukras, and Oima (2018) investigated the effect of liquidity on the Sugar Industry in Kenya, revealing a negative correlation between liquidity and financial performance, with concerns about capital structure and cash flows. Each study has its

specific context and findings, making direct application to deposit-taking SACCOs in Kenya challenging due to differences in the operating environment and research design.

Said and Tumin (2018) investigated bank-specific factors in China and Malaysia, including liquidity, credit, capital, operating costs, and the size of commercial banks as measured by return on average assets and return on average equity. Return on average assets, return on average equity, and operating expenses were among the other factors considered. According to the study's findings, bank size and liquidity have relatively little influence on how well banks perform in any country. The eventual impact of financial variables on bank performance can be considerably altered by elements specific to each sample countries, and these differences can be extremely considerable. The study, found no association between SACCO performance levels and liquidity as a factor of distress; also, the study was done in China and Malaysia for commercial banks that may not be extrapolated on the Kenyan setting due to varying macroeconomic factors.

Sporta (2018) examined the impact of financial distress indicators such as capital sufficiency, liquidity, leverage, operational effectiveness, and asset quality on the financial performance of commercial banks subject to Central Bank of Kenya regulation. The research period included 11 years, from 2005 to 2015, and involved secondary data for 43 commercial banks that were discovered through a census. The study focused on liquidity, asset quality, leverage, operational effectiveness, and capital sufficiency as the main financial distress causes. This made it possible to investigate the moderating role of firm size in the link between distress variables and financial performance in Kenya's deposit-taking SACCOs. However, the scope of this investigation was restricted to Kenyan commercial banks. According to the data,

liquidity significantly improves a firm's financial performance. Therefore, the study concluded that liquidity, poorly managed, has distressing effect on financial performance of banks.

Ahmed (2018) investigated the effect of liquidity and leverage on the financial performance of commercial state entities in Kenya's tourist industry which is a key source of revenue in Kenya. Ten (10) Commercial State Corporations in Kenya's tourist business were studied using a descriptive research technique from 2012 to 2016. According to Ahmed (2018) increase in liquidity gaps and leverages, have a detrimental influence on the profitability of Kenya's Commercial State Corporations in the tourist industry. The study revealed that commercial state corporations' borrowings from other banks to meet shorter liquidity demands had the greatest influence on liquidity. The study focused on Kenya's tourist industry rather than liquidity as a component of financial distress in Kenyan Deposit Taking SACCOs performance.

Cheluget et al. (2018) used a survey methodology and stratified random sample technique to study liquidity as a potential source of financial issues in Kenyan insurance enterprises. The 45 insurance businesses that were registered with the organizations in charge of regulating the insurance sector as of December 31, 2012 made up the population of interest for this study. The findings, which were based on primary data, showed that liquidity had a strong correlation with financial hardship. As a result, liquidity may be a factor in Kenyan insurance companies' financial difficulty. The study was limited to correlation but did not determine the extent to which liquidity as a financial hardship factor effects financial performance in Kenya's deposit-taking SACCOs since its primary focus was on insurance rather than Kenya's deposit-taking SACCOs.

Ndirangu (2017) investigated the effect of effective working capital management, taking liquidity into consideration, on the profitability of manufacturing firms in Kenya. With the use of primary and secondary data sources, the study's objective was to determine whether there was a correlation between the use of liquidity management measures and the profitability of Kenyan manufacturing firms. 413 manufacturing companies in Nairobi's industrial zone and surrounding areas were the study's target population. According to the study, liquidity and a number of other characteristics may be used to anticipate profitability and have a significant impact on performance. The findings of the study indicate that the financial performance of Kenyan manufacturing businesses is influenced by liquidity as a component of working capital management. The current study seeks to determine the relationship between liquidity and financial performance for Kenyan SACCOs.

Akenga (2017) assessed the impact of current ratio, debt ratio and cash reserves on firms' profitability among firms listed in the NSE. The research used a causal research design where 66 firms listed on NSE between 2010 and 2015 formed the study's target population. Purposive sampling method was used to select 30 companies based on their accuracy in publishing financial statements. Secondary data from the NSE handbook was used in the report. Data was analyzed using multiple regression analysis and correlation analysis. Analysis of data found that the current ratio and cash reserves were found to have a positive and significant relationship with ROA. Furthermore, debt ratio was found to have no major influence on ROA. Nonetheless, the study focused on firms in the service industry, which are different from deposit-taking SACCOs in Kenya.

Berline (2017) investigated the effect of liquidity on financial performance of Kenya's tier one commercial banks. Descriptive research design was employed where all the six

tier one commercial banks were studied. Primary data was gathered through questionnaires that were filled in by a total of 31 participants from six ALCO member banks. Secondary data was gathered from bank websites, KEBs, Kenyan regulator and CBK. Liquidity coverage ratio had no significant influence on ROE but a positive significant effect on ROA, according to the study's findings. When the liquidity coverage ratio rises, the ROI falls but the ROA rises. However, the study was limited to Kenya's tier one commercial banks, also the study employed descriptive research neither was liquidity assessed as a factor which might have a relationship with financial performance.

Ong'era, Muturi, Oluoch and Karanja (2017) carried out a study on the relationship between liquidity and financial distress. The study was done among all the listed companies at NSE. To analyze secondary data, Pearson's correlation analysis and logistic regression analysis were also used. The relationship between liquidity and a company's financial success was highly significant. According to the study, a corporation may easily pay off its short-term commitment by maintaining sufficient liquidity levels. The study suggested that the regulator create appropriate regulations to enable good working capital management of enterprises listed on the NSE. Although the research did a good job of describing liquidity as a characteristic that predicts financial distress, it did not look at its impact on organizations' financial performance. However, the study used logistic regression analysis, which used the dependent variable in a categorical form. In addition, the study was conducted among companies in the service sector.

Salim and Bilal (2016) conducted research on the Omani commercial banks' financial performance and liquidity management. The bank's annual reports were used to obtain

secondary data for five consecutive years, from 2012 to 2016, and evaluate it using a multiple regression model. The ratios of illiquid assets to liquid liabilities, liquid assets to deposits, loans to total assets, and liquid assets to short-term obligations all showed a positive, substantial association between financial performance and liquidity status. According to the study, there is no correlation between Oman-based banks' financial success and their capacity to handle high short-term liquidity demand, have assets connected to illiquid loans in proportion, or have liquidity in the event that they are unable to borrow from other banks. The study was limited to commercial banks, which offer financial services unlike the current study's main focus on Deposit Taking SACCOs in Kenya.

Kimondo, Macharia and Magomere (2016) examined whether liquidity influences the profitability of nonfinancial companies quoted in NSE. The research employed the descriptive research design. The research included 39 quoted nonfinancial companies in NSE. 27 Investigation was focused on the research data obtained from yearly accounts of quoted nonfinancial companies for duration of 5 years from year 2010 to 2014. Findings discovered significant positive association between liquidity and nonfinancial companies' profitability quoted at NSE. The study used descriptive research design and not correlation research design. In addition, the focus of the study was not specific to financial distress factors companies like the Deposit Taking SACCOs in the current study.

Njeru (2016) used a stratified random technique to decide on the sample size and a descriptive design to research the impact of liquidity management on the overall financial performance of Kenyan deposit-taking saving and credit cooperative organizations. The study found that effective liquidity management required industry

regulation and that liquidity decisions had a statistically significant impact on the financial performance of Kenyan deposit-taking SACCOs. The study looked at liquidity in deposit-taking SACCOs as a management element but not as a factor in financial turmoil.

Analysis of most literature showed that most studies done in Kenya and beyond on the influence of liquidity management on performance was mainly among commercial banks (Salim & Bilal, 2016; Sporta, 2018), listed companies (Ong'era et al., 2017; Irungu, 2019; Mwaura, 2019; Akenga, 2017; Kimondo, Macharia & Magomere, 2016) and in different industries (Iqbal & Usman, 2018; Rehman, 2018)

2.2.3 Leverage and Performance of SACCOs

Using the variable of leverage, one may explore how changes in leverage affect the performance of a firm. It is the process of enhancing the possible return on an investment by using a range of financial instruments or borrowing money, and it is referred to as "hedging" (Saleh, 2017). Variations in leverage, according to Saleh (2017), have a substantial influence on company performance; in order to maximize earnings and boost performance, financial institutions should make better use of debt financing.

During the global financial crisis that happened between 2008 and 2012, Saleh (2017) discovered that the utilization of financial leverage was the single most important factor in determining a company's profitability. High amounts of financial debt may have a significant detrimental impact on a company's performance both before and after the financial crisis. Because debt financing was at an all-time high during the financial crisis, it is reasonable to conclude that debt financing exposes firms to increased

refinancing and borrowing expenses, which leads to a deterioration in overall performance.

Foong (2016) revealed that using leverage has a negative impact on an organization's performance, but that using leverage in conjunction with product diversification has a substantial interaction effect on firm performance. The breadth of a general insurance company's product range can either assist or derail its ability to profit from leverage.

In Pakistan,Ali (2020) analyzed the influence of three types of leverage, operating leverage, financial leverage, and combined leverage on profitability of companies in food and fertilizer sector listed by PSE was explored. The study used a sample of 20 publicly listed firms from 2013 to 2018. This study relied on secondary data. Annual reports, financial statements, and other websites, such as the SBP and PSE websites, were used to gather information. The findings show that while financial leverage as well as combined leverage has insignificant influence on profitability as evaluated by ROA, the degree of operating leverage has negative influence. Findings, revealed that the degree of financial leverage and degree of operating leverage have a significant and adverse impact on a firm's financial performance as measured by economic value added. Besides being limited to Pakistan, the study used a cross sectional study design, which is different from correlation research design.

For a period between 2008 and 2017, Ndubuisi, Ifechi, and Chijioke (2019) used eighty nonfinancial enterprises quoted on Nigerian Stock Exchange to investigate the association between financial leverage and firms' profitability. Study's findings discovered that EPS is significantly as well as negatively connected to designated employer representative and total debt-to-total-asset which are measures of firms'

financial leverage in Nigeria, although ROE has a negligible association with these measures. The study was limited to Nigerian Stock Exchange, and it only focus on firms profitability, the current study in its dependent variable focuses on financial performance, measuring it using ROA and ROE using Deposit Taking SACCOs as case.

Chesang (2016) investigated whether financial leverage influences the profitability of agricultural companies listed on NSE. A descriptive research design was adopted. Moreover, the researcher targeted all seven agricultural enterprises registered on the Nairobi Securities Exchange, as well as 66 listed enterprises on NSE. Time series secondary data was also acquired from NSE and also Capital Markets Authority publications, Economic as well as Financial Reviews, Statistical Bulletins and the different enterprises' yearly Reports and Statements of Accounts. Moreover, the researcher found that designated employer representative as well as current ratio all had statistically significant influence on profitability of selected agricultural enterprises quoted on NSE, although long-term debt to total capital deployed and business size does not influence financial performance. However, the study used a descriptive research design, which varies from correlation research design also the study was done in an agriculture sector unlike the current study on financial sector and mainly Deposit Taking SACCOs in Kenya.

Okello (2019) conducted research to determine the NSE-listed Kenyan companies' financial risk characteristics. The management of the listed firms under consideration was surveyed and interviewed to gather qualitative and quantitative data. The study found a strong correlation between leverage and financial distress in publicly listed corporations. Leverage was identified as a significant risk factor for NSE-listed

companies in the study; however, this finding may not be applicable to Kenyan SACCOs that accept deposits. This paper examines the concerning impact that leverage has on the financial performance of deposit-taking SACCOs in Kenya in particular, recognizing it as a major factor in the risk of a financial catastrophe.

In Sri Lanka, Rajkumar (2018) assessed the association between financial leverage and John Keells Holdings plc's financial performance from 2010 to 2016. The research's primary data was gathered from the appropriate yearly reports of John Keells Holdings plc in Sri Lanka (2010-2016). Several websites, research publications, and publications were used to gather supporting data. Study's findings found negative association between financial leverage and John Keells Holdings plc's financial performance.

The correlation between financial leverage and profitability of Pakistan's Textile Companies was investigated by Iqbal and Usman (2018). Textile Companies from Pakistan that are listed on the PSX (100-index) were chosen. Furthermore, data was collected throughout a five-year period, from 2012 to 2016, and the top 16 organizations were chosen as a sample. The study used secondary data from companies annually reports. Financial leverage has negative significant impact on ROE, while financial leverage has significantly positive impact on company ROA, according to the findings. Besides being limited to Pakistan's Textile Companies, this study used a descriptive research design, which cannot be used to establish relationships.

In Sweden, Andersson and Minnema (2018) investigated the association between consulting companies' leverage and profitability. Data used for this study was secondary data. The population was limited to companies carrying out management consulting services. The time horizon for the study was between the years 2012-2016.

The sample consisted of 130 firms studied over a 5-year period which led to a total of 650 observations. The study discovered that leverage has negative significant association with profitability. Having been conducted in Sweden, on investigated the association between consulting companies' leverage and profitability, the findings of this study cannot be generalized to Deposit Taking SACCOs in Kenya because of different macroeconomic conditions.

In Pakistan, Anjum and Malik (2018) investigated how corporate liquidity and firm size, net working capital, leverage, cash conversion cycle, and sales growth affect the amount of cash kept by firms. The study looked at the economic issues that Pakistani firms listed on the Karachi Stock Exchange are now facing. Between 2008 and 2015, a sample of non-financial enterprises were evaluated using the Z-score approach. According to the study's findings, utilizing leverage might be good for financially struggling enterprises listed on Pakistan's stock exchange; but, applying too much leverage may result in bankruptcy. The usage of leverage, according to the research findings, is one of the key sources of financial distress.

Anjum and Malik (2018) explored the impact of corporate liquidity, firm size, net working capital, leverage, cash conversion cycle, and sales growth on cash holdings among Pakistani firms on the Karachi Stock Exchange. These studies provide insights into the complex relationship between leverage and profitability in different contexts, but their findings may not be directly applicable to deposit-taking SACCOs in Kenya due to variations in industries, regions, and research designs.

Tan (2018) used data from the Asian financial crisis to examine the effects of the crisis on corporate performance and financial distress. During the Asian Financial Crisis of

2004-2014, researchers used a sample of 277 enterprises from eight different East Asian countries to examine the relationship between company performance and the occurrence of financial distress. The crisis' exogenous shock reduced endogeneity issues related with the relationship between company performance and debt. The study's findings indicate that businesses with low levels of financial leverage have a higher chance of success than those with high levels of financial leverage. The study's findings indicate that the weak correlation between financial difficulties and corporate success was further aggravated by the Asian Financial Crisis that took place from 2007 and 20017. High-leverage businesses did poorly throughout the crisis. The findings, however, cannot be applied generally to Kenyan SACCOs that accept deposits because the study's primary emphasis was the Asian financial crisis.

Razak (2018) investigated the impact of leverage on the financial performance of Malaysian general insurance companies. The researcher was also curious about whether the degree to which a company's products are diverse affects the leverage-performance relationship. The study, conducted covered between 2010 and 2016, encompassed the whole population of Malaysian licensed general insurance businesses. This study contained 94 observations in total. All of the data was obtained from the Bank Negara Malaysia database.

Kosikoh (2018) performed research to identify the root reasons of financial difficulties faced by Kenyan insurance businesses. The descriptive design was used as the technique of inquiry in the study of 45 insurance companies registered with Kenya's Insurance Regulatory Authority as of December 31, 2016. According to the findings, there is a link between the usage of leverage and the occurrence of financial challenges in Kenyan insurance businesses. Nonetheless, the study's scope was confined to

investigating just the relationship between leverage and financial distress in Kenyan insurance businesses. The goal of this research is to look into the impact of leverage, or borrowing money to earn more money, on the financial performance of enterprises in the financial industry, with a particular emphasis on deposit-taking SACCOs in Kenya.

Rehman (2018) used secondary data for 35 listed institutions that had been previously gathered for some other research for the years between 2011 and 2016 in a study on the association between leverage and financial performance of sugar firms in Pakistan. Leveraged borrowing, as measured by the debt-to-equity ratio, was positively correlated with both sales' growth and ROA, while designated employer representative was negatively correlated with earnings per share, ROE, and net profit margin. While the current study assessed the link between leverage and performance in deposit-taking SACCOs in Kenya, the researcher was limited to sugar firms in Pakistan. The study also employed a cross-sectional research approach, which is ineffective for determining connections between variables.

Leverage was one of the factors examined by Ayako, Githui, and Kungu (2018) in their investigation into what factors affected the financial performance of enterprises listed on the NSE. A statistically significant negative association between leverage and company performance was found. Explanatory non-experimental research was conducted by the researcher. Using descriptive statistics, correlation analysis, and panel multiple regression analysis, panel data from the NSE Handbook covering the years 2006 to 2016 for 41 listed companies was examined. This study neglected to acknowledge the unpleasant impact of leverage on a firm's financial performance while focusing primarily on leverage as a predictor of financial success of non-financial enterprises.

Rehman (2018) examined the association between financial leverage and profitability: empirical evidence from Pakistan Sugar Companies. Data was gathered through yearly reports from companies, which assist in obtaining accurate results. From 2007 to 2017, data was gathered from financial statement analyses of non-financial companies quoted on KSE. The study sample size was thirty-five quoted companies from Karachi Stock Exchange's food producer sector. The study's findings revealed mixed findings. The findings revealed that DER has positive link with ROA as well as sales growth, but negative link with ESP, ROE as well as net profit margin. Nonetheless, the study was limited to Pakistan Sugar Companies, and hence its findings cannot be generalized to Deposit Taking saccos in Kenya as it focuses on different objectives.

Abubakar (2017) conducted an analysis on the effect of financial leverage on the financial performance of service-providing firms listed on the Nigerian Stock Exchange. A high percentage of debt on a company's structure deteriorates its financial health. This is demonstrated by the fact that leverage, as measured by the long-term debt ratio, short-term debt ratio, and total debt equity ratio, all have a substantial negative influence on financial performance. This fixed effect model was used to test this hypothesis. The current study employed a correlation research design, as opposed to the descriptive research approach employed in the previous study.

In Kenya's insurance industry, Kibuchi (2018) looked at how financial hardship affects businesses' financial performance. Evidence showed that a firm's leverage has a negative, considerable influence on its financial performance. By increasing their efficiency, leverage, and management of financial crisis, the study said that Kenyan insurance businesses may obtain significant returns on assets. Using multivariate analysis using Pearson's correlation, mean, and standard deviation, secondary data for

the study period of 2013–2017 was examined. The study used descriptive research over a five-year period despite basing the analysis on insurance firms.

In Kenya, Mule and Mukras (2017) assessed the relationship between financial leverage and profitability. The study used yearly data for duration between 2007 and 2016. The final sample consisted of 47 listed firms. The study found reasonably strong evidence that performance of listed Kenyan firms is significantly and negatively influenced by financial leverage. However, the study used a descriptive research design, which cannot be used to establish relationships between variables.

Aziidah (2017) investigated the impact of financial leverage on profitability of Kenyan Energy and Petroleum companies quoted on NSE. This study employed a descriptive research design. For a five-year period, from 2012 to 2016, data was gathered from yearly financial statements of Kenyan Energy and Petroleum companies listed on NSE. The study was conducted on a census scale of four Kenyan Petroleum and Energy companies. According to the study's findings, leverage and dividend payout ratio have a weak negative association. Furthermore, the study revealed that profitability and financial leverage have a strong negative association, with organizations that rely on debt having lower profits and those that rely on equity having better earnings. However, the study was limited to Kenyan Energy and Petroleum companies and focused on leverage and profitability, the current study focused on financial distress and performance of Deposit Taking SACCOs in Kenya.

Sporta (2018) performed a study on financial distress causes and the financial performance of Kenya's 43 commercial banks between 2005 and 2015. Leverage was one of the study's distress variables. The debt-to-equity ratio served as the initial gauge

of the firms' indebtedness. Divided by the entire market value of assets, the debt-to-equity ratio utilized in the study was calculated. The debt-to-equity ratio's descriptive study revealed an increasing tendency in mean over time, with the greatest mean being 0.312 in 2014 and the lowest mean being 0.004 in 2006. This suggests that Kenyan commercial banks used a lower proportion of debt to equity in their capital structure. DER reflects the company's ability to meet all of its obligations, which is indicated by what proportion of equity capital is used to pay the debt. With the exception of 2011, which had the lowest risk, the standard deviation also typically increased with time. These results show that the risk increases with the debt-to-equity ratio. These results suggest that risk increases with debt, which may potentially have an impact on Kenya's commercial banks' financial hardship. The other measure of leverage taken into account in the study was the debt to asset ratio. The debt-to-asset ratio, which indicates the firm's solvency, was calculated by dividing total liabilities by total assets. A larger ratio indicates more financial distress in the company.

According to the data, the companies continued to maintain high debt-to-asset ratios. The year 2008 had the lowest average (0.768) and the greatest risk (0.404). The report also linked the global financial crisis and the violence that followed the election to the 2008 slump. Furthermore, the research pointed out that a bank's profits come from its assets, and that debt is linked to both tangible and intangible assets. Additionally, because very high or negative debt-to-asset ratios imply substantial business risk and because commercial banks with low debt ratios frequently offer prospects for profitability, commercial banks make sure that the ratios are properly balanced. However, the study was limited to Kenya commercial banks and may not be extrapolated to Deposit Taking SACCOs in Kenya as it focused on causes of financial

distress in commercial banks, the period in which the study was carried out also in long hence the findings may not be relied on currently because of dynamics.

In examining the relationship between leverage and financial performance, analysis of literature was inconclusive as some researches established a negative correlation (Foong, 2016; Razak, 2018; Aziidah, 2017; Li, Musah & Kong, 2020), positive (Rehman, 2018; Iqbal & Usman, 2018 Sporta,2018) and mixed findings (Rehman, 2018). Further, majority of the studies were carried out in companies other than SACCOs (Okello, 2019; Kosikoh, 2018; Anjum and Malik, 2018).

2.2.4 Operational Efficiency and Financial Performance of SACCOs

Olalere, Temitope, and Oluwatobi, (2018) asserted that of operational efficiency is when a business is deemed to be running efficiently and is able to offer products or services at competitive rates while maintaining high levels of product, service, and support quality. In terms of airport operating efficiency, there is likely to be increased competition as well as an increase in the number of resources required. In small and medium-sized firms, measuring managerial efficiency often entails examining how well operations are conducted. An airport manager's capacity to oversee operations may be influenced by both the surroundings and the traits of individuals around them (Sarkis, 2018). It is proposed that firm executives increase the efficiency with which physical assets generate revenue in order to maximize earnings (Saleh, 2017).

A sample of commercial banks from the European Union (EU) was utilized between 2007 and 2017 in a study by Chortareas, Girardone, and Ventouri (2019) on the dynamics of bank regulatory and supervisory policies connected to Basel II's three pillars as well as other aspects of cost efficiency and performance. They reported their

findings in the journal Financial Stability Review. Using frontier analysis and traditional accounting ratios allowed for an accurate assessment of the research's effectiveness. The study came to the conclusion that interventionist regulatory and supervisory measures, such as capital restrictions, bolstering government oversight institutions, private sector oversight, and limiting bank activities, might have a negative impact on bank efficiency. The findings show that countries with more liberal, competitive, and democratic political systems also have greater levels of operating efficiency, which is great news for banks located in those countries. The study established that organization's financial success or failure is its degree of operational efficiency. The conclusions cannot be generalized to Kenya's Deposit Taking SACCOs financial system, as the previous study kept its focus on the dynamics of bank regulatory and supervisory policies connected to Basel II's three pillars as well as other aspects of cost efficiency and performance.

An investigation of operational efficiency as a possible distress factor on financial performance was carried out using the operating expense ratio and the net worth turnover ratio (Kosikoh, 2018). This research was carried out to assess financial performance. Gross income minus overhead expenditures determinants such as the net worth/net assets ratio was calculated by dividing the gross interest income by the net worth/net assets (total assets-total liabilities). The ratio of a company's net value to total assets measures the potential return on investment for its owners. When this ratio rises, it indicates that a firm is relying on an exceptionally large amount of debt and trade payables to stay alive and avoid bankruptcy.

The link between operational innovation and financial success was examined by Klingenberg et al. (2018). The study also examined how well profitability indicators like return on asset, return on equity, and basic earning power could be used to assess how a certain operations plan would affect a company's performance. Investigating the connection between these ratios and inventory management ratios with a focus on just-in-time and lean manufacturing was one of the goals of this study. According to the analysis's findings, there is no consistent correlation between the inventory management ratios of ROA, ROE, and BEP. The study established that at least two of the aspects that determine a company's profitability are the outcomes of its operations and the method in which they are supported. According to the study's findings, it is difficult to separate the impacts of an individual operations strategy from those of other organizational activities such as finance management. The study's findings, which focused on manufacturing companies in developed countries and discovered no link between operational efficiency and financial performance, cannot be applied to Kenya's deposit-taking SACCOs; however, the study discovered that operational efficiency is both a performance component and a distress indicator.

Upon analysis of literature on the relationship between operational efficiency and performance of SACCOs, the researcher noted that majority of the data available was carried out outside Kenya (Klingenberg, et al., 2018; Jeong & Phillips, 2019; Pranowo & Manurung, 2018; with a few being done among organizations in Kenya, (Kosikoh, 2018), (Ongore & Kusa, 2018). Despite studies by Chortareas, Girardone, and Ventouri (2019) establishing that financial success or failure is its degree of operational efficiency, the results of the study may not be generalized to the Kenyan context as the SACCO financial system is still at its infancy.

2.2.5 Asset Quality and Performance of SACCOs

Customer loans and advances account for a sizable amount of a financial institution's overall assets (Barus et al, 2018). To ensure the business's success, a range of investments are planned, the bulk of which are interest on loans issued to consumers (Love, Matthews, Simpson, Hill, & Olatunji, 2018). According to Adeolu (2017), evaluating a company's assets is an important part of firm management. This is because it allows for a more specific assessment of the amount of credit risk that the firm is taking on, as well as how this impacts the company's profitability and financial performance. According to Barus et al, (2018) the asset quality of a bank may be measured in part by looking at loan advances and non-performing loans. Inadequate credit risk management, reduction on bank profitability, reduces the quality of their assets, and increases the proportion of loans that are considered nonperforming. In light of this, the loan loss provision to operating income ratio and total non-performing assets to loans ratio was used in this study. Because lower values were preferred in this investigation, this ratio was used.

Klein (2018) studied nonperforming loans in Central, Eastern, and South-Eastern Europe between 2013 and 2016. It was demonstrated that the amount of non-performing loans was related to both economic indicators and financial institution characteristics; however, the latter had very little power to explain the former. If nonperforming loans have an influence on macroeconomic parameters such as GDP growth, unemployment, inflation, and corporate performance, then this element must be considered. The financial sector has a considerable influence on the actual economy, according to the study's conclusions. This shows that the rising share of non-performing loans in certain

CESEE nations is slowing the rate of recovery. Differences in NPL management processes can be explained by characteristics such as the capital-to-asset ratio, the amount of NPL provisions, and the return on assets in developing and developed countries.

Vigneswara (2018) explored the factors that influence the quality and profitability of bank assets in India. Panel data techniques were used throughout the research, which took place between 2010 and 2016, and the study's findings showed a conclusion that contradicted the known and expected result. It was revealed that non-performing assets had no influence on commercial bank profitability, and it was also demonstrated that asset size has no effect on commercial bank profitability. The study was conducted at numerous commercial banks in India between 2010 and 2016. The current study aims to fill the gap by studying the influence of asset quality, as a financial distress factor, on the financial performance of deposit-taking SACCOs in Kenya between 2012 and 2022.

Adeolu (2017) examined the link between asset quality and bank performance in Nigerian commercial banks. Using the SPSS Pearson correlation and regression tool to examine the obtained data, he concluded that asset quality had a statistically significant positive relationship and impact on bank performance. The data offered indicates that there is no relationship between bank loans and profitability. A bank's performance is monitored using a variety of financial metrics, and one of the key objectives of banks is to minimize the amount of nonperforming loans. Non-performing assets to total net loans and loan loss cover are the best asset quality ratios.

From 2009 to 2016, Imran et al., (2021) performed an empirical study of Pakistan's Islamic banking sector. The study's purpose was to detect bankruptcy risk in Pakistan's Islamic banking sector by examining the relationship between asset quality, income structure, and macroeconomic variables. The study included the years 2009 to 2016. A number of bank-specific and macroeconomic parameters were examined to determine the impact of bankruptcy risk on Pakistan's Islamic financial institutions. An OLS estimate was used to get the results. According to the research, asset quality does not have a substantial impact in the occurrence of bankruptcy within the Islamic banking system; nevertheless, the interplay between capital asset ratio and asset quality does.

Olweny and Mamba (2018) performed research on the association between banking sector characteristics and bank performance. Asset quality was one of the bank-specific characteristics that they investigated. The inquiry was conducted utilizing panel data research methodology and an explanatory approach. The study examined the yearly financial statements of 38 commercial banks in Kenya from 2010 to 2016, using the multiple linear regression approach to analyse the obtained data. According to the study's findings, there is a negative and significant relationship between asset quality and profitability. The data also revealed that banks that are unable to successfully manage their credit loans have lower profit margins than banks that pay close attention to the quality of their assets. The findings noted that small and medium-sized banks with a high percentage of non-performing loans to total loans have a low profitability rate. The results lend support to the notion that increasing a bank's exposure to credit risk reduced its profitability.

Barus, Muturi, and Kibati (2018) investigated the impact of asset quality on the financial performance of Kenyan savings and credit institutions. An explanatory

research technique was applied in this study, including 183 Kenyan SACCOs that were registered to take deposits and active between 2011 and 2015. The major approach for gathering both primary and secondary data for the study was a census. Statistical package for Social Sciences and STATA were used to analyze the data using multiple linear regression models. The results of the study imply that the financial success of Kenyan savings and credit institutions is influenced by the caliber of assets owned by such institutions. This phenomenon was explained by the findings of the regression analysis, which showed a beneficial effect and the degree to which asset quality affected the financial performance of savings and credit organizations. The findings of the univariate regression demonstrate that Kenyan savings and credit institutions' overall financial performance is influenced by the quality of the assets they hold.

The impact of asset quality on the financial performance of financial institutions has been studied in different contexts. Barus, Muturi, and Kibati (2018) conducted an explanatory research study on 183 Kenyan SACCOs that were registered to take deposits between 2011 and 2015. They found that the financial performance of these institutions is significantly influenced by the quality of assets they hold, as indicated by regression analysis results. In contrast, Adeolu (2017) explored the relationship between asset quality and bank performance in Nigerian commercial banks, revealing a statistically significant positive correlation. The data also suggested that bank loans may not be directly related to profitability. Overall, asset quality plays a crucial role in determining the financial success of financial institutions, with non-performing assets to total net loans and loan loss cover being key ratios in assessing asset quality.

Results of review of literature on the relationship between asset quality and performance of different organizations could not reach a consensus. Olweny and

Mamba's (2018) study showed a negative and significant relationship. Adeolu's (2017) and Sporta's (2018) studies showed a positive and significant relationship between asset quality and performance while others determined that asset quality has no influence on performance (Vigneswara, 2018; Akhtar and Hayati, 2018).

2.2.6 Capital sufficiency and Performance of SACCOs

An investigation on the effect of bank capital on financial performance of banks was done by Acharya, Pierret, and Steffen (2018) found that leverage ratio, a measure of capital sufficiency, was used in a research based on US banks to assess capital sufficiency of banks in 2018. The study discovered that there was a strong negative link between leverage ratio and capital sufficiency of US banks in 2018.

Kartal, (2019) examined the factors affecting Turkish banks' capital structures, illuminating the reasons why banks maintained more capital than was necessary between 2012 and 2017. The study's empirical model revealed that deposits had a negative impact on capital buffer whereas lagged capital, economic growth, portfolio risk, and return on equity had positive relationships with this ratio.

Buyuksalvarc and Abdioglu (2019) looked at the variables that affect capital adequacy ratios in Turkish banks as well as the effects these variables have on the financial health of the institutions under study. The research included data from annual reports submitted by banks between 2011 and 2015. To investigate the link between the elements, panel data were employed. The results indicated that loan, return on equity, and leverage all negatively impacted capital adequacy ratios, but loan reserve and return on assets all positively impacted it.

Ogunode, Awoniyi, and Ajibade (2022), evaluates the impact of sufficient capital on the corporate performance of publicly traded non-financial companies in Nigeria. Ex-post facto research design was employed in the study, which made use of secondary data collected between 2011 and 2020. Thirty-eight (38) of the sixty-three (63) mentioned non-financial organizations were purposefully chosen as a sample, and multivariate regression was used to evaluate the collected data. The study discovered that the corporate performance of listed non-financial enterprises operating in Nigeria was positively influenced by company size and debt equity ratio, but negatively impacted by cost income ratio, equity capital/total assets ratio, and capital adequacy ratio. Therefore, it was determined that two important variables that can enhance non-financial enterprises' corporate performance are their size and the profitable use of borrowed capital in their capital mix.

Adeyemi (2019) investigated the causes of Nigerian bank collapse, which included a lack of capital, a lack of transparency, and non-performing loans using a standardized questionnaire to perform their research on Nigerian banks. The study's goal was to identify the key reasons of bank failure in Nigeria, as well as the extent to which the found variables are accountable for the failure, and to explore for other factors that may be significant. According to the study's results, the most prevalent reasons for bank collapse in Nigeria was lack of capital, a lack of transparency, and massive volumes of NPL loans. The findings showed that financial institutions must retain an adequate level of capital on hand in order to function well, meet their financial duties, and contribute to a healthy financial system. According to the study's findings, appropriate capital is one of the elements that impacts financial performance. The study, on the other hand,

found no link between appropriate capital and financial performance, and it also employed data from Nigerian commercial banks as its source material.

Mwangi (2020) examined the advantages and difficulties deposit-taking Savings and Credit Cooperative Societies (SACCO) faced after implementing the capital adequacy standards advised by the SACCO Societies Regulatory Authority (SASRA).174 SACCOs that had been registered with SASRA by the end of 2019 were the subject of a descriptive study design. Using a questionnaire, primary data was gathered from each SACCO that had signed up. The examination of SASRA-generated annual reports' documents yielded more information. Utilizing frequency and percentage distribution along with correlation analysis, quantitative analysis was utilized to examine the data. According to the study, capital adequacy standards reduced operational risks for the SACCOs, which enabled profitable business operations, and they also encouraged public confidence in the SACCOs' financial stability by providing a risk reserve for earnings to protect against capital loss. The study also demonstrated how capital adequacy requirements created a risk reserve from the SACCO's profits to protect against capital loss and gave the SACCOs a sizable provision for debts that could be covered by their capital. Despite depending on the auditor reports to ascertain their firm situations, the study found that the SACCOs had no trouble computing risk ratios.

Ngui and Jagongo (2017) aimed to determine whether capital sufficiency affects the deposit-taking savings and credit co-operative societies' financial performance in Kenya. A census survey was conducted utilizing DT-SACCOs empirical data from SASRA supervision reports and SACCOs audited accounts as part of the study's comparative research approach. According to the SASRA register, as of December 31, 2016, there were 175 fully licensed DT-SACCOs in Kenya, making up the target

population. The research design used was descriptive since it compared two time periods: 2007–2011, during which the law permitted a 4-year compliance period but the SASRA rules on capital adequacy were not fully enforced, and 2012–2016, during which the capital adequacy standards were fully in force. According to the study's conclusions, capital adequacy had an impact on DT-SACCOs' financial performance in Kenya. The report suggested that SASRA evaluate the basic capital requirements and enhance the ratios by providing more detailed guidelines on how to manage them in order to maintain the DT-SACCOs' strength in Kenya. For instance, Deposit Taking societies might gain a great deal by changing the dividend payment percentages. The institutional capital of the DT-SACCO would greatly increase with a one percent drop in dividend payout.

Additionally, Sangmi (2019) pointed out that factors including branch expansion, new lending in high-risk areas, and company diversification are affected by capital sufficiency, which can be assessed by the capital sufficiency ratio and interest margin ratio. The current study used the capital sufficiency ratio and the interest margin ratio to assess capital sufficiency as a limiting factor on deposit-taking SACCOs' financial performance. Tier one and tier two capital are divided by risk-weighted assets to calculate the capital sufficiency ratio. Since SACCOs are seen to have an adequate risk buffer, a higher ratio would be preferred.

Ongore and Kusa (2018) investigated the elements that influence the financial performance of Kenyan commercial banks. Using a linear multiple regression model and generalized least squares on panel data, the study indicated that, in addition to liquidity, numerous factors, such as capital sufficiency, had a substantial influence on the efficiency of commercial banks in Kenya. However, due to the study's limitations,

no investigation into how capital sufficiency is a potential sign of financial distress, influences the overall financial performance of Kenya's deposit-taking SACCOs was conceivable.

Song (2018) investigated how Korean banks handled Basel's capital sufficiency requirements in 2017. Because local banks tended not to make "cosmetic" tweaks to improve their capital ratios, he discovered that the risk weighted based technique were successful in avoiding solvency. Additionally, Karles (2019), using a risk management approach, investigated the link between different market risk and the capital sufficiency ratio using both qualitative and quantitative methodologies. The research found evidence of a negative relationship between market risk and capital buffer in theoretical assertions using a sample of 24 institutions.

Ikpefan (2018) examined both cross-sectional and time series data from the Central Bank of Nigeria and concluded that there was a negative relationship between ROA and shareholders' funds/total assets, which represent a bank's capital sufficiency. This study used data from Nigeria and discovered that there is no association between capital sufficiency and ROA. The examination was in Nigeria utilizing Nigerian data additionally it did not link capital sufficiency with financial distress in the Kenyan deposit accepting SACCOs; hence, the current study attempted to fill this gap using data from Kenya.

Amina (2016), sought to ascertain how Nairobi County's credit cooperative societies fared financially in relation to the core capital ratio. The research design was a descriptive with the goal of elucidating how core capital adequacy affects cooperative societies. The Front Office Savings Activity, or FOSA, which operates cooperative

societies in Nairobi County, was the population under research. Forty cooperative societies were chosen at random as a sample. To find any correlations and frequencies in the data, SPSS software was utilized for the analysis of secondary data. The study came to the conclusion that core capital has a significant impact on cooperative societies' performance because of the regulations in a number of ways, including managing credit risk, fostering public confidence, offering a safety net for member deposits, providing operating capital, expanding lending capacity, laying the groundwork for future growth, and averting insolvency. Cooperative societies had encountered a number of difficulties in adhering to capital adequacy requirements. These included fewer member money being paid out, recruiting new members, limiting investment opportunities, and lowering lending capacity. The societies had taken action to comply with capital adequacy regulations. Cooperative Societies discovered that these tactics issuing fresh capital, growing their membership base, broadening their product offering, and modifying their dividend payout ratio were more stringent.

In analyzing the relationship between capital sufficiency and financial performance, different indicators are measured. Reviewed literature majorly dwelled on capital sufficiency ratio (Acharya, Pierret, & Steffen, 2018; Sangmi (2019; Sporta, 2018; Kahuthu, 2019) with few examining the relationship between net interest margin on financial performance (Sangmi, 2019)). This study therefore attempted to examine the relationship between the two indicators of capital sufficiency and financial performance.

2.2.7 Moderating effect of Firm Size on the Relationship between Distress Factors and Financial Performance of SACCOs

In a study on the moderating role of firm size on the relationship between financial distress and earnings management, El-Rabat, Aldel-Fatah, and Mohamed (2023), examined sample of 101 Egyptian firms listed in the Egyptian stock Exchange. The data used in the study was for a period of six years from 2014 to 2019. Inferential analyses were conducted and the results of analysis found that there is a significant positive relationship between financial distress and earning management. Further, on the firm size as a moderator, the research found out that firm size moderates the relationship between financial distress and earning management, implying that firm size reduces the negative impact of Z-score on earning management.

Corvino, et al. (2019) investigated the moderating influence of business size on relational capital and firm performance in Europe. Utilizing information gathered from 73 listed companies in France, Germany, Italy, and the UK, the study employed a unique disclosure index. Six regression models were used to examine the information gathered from 2011 to 2013 using content analysis. Analysis revealed that the association between RC and various factors related to company performance is moderated by firm size.

Muange and Kiptoo (2020), investigated the moderating influence of company size on the link between joint marketing alliances and firm performance of retail enterprises in Nairobi County. The 490 senior management officials employed by the 47 retail companies in Nairobi County, Kenya, were the study's target population. A sample of 216 was chosen through the use of stratified and random sampling procedures,

explanatory research design was employed in order to ascertain the strength of the linear relationship between the variables, descriptive statistics along with correlation analysis was performed. The analysis's findings demonstrated that establishing joint marketing improves business success and that a larger business has a greater impact on that performance. The study came to the conclusion that the association between joint marketing alliance and business performance is moderated by firm size.

The moderating influence of business size on the link between financial leverage and financial performance of non-financial enterprises listed on the NSE in Kenya was studied by Wayongah and Mule (2019). Between 2012 and 2018, 47 non-financial enterprises listed on the NSE. The study employed a correlation research approach. The sample of 28 businesses was purposefully chosen. According to the findings of the correlation research, business size significantly predicts performance in the positive direction. Additionally, the analysis's findings indicated that the link between financial leverage and performance is adversely moderated by company size, with the model coefficient interaction term for (ROE) = -.0368563, ($p = 0.001$) and Tobin's Q, = -.0368563, ($p = 0.001$) being negative but significant. The study thus concluded that firm size moderates the relationship between financial leverage and financial performance.

Otwoko, Maina and Kwasira (2021) looked into how the size of DTS affects how interest rate drivers and financial success are related. Descriptive survey research was used in the study. We gathered secondary data from 2013 to 2017. Using the Krejcie and Morgan formula, data from 74 DTS, which were sampled from 176 DTS, were obtained. The results before and after moderation showed that the size of DT SACCOs

mediated the association between the determinants of interest rates and the SACCOs' financial performance. Prior to moderation, the regression coefficients' mean was -0.105; during moderation, it rose to 0.512. As a result, the DTS's size positively mitigated the link between interest rate drivers and financial performance. The study suggested that in order to improve the financial performance of deposit-taking SACCOs, DT SACCOs should take use of economies of scale that result from their size.

Victor (2019),sought to determine how business size affected the links between deposit-taking SACCOs' lending performance and credit. The study used a hybrid research design that combined non-experimental and descriptive research methods. By December 2017, 175 DTSs licensed by SASRA were the target population. Targeting every SACCO that accepted deposits and was under SASRA regulation as of 2017, a census was conducted. The information came from certified financial statements that SASRA received for the five years between 2013 and 2017. According to the model, credit risks have a major impact on how well loans perform. The model revealed that the loan advance ratio and capital sufficiency coefficients were important. The results of the inferential study demonstrated a substantial correlation between loan performance and capital sufficiency. The natural logarithm of the total assets was used to measure the moderating variable, business size, which was likewise found to have a significant impact on loan performance but not to moderate the association between loan performance and credit risk. The study concluded that capital sufficiency has a major impact on the lending performance of deposit-taking SACCOs in Kenya. The investigation also came to the conclusion that loan performance is highly influenced by the loan advance ratio (LAR).

Wayongah and Mule (2019) studied the impact of firm size on the link between financial leverage and financial performance for non-financial enterprises listed on the NSE in Kenya, finding that firm size moderates this relationship, with larger firms showing a negative influence on financial performance in the presence of high financial leverage. These studies collectively highlight the crucial role of firm size in shaping the relationships between different factors and financial performance.

Using yearly data from 2007 to 2017, Aduralere and Oyelade (2019) conducted a comparative analysis of a few businesses in Nigeria's building sector to assess the effect of company size on performance. Panel analysis was the study methodology employed. Total sales and age of the company from incorporation are two of the four factors used as an indication of size based on the financial evaluation of performance using return on assets (ROA) and return on equity (ROE). The age of the company since incorporation has a negative influence on return on assets, whereas total sales have a favorable impact. Furthermore, it was demonstrated that the sole factor that mattered for determining return on equity was leverage. The total sales and age of the firm since incorporation, two of the four variables used as a size indicator, were statistically significant in determining output per labor. Both of these variables have a positive impact on this metric, whereas the total employee count and leverage have a negative significant impact. This is based on a productivity analysis of the chosen enterprises' performance in Nigeria's building sector considering both outputs per laborer and output per capita. Only the age of the firm since incorporation was relevant in predicting output per capital and had a positive significant impact on production output per capita out of the four measurements of size and liquidity ratio. The mitigating role of company

size in the association between the distress variables and financial performance among Kenya's DT-SACCOs was not examined in the research.

The effect of loans, business size, and bank capital ratio on the profitability of Jordanian commercial banks was studied by Shamki et al., (2017) they used a panel of 13 commercial banks from 2006 to 2014. Contrary to what the theory suggested, a company's size did not significantly affect its profitability. Abel and Le Roux (2016) examined many variables (credit risk, liquidity risk, asset composition and management, expenditure management, and capital size) that impact a commercial bank's profitability using commercial banks in Zimbabwe from 2009 to 2014. Firm size was shown to be positively related with profitability, which is in line with what would have been anticipated theoretically.

Alipour, Sheikhi, and Agajani, (2019) aimed to determine how business size affected the relationship between capital structure and financial distress of Kenyan listed non-financial firms. The natural logarithm of total assets was used to calculate the size of the company, and total debt, long-term debt, and short-term debt financing were used to operationalize the capital structure. With reference to emerging markets, the Altman's Z-score index was used to gauge the extent of financial hardship. Between 2006 and 2015, secondary data on the 40 listed non-financial enterprises was gathered from audited and published financial statements. The Hausman test results confirmed that the study's estimation of the designated panel regression model for fixed effects was accurate. The findings of a feasible generalized least squares (FGLS) regression showed that the association between capital structure and financial distress of non-financial enterprises is significantly moderated by firm size. In particular, the study

discovered that whereas debt often has a negative and significant impact on the investigated organizations' financial difficulties, as a firm grows in size, this influence changes to a positive and significant one. The study also discovered that while short-term debt is highly harmful, long-term debt utilization among large-scale businesses has a favorable and considerable impact.

Abbasi and Malik (2015) looked at the moderating effect of business size in the relationship between firm growth and financial success. In 2012, the data collection focused on 50 non-financial enterprises across different industries. The 2012 financial accounts of companies listed on the Karachi Stock Exchange provided secondary data. Regression analysis results support the alternative research hypothesis, which holds that firm size moderates the relationship between the dependent variable (firm performance) and independent variable (firm growth). The study concluded that business size moderates the relationship between performance and company expansion.

Vithessonthi and Tongurai (2015) conducted a study to determine the moderating effect of firm size on the relationship between leverage and operating performance of firms in Thailand. The study used panel regression data that covered the 2007–2009 global financial crisis era. The extent of the effect of leverage on operating performance is non-monotonic and dependent on company size, according to an analysis of data from 496,430 firm-year observations of a sample of 170,013 private enterprises. While the findings of panel regression reveal that leverage has a negative impact on performance across firm size subsamples, the results of year-by-year cross-sectional regression show that leverage has a positive impact on performance for small businesses and a negative impact on performance for big firms.

Shehzad, Haan, and Scholtens (2013) looked at the connection between the size, expansion, and profitability of commercial banks. For the years 1988 to 2010, they employed a panel of 15,000 commercial banks from 148 different nations. It used 31 commercial banks for the years 2000 to 2010.It was determined that there was no substantial positive relationship between profitability and size.

A study on the moderating effect of firm size on relational capital and performance in European firms was carried out by Corvino et al. (2019) and revealed size-dependent relationships. Aduralere and Oyelade (2019) assess the impact of company size on the performance of Nigerian building sector businesses, finding significant size-related factors affecting financial performance. Abondo (2018) focuses on deposit-taking MFBs in Kenya, concluding that the independent factors impacting commercial banks' profitability are influenced by firm size. The studies conducted by Shamki et al. (2017) and Abel and Le Roux (2016) examine Jordanian and Zimbabwean banks, respectively, and find different relationships between size and profitability. Maja and Josipa (2017) affirm that firm size positively affects profitability, while Abbasi and Malik (2015) explore the moderating role of firm size in the link between growth and performance. Vithessonthi and Tongurai (2015) find the relationship between leverage and performance depends on company size. Lastly, Shehzad, Haan, and Scholtens (2013) consider the connection between size, expansion, and profitability in commercial banks across nations, finding no substantial positive relationship, while Sufian and Kamarudin (2012) report a positive influence of size on profitability in the context of commercial banks in Bangladesh. However, the research does not directly address the moderating role of firm size in connection with financial distress factors among deposit-taking SACCOs in Kenya.

2.3 Theoretical Review

A theory is a deliberate assertion or collection of explanations that is supported by evidence and designed to shed light on a phenomenon. Theoretical systems, according to Kotler and Gary (2005), are a collection of interconnected concepts that guide a research project by determining the items for estimate and the quantifiable connection under investigation. Trochim (2006) asserts that research is guided by a theoretical framework that specifies the metrics to be used and the correlations to seek for in relation to the issues under investigation. The theoretical literature thus enables the researcher to view the study's variables clearly, offers a broad framework for data analysis, and aids in the researcher's decision of the best research method.

2.3.1 Wrecker's Financial Distress Theory

The wrecker's idea, initially suggested by Campbell, Hilscher, and Szilagy (2005), argued that securities of distressed enterprises perform much worse than securities of financially strong enterprises. The wreckers' theory of financial distress aims to clarify to stakeholders why financial turmoil may be beneficial. Because it integrates private benefits research with asset pricing research, this theory can help us better understand how crucial financial structure and default likelihood are in assessing the scope of private benefits control (Kalckreuth, 2005).

In the event of a default, Kalckreuth (2005) argues, there is a higher motivation for shareholders to take private and non-dividend advantages from the company. There were no opportunity costs for shareholders in states where default is avoided. Taking resources out of circulation is a no-brainer if a default is imminent. According to this

view, "wrecking" is a term for this. Wrecker's theory of financial distress argues that a financially distressed company provides numerous benefits to its stakeholders. Instead of blaming inefficient or illogical markets for the negative excess returns of distressed enterprises, these returns may be traced to equilibrium results under cost effectiveness efficiency in an economically troubled enterprise, from which players might derive a similar return in kind.

As depicted by Wrecker, in Livdan, Sapriza and Zhang (2015) and Garlappi et al., (2005) financial distress occurs when a company is subjected to several negative shocks, which lead to losses and eventually to financial distress. It seeks to explain the benefits that may step out of financial distress to stakeholders. Asset quality was likely negatively affected by low deposits and more non-performing loans and advances as a result of excessive withdrawals from the firm's balance sheet (Nyamboga et al., 2014).

The theory explains why financially distressed companies perform worse than financially stable ones. This is demonstrated by the fact that the majority of investors choose to leave before the business collapses in order to protect their investment. According to studies, during industry downturns, businesses that are in financial difficulties must cede market share to rivals that are in better financial shape. In comparison to financially sound businesses, distressed ones are likely to do worse financially (Cheluget, Gekara, Orwa, & Keraro, 2014).

A financially challenged company's many advantages to shareholders are attempted to be justified by the wrecker's theory of financial hardship. Negative abundance returns of distressed organizations need not be attributed to inefficient or illogical markets; rather, they can be shown to be the equilibrium result under coherency in a financially

distressed firm, at which point the members may be able to make a return in kind. Wrecker's hypothesis of financial distress states that a corporation looks to be going through a string of negative shocks, suffering losses, and finally entering a condition of financial distress. Due to low deposits and high non-performing loans, the shareholders' expectations for the company's production in the form of dividend payments, credits, advances, and bank runs have an impact on the asset quality. Therefore, according to Wrecker's argument, asset quality is a significant contributor to financial crisis. According to Nyamboga et al. (2014), when leverage is used more frequently, share price volatility rises in favor of private information; as a result, the fate of the business rests on matters that are hidden from the broader public. As a result of frequent withdrawals in the form of credits, advances, and bank runs brought on by shareholders' demands for returns on their investments, the company would experience financial difficulties since it was compelled to make enormous payments to the shareholders. This hypothesis served as the foundation for the statistical testing of the intermediate independent variable of the research, financial distress and asset quality.

2.3.2 Agency Theory

Jensen and Meckling (1976) put out the idea of agency theory and discussed how to reduce the costs of agency by addressing the problems encountered by owners (the principal) and managers (the agent). The establishment of conflict-resolution methods and the framework for assessing competing interests among important parties are both facilitated by agency theory (Tipuric, 2008). The association is attempted to be explained by agency theory in terms of behavioral traits. The link between ownership and control roles inside major organizations is the impetus for the creation of agency

theory. Economic trade relationships between a principal and an agent are described by agency theory. The theory is helpful in that it describes how biased actions of managers and the administration affects the welfare of the shareholders.

Agency theory analyzes the interaction between the principles, such as members and agents, in accordance with Muthuva (2020) and Valentine (2009). In accordance with the agency principle, the members of the SACCO who are its owners or principals appoint the management board as their agents. The management board, which is made up of the principals (members), employs and deputizes managers to administer the company. According to Daily et al. (2003), there are two things that might affect how popular agency theory is. First off, according to the notion, there are only two players in a corporation: managers and owners. Second, according to agency theory, SACCO managers or staff may act in their own best interests. Investors expect the agents to make decisions and behave in the best interests of the principal. Conversely, judgments made by the agent might not always be in the best interests of the principals. This theory is relevant to the study because it looks at how the financial performance of deposit-taking savings and credit cooperative organizations in Kenya is correlated with operational efficiency and leverage.

The two fundamental tenets of agency theory are that individuals are egoists and behave in their own best interests. Because agents frequently possess the ability to make decisions and have access to additional information, both the principal and the agent prioritize their own interests. The benefits of agency theory include: resolving conflicts between agents and principals; motivating agents through incentives that lower losses to the company or organization; compensating agents based on performance as a means of reducing agency loss; and lowering the likelihood of conflict between principals and

agents through transparency. One of the limitations of agency theory is its narrow theoretical emphasis and set of behavioral presumptions.

Agency theory largely stresses self-interested and opportunistic human action, ignoring a wider range of human motives. Processes protecting the interests of shareholders may impede the execution of strategic decisions and restrict group activity. As a result, agency theory-recommended control measures are both costly and financially unfeasible (Shleifer and Vishny 1997).

Daily et al., (2003) state that the theory has drawn criticism for oversimplifying organizational conflict and for the difficulty of the arithmetic required to solve the agency problem. Complete contracts are assumed under agency theory. Complete and effective contracts are not possible under bounded rationality. Fraud, transaction costs, and information asymmetries are insurmountable barriers to effective contracting. According to agency theory, agency expenses can be eliminated by contracting. This premise is false, as evidenced by the numerous flaws in the market. Those who are not parties to the contract but who are impacted by it are considered third parties.

Many boards take on social as well as financial obligations, taking into account the consequences on third parties. Therefore, while maximum economic efficiency under agency theory may (theoretically) be reached, maximum social welfare was not reached. It is believed that the sole thing that interests shareholders is financial success (Zogning, 2017).

Since the law mandates that directors and management have a duty to firms, it is considered that they have a duty to shareholders. Agency theory could work well for boards' oversight of managers, but it is insufficient to explain boards' other functions.

The resources, services, and strategy functions of directors are not well-understood by agency theory. According to agency theory, managers are only self-interested opportunists.

Many contend that this idea fails to account for people who are devoted to their companies. Competence is not taken into consideration by agency theory. Therefore, even honest inadequate managers would still have limitations in achieving shareholder goals. People must be able to do the work; incentives alone would not suffice to motivate them to do so (Hillman and Dalziel, 2003).

This theory is important to the study since the study seek to examine the relationship between operational efficiency and leverage and financial performance of Deposit Taking savings and credit cooperative organizations in Kenya.

2.3.3 Keynes Liquidity Preference Theory

According to Keynes (1973), money is kept mainly for three reasons, transaction motive, precaution motive, and speculation motive. The transaction motive is that money is kept for day-to-day spending, that is to meet the daily operations. Firms cannot be separated from this motive for they need money to run their daily operations, meet their short-term obligations when they fall due hence, they must be liquid. The motive of precautionary is that money should be kept to safe guard against any emergencies or to guard against uncertainty which might arise, this is also applicable to firms to cater for any financial shocks such as fraud and robberies. The speculative motive is that money should be kept for future returns, firms also have the same motive by making investment with the expectation of better incomes in future also it helps the

firm to cater for the macro-economic changes such as fluctuation of interest rates, foreign exchange rates and inflation among others.

The requirement for liquidity in an economy by institutions and people, such as transaction motivation, precautionary motive, and speculative motive, is covered by liquidity preference theory. SACCOs need to have enough capital and liquidity to be able to lend to its members when they ask for loans and advances. They are, however, obliged to take out high-interest loans from other lenders, including commercial banks that could have more capital available if they get more loan requests than they can pay for with liquid assets. The high interest rate on borrowed money reduces the profit margin for SACCOs, which is derived from the distinction or spread between lending and borrowing interest rates. This narrow spread may cause financial challenges for the SACCOs. According to Dimand and Robert (2008), profit-seeking firms invest mostly in tangible assets like machinery and raw materials with the expectation that they would generate income from these investments in addition to the interest payments on the investment financing loans.

According to Modigiliani's (2011) liquidity is an asset since it is exchanged in a market that is perfectly functioning. If the market is perfect, an asset's price would not be affected continuously by a single person's choice to purchase or sell. Selling at an inconsistent or almost inconsistent cost poses a danger, as does having a price that changes considerably. This hypothesis states that because short-term investments give investors liquidity, they offer a lower interest rate. Furthermore, because medium- and long-term investments are illiquid, they result in higher interest rates.

The justifications for this hypothesis are that there are several reasons why money could be required, and in accordance with Keynes' theory, the three primary reasons behind the need for liquidity are as follows: Three types of motivations exist: transactional (keeping cash on hand for regular spending and everyday needs), precautionary (keeping cash on hand for unanticipated costs), and speculative (keeping liquidity in reserve in the event that interest rates drop) (Tily 2006).

The critique of Keynes's theory pointed out that the rate of interest is not just a monetary issue, according to Tily (2006). Keynes makes the rate of interest independent of the demand for investment funds, but real variables like capital productivity and thriftiness nevertheless have a significant impact. It isn't really that independent. The businessmen's requirement for savings for capital investments has a significant impact on their cash balances. The marginal revenue productivity of capital determines demand for capital investment. Consequently, as Keynes puts it, the marginal productivity or marginal efficiency of capital determines the rate of interest rather than the other way around. The rate of interest is determined by a number of factors besides liquidity preference. Keynes ignores saving or waiting as a source or means of investible funds. There are a number of other factors that affect the supply and demand of investable funds, which in turn affects the rate of interest. This theory does not explain why different rates of interest are prevailing in the market at the same time. Giving up liquidity in the absence of savings is useless; the Keynesian theory only accounts for interest in short-term periods. Keynes's theory of interest is ambiguous, much like the classical and loanable funds theories, and it provides no indication as to the long-term rates of interest.

The drawback of this theory is that it is too narrow as an explanation of the rate of interest, because it unduly treats interest rate as the price necessary to overcome the desire for liquidity. These theories informed on the relationship between the liquidity as well as capital sufficiency and financial performance of Deposit Taking SACCOs in Kenya.

2.3.4 Economies of Scale Theory

Marshall developed the idea of economies of scale in 1890. Marshall argues that the benefits of economies of scale that arise from both internal and external economies which rely on a firm's unique resources and the expansion of the industry as a whole occur simultaneously with changes in a firm's size. Bottasso and Conti (2017) acknowledged the coexistence of internal and external economies of scale within the company, pointing out that economies of scale are primarily enjoyed by large firms and are related to low cost per unit of inputs purchased in large quantities, low capital cost of manufacturing, market control, technical improvement, risk tolerance, and managerial efficiency.

These provide a business a competitive edge since they raise the entrance requirements for potential rivals and improve a business' overall performance (Manole and Anghel 2019). The theory also highlights that the benefits of economies of scale experienced by small businesses are restricted to the overall growth of industrial production.

According to the theory, economies of scale have a maximum limit after which businesses begin to encounter diseconomies of scale and falling returns to scale. According to Zekos (2018), the economies of scale that large companies benefit from come from their ability to bargain for low-cost capital, better discount conditions, and

rebates because of massive purchases. Additionally, the author compared economies of scale to the result of specialization, labor division, and the distribution of high fixed costs over a large volume of output. The main benefit of this theory is that it explains how businesses may use economies of scale to increase financial performance dependent on the size of the business (Ren & Jie, 2019).

Economies of scale are cost savings that companies get when their volume of production increases. Businesses have greater opportunity to drop their prices in order to increase sales when costs are reduced. The main advantage of economies of scale is this. The hypothesis lowers the cost of a production unit. This enabled upper management to train and hire more talent, as well as increase the pay ranges of their staff members. These are all factors that supported the business's ongoing expansion. The approach raises profitability by lowering the overall financial overhead of the business and, consequently, the bottom line. Over time, the capital savings increased, providing management with more flexibility to distribute bigger returns or dividends to shareholders.

When the company expenses have decreased then there is greater financial freedom, the company can attempt to extend its operations to other regions. The management may think about buying a business or starting a new subsidiary in a different area. (Mathur, 2022)

According to Mathur (2022) the disadvantage of this idea is that the company's procedures start to become less effective beyond a certain point in output. Diseconomies of scale result from an increase in the average cost per unit when the business starts to produce more than a certain number of units. It became more difficult

for management to keep control over business operations as the company expands. It was challenging to manage thousands of employees with a high production. Consequently, this reduced the operational efficiency of the business. Numerous massive enterprises had an effect on the environment. The more the corporation expands, the greater the harm to the environment.

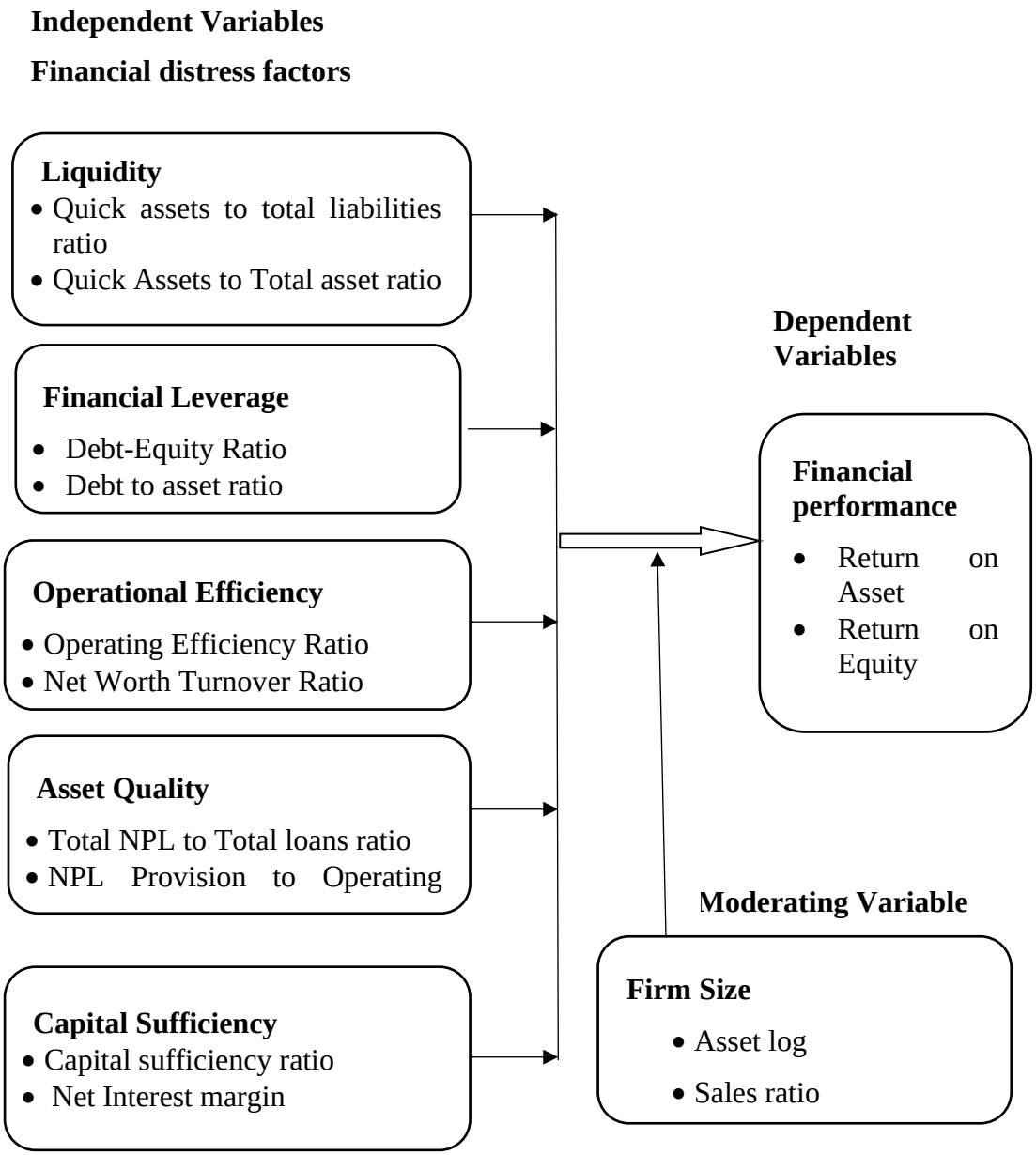
The theory was important to the study since the study sought to examine the moderating effect firm size on the relationship between distress factors and financial performance of Deposit Taking SACCOs.

2.4 Conceptual Framework

According to Kombo and Tromp (2009), a conceptual framework is an abstract or general idea deduced or formed from particular cases. Contrary to a theory, a notion may be comprehended without discussion (Durham & Stokes, 2015). It is a mechanism for organizing factual observations in a meaningful way for the user (Shapira, 2011). Furthermore, conceptual frameworks explain and integrate the philosophical, methodological, and pragmatic components of doctorate theses (Sykes & Piper, 2015). Conceptual frameworks are essential to research because they combine and clarify the philosophical, methodological, and practical components of doctoral theses while also promoting the field as a research-based discipline that is familiar with meta-theoretical discussion (Sykes & Piper, 2015). In Figure 2.1 below, a conceptual framework for the current study is illustrated, outlining how the analysis of the link between distress indicators, firm size, and financial performance of deposit-taking SACCOs in Kenya would be carried out.

Figure 2.1:

Conceptual Framework



Source: Adapted and modified from El-Rabat, Aldel-Fatah, and Mohamed (2023).

2.5. Identification of Knowledge gap

Analysis of literature showed that most studies done in Kenya and beyond on the influence of liquidity management on performance was mainly among commercial banks (Salim & Bilal, 2016; Sporta, 2018), listed companies (Ong'era et al., 2017; Irungu, 2019; Mwaura, 2019; Akenga, 2015; Kimondo, Macharia & Magomere, 2016) and in different industries (Iqbal & Usman, 2018; Rehman, 2018)

In examining the relationship between leverage and financial performance, analysis of literature was inconclusive as some researches established a negative correlation (Foong, 2016; Razak, 2018; Aziidah, 2017; Li, Musah & Kong, 2020), positive (Rehman, 2018; Iqbal & Usman, 2018) and mixed findings (Rehman, 2018). Further, majority of the studies were carried out in companies other than SACCOs (Okello, 2019; Kosikoh, 2018; Anjum and Malik, 2018).

Upon analysis of literature on the relationship between operational efficiency and performance of SACCOs, the researcher noted that majority of the data available was carried out outside Kenya (Klingenberg, et al., 2018; Jeong & Phillips, 2019; Pranowo & Manurung, 2018; Kosikoh, 2018) with a few being done among organizations in Kenya (Ongore & Kusa, 2018). Despite studies by Chortareas, Girardone, and Ventouri (2019) establishing that financial success or failure is its degree of operational efficiency, the results of the study may not be generalized to the Kenyan context as the SACCO financial system is still at its infancy.

Results of review of literature on the relationship between asset quality and performance of different organizations could not reach a consensus. Olweny and Mamba's (2018) study showed a negative and significant relationship. Adeolu's (2017)

and Sporta‘s (2018) studies showed a positive and significant relationship between asset quality and performance while others determined that asset quality has no influence on performance (Vigneswara, 2018; Akhtar and Hayati, 2018)

In analyzing the relationship between capital sufficiency and financial performance, different indicators are measured. Reviewed literature majorly dwelled on capital sufficiency ratio (Acharya, Pierret, & Steffen, 2016; Sangmi (2019; Sporta, 2018; Kahuthu, 2019) with few examining the relationship between net interest margin on financial performance (Sangmi ,2019)). This study therefore attempted to examine the relationship between the two indicators of capital sufficiency and financial performance.

Literature on firm size as an independent variable having an influence or relationship with performance of a firm, abound (Oyelade, 2019; Kithuka, 2017; Mahfoudh, 2019); Njoroge, 2018; Shamki et al., 2017). However, these studies did not analyze the moderating effect of firm size on the relationship between distress factors and financial performance, which this study proposes to do. Moreover, literature reviewed showed that most of the firms under study were commercial banks (Shamki *et al*, 2017; Aladwan (2015; Mehrjardi, 2012; Salim, 2016), listed firms (Kithuka, 2017; Mahfoudh, 2019; Dahmash, 2015) and other non-financial organizations (Oyelade, 2019; Njoroge, 2018; Olawale et al. (2017) with only few examining micro-finance institutions (Ngumo et al., 2017).This study therefore examined SACCOs in Kenya.

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CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter, examines the research approach which includes data collection and analysis procedures. It explains the research design, the study's population, the data collection techniques, how the data was handled and analyzed, the research instruments that were used throughout the research, and the ethical issues that were addressed.

3.2 Research Design

A study's research paradigm shows the approach and strategy used to acquire data for the investigation. The generation of knowledge and the nature of knowledge are central to research philosophy (Yeomans, 2017). Patten (2016) distinguished between two different philosophical approaches that are helpful in the social sciences: positivism and anti-positivism. However, the current study was based on the concept of the positivist paradigm. The positivist paradigm holds that the researcher's surroundings and the events of interest are separate, objective, and self-contained entities (Haydam, & Steenkamp, 2020). The researcher's perspective of the environment and events of interest in it is socially created and subjective, which are important pillars of the social constructivist theoretical framework (Esser, & Vliegenthart, 2017). The current study employed the concept of the positivist paradigm as the researcher’s surroundings and the events of interest are separate, objective, and self-contained entities, also the positivist paradigm suited the current study as it predominantly used quantitative data

collection methods with large representatives for generalizability as well as deductive research approach.

According to Polit, Beck, and Owen, (2020) a research design is the overall method for gathering solutions to the issues being addressed and coping with some of the barriers encountered during the research process. A research design, according to Ngumi (2019), is a research framework or blueprint that guides the research process from the development of research questions and hypotheses through the reporting of research findings.

The research design for this study was based on a correlational research design and incorporated a longitudinal approach due to the collection of secondary data spanning over five years. Correlational research design is particularly useful when the researcher seeks to explore relationships between variables without manipulating them. It is a non-experimental design that focuses on understanding the degree and direction of relationships between two or more variables. In this case, the design allowed the researcher to investigate how various financial distress factors relate to each other over time, providing insights into potential associations rather than establishing direct cause-and-effect relationships. As Muthuva (2020) states, this design enables researchers to understand the current state of a phenomenon and explain the relationships among the components being studied.

The adoption a longitudinal approach in the study captured changes and trends over a significant period. Longitudinal studies, by collecting data at multiple points over time, help track developments or variations in the variables of interest. This is essential for identifying long-term patterns, providing more robust insights compared to a single-

point data collection. In this study, the use of five years of secondary data allows for a detailed examination of the evolution of the relationships between variables across time. This combination of correlational and longitudinal approaches is advantageous because it facilitates the understanding of not only the relationships between variables but also how these relationships might change, persist, or evolve over a longer period, adding depth to the analysis and findings.

3.3 Study Location

This research was carried out among all licensed and running SACCOs in Kenya. Between 2018 and 2022, all 176 licensed DT SACCOs in Kenya that are authorized to accept deposits and are registered with SASRA as of July 31, 2022 (Appendix III) was researched, including 164 legally registered DT SACCOs and 12 with limited licenses (Source: SASRA Annual Report, 2023).

3.4 Target Population

According to Hyndman and Booth (2020), a target population is the demographic group to whom the researcher wishes to apply their findings. It may be defined as any group of individual components, whether small or large (Lavrakas, 2014). According to Dawson (2019), a target population is the subset of study participants to whom the researcher intends to apply their findings. This study targeted all SACCOs in Kenya that are authorized to accept deposits and are registered with SASRA as of July 31, 2022 (Appendix III); a list of these firms were obtained from SASRA secretariat, and information was made available from all of them. The current study included both an

accessible population and a target group. The accessible population is the study's population to whom the researcher was able to apply their findings (Johnson, 2017).

The whole group of people or items for which researchers want to generalize their findings is referred to as the "target population," and this is what the term "target population" means (Johnson, 2017). They are the initiative's targeted direct beneficiaries and, in certain cases, indirect receivers. The target population is defined by Scheiber and Scheiber (2018) as the group of actors who are most negatively impacted by the problem that initiatives seek to solve. The current study was based on a census conducted by the SASRA secretariat of all 176 Kenyan SACCOs that accepted deposits as of July 31, 2022. (Appendix III).

3.5 Sample and Sampling Procedures

A sample according to Lavrakas (2014), is a list of the target population from which the sample is collected, and a sampling frame for correlation survey designs is often comprised of a limited population. A sampling frame, in other words, is a list of the target population from which the sample is chosen. The "sampling frame," as defined by Mohajan (2020) is the list of components from which the sample is selected.

A sample frame, according to Mishra and Alok (2022) is a list that contains the names of all the components in a universe. A sample is a statistical term for a representative slice of a larger population (Polit & Beck, 2020). This study's sample frame consisted of all licensed Deposit Taking SACCOs in operation in Kenya as of July 31, 2022, as documented in the SASRA database, as detailed in Appendix III. A census was used in order to collect data from all 176 SACCOs in Kenya that are authorized to accept deposits. This analysis was based on the financial statements of deposit-taking

SACCOs regulated by SASRA as of January 1st, 2018 as shown in appendix V (July, 31, 2022).

3.6 Data Collection Instruments

Secondary data on the dependent and independent variables was collected from the financial records of the Kenyan deposit-taking SACCOs investigated between 2012 and 2022 (Appendix III). Data collection in research is defined by Miles, Huberman, and Johnny (2020) as the act of obtaining and assessing information on specified criteria in a methodical manner that allows the interviewee to generate relevant questions and analyze the intended conclusion. This term is based on the notion of data collecting used in research.

According to Johnston (2016), secondary data provides much improved categorization since it reduces the possibility of misinterpretation. Secondary data analysis, according to Hui and Phillips' research (2021), is information gathered by someone else for the primary goal of a primary objective. Secondary data is highly valuable during the investigation process, especially in research that is prone to prejudice.

The current study employed longitudinal approach as the data to be collected covers a period of time and this was suitable since it helps in establishing the magnitude and direction of the relationship among the variables overtime which is desired in the current study. Data was collected over a period of five years from 2018 to 2022. The study period was chosen as it is the period that saw a huge increase in the establishment of Deposit Taking SACCOs in Kenya (SASRA, 2022).

According to Kosikoh (2018), a time span of more than five years can help with the computation of various ratios of both independent and dependent variables throughout time for better analysis. A data extraction form (See Appendix II) was employed to gather information on the dependent and independent variables which was collected from the financial statements to be obtained from SASRA database for all Deposit Taking SACCOs in Kenya. Data such as assets, equity, liabilities, obtained for use in data analysis.

3.6.1 Validity of Research Instrument

The degree to which a measuring tool measures what it is supposed to measure is known as instrument validity (Sileyew, 2019). It is the precision and significance of the conclusions drawn from the study. Face validity, content validity, construct validity, and criteria validity are the four categories of validity. Pandey and Pandey (2021) identify content validity as the extent to which a measuring tool offers sufficient coverage of the subject matter being studied. Experts in the field of finance assisted in determining the content validity of the study. These experts included research supervisors who assisted in identifying the content of the questions, making necessary phrasing and sequencing corrections prior to the study, and investigating methods to enhance the study's overall quality. The experts' recommendations made it easier to revise and modify the research instrument as needed, improving its validity (Sileyew, 2019).

Face validity was determined by looking at the items in the questionnaire to determine of the questions are related to the topic under investigation. By comparing the items in the questionnaire with similar tests in other instruments that measure similar

components, one is able to see how highly correlated the two measures are to determine construct validity. In the current study the data extraction sheet served the questionnaires purpose in determining the components measures related to the topic under investigation.

Criterion validity measures whether the same indicators have been used in related scholarly work. The researcher, with guidance from the supervisor, utilized sufficient evidential indicators employed by scholars to measure similar data. Construct validity was also examined in the study through factor analysis, which aimed to identify whether the indicators yielded similar results. The results of the factor analysis were presented in the findings section, focusing on factor loadings above 0.3 and above.

3.6.2 Reliability of Research Instrument

The degree to which a research instrument produces consistent findings after several trials is known as instrument reliability (Hameed, Khurshid, and Malik, 2020). According to Coleman (2022), reliability is simply consistency or repeatability over time, meaning that if a study is done again, it should yield the same results or the procedures followed should be sufficiently transparent to give the reader confidence that the results were not manipulated in any way. A measuring device is considered reliable if it consistently yields reliable results. Reliability enabled the researcher to identify the ambiguities and inadequate items in the research instrument. It is concerned with ensuring that participants can interpret the questions the same way each time (Hameed et al, 2020).

Cronbach's alpha coefficient were computed to ascertain reliability of the research instrument (Sürücü, & Maslakci, 2020). Cronbach's alpha is a commonly used test of

internal reliability which essentially calculates the correlation among the items measuring a constructs using the results from a pilot study to be commercial banks in Kericho Town. Computed alpha coefficient range from between 1 (denoting perfect internal reliability) and 0 (denoting no internal reliability). A coefficient of 0.70 is typically used as a rule of thumb to denote an acceptable level of internal reliability, thus the coefficient of above 0.7 from the pilot study results were deemed that the research instrument is reliable, (Zikmund et al., 2018).

Table 3.1:

Reliability Test

Variable	No. of Item	Value	Remark
Liquidity	2	0.756	Accepted
Leverage	2	0.811	Accepted
Operation Efficiency	2	0.792	Accepted
Asset Quality	2	0.701	Accepted
Capital Sufficiency	2	0.869	Accepted
Firm Size	2	0.715	Accepted
Financial Performance	2	0.903	Accepted
Overall	14	0.792	

The results indicated that all constructs had a Cronbach's alpha coefficient above 0.7, with an overall coefficient of 0.792. This finding is considered reliable, based on the recommendation by Zikmund et al. (2018), which states that a coefficient above 0.7 is acceptable.

3.7 Data Collection Procedures

Data collection refers to collection of data using data sources that can either be primary or secondary or both to access information about a research problem (Babbien, 2019). Teddlie and Tashakkori (2020) indicate that the type of data to be collected should be guided by the objectives of the study. Researcher obtained a letter of permission from University of Kabianga, Board of Graduate Studies which were used in applying for the research permit from National Commission for Science and Technology and Innovation (NACOSTI). The researcher visited the SACCOs and request for their financial statements since 2018 to 2022.

Data extraction form was used for data collection (Appendix II). The review guide's significance is that it provides the researcher with a step-by-step approach for discovering, analyzing, and extracting meaningful information from the files (Witkin & Altschuld, 2019). Where the statements are not available, the researcher visited SASRA who provided the needed information. Information from financial statement which was accessed from the websites of the SACCOs and the relevant information was extracted using data extraction tool guided by study objectives.

3.8 Data Analysis and Presentation

The data was cleaned. The SACCOs that were not in operation during the period 2018 to 2022 were excluded from the study. The acquired data was analyzed using Microsoft STATA version 15.0 to look for missing entries, and SACCOs with more than 10% missing data was disqualified from the study. According to Coolican (2017) instances where there are more than 10% missing responses shouldn't be allowed for further study

until they can be resolved empirically. Little and Rubin (2018) suggested that companies with insufficient data in research be removed.

The data was analyzed to determine the proportions of central tendency that include the mean, mode, and median, as well as the correlation analysis. Inferential statistics was used to establish the relationship between the study variables. To predict financial distress multivariate discriminant analysis was employed, the multivariate discriminant analysis was a statistical analysis in which more than one variables are analyzed at the same time (Kamaluddin, Ishak, & Mohammed, 2019). It was a strategy for distinguishing between two or more groups of items based on numerous factors.

Because the research employed correlation research design, a multiple regression model was needed to examine the statistical significance of the various independent factors, which are firm size as moderator, liquidity, capital sufficiency, leverage, operational efficiency, and asset quality, as well as the dependent variable which is performance of SACCOs as indicated by return on equity and return on assets. The model was used to assess the statistical significance of the dependent variables. According to Ambrosius (2017), multiple linear regression model, is an extension of the basic regression model that is used for data with several predictor variables but only one result. When there is just one possible outcome, this model is utilized. A key technique for linear regression, according to Anghelache, Manole, and Anghel (2015), is often an extension of two sets of variables to new variables via multiple linear regression. Panel data analysis was used in this study since it has a higher degree of variability and a lower degree of collinearity across variables than cross-sectional or time series data. It can also detect and quantify affects that are difficult to detect in pure

cross-section or pure time series data. The financial statements of Deposit Taking SACCOs in Kenya between 2018 and 2022 was used for analysis.

The study used STATA software to facilitate data analysis and panel regression to analyze the data. Quantitative data was presented using tables, charts and graphs.

3.8.1 Model of analysis

The following is the multiple regressions model which was adopted by the study;

The simple regression analysis model was conducted using the equation below;

$Y_t = \beta_0 + \beta_1 X_{1t} + \varepsilon$ ……(3.1)

Where;

Y is financial performance of Deposit Taking SACCOs (Dependent Variable),

β_0 is the constant term,

β_1, measure the influence of the dependent variable Y to a unit change in the independent variable,

X_1 is Liquidity,

$\varepsilon$is the error term

$Y_t = \beta_0 + \beta_2 X_{2t} + \varepsilon$ ……(3.2)

Where;

Y is financial performance of Deposit Taking SACCOs (Dependent Variable),

β_0 is the constant term,

β_2, measure the influence of the dependent variable Y to a unit change in the independent variable,

X_2 is Leverage,

εis the error term

$Y_t = \beta_0 + \beta_3 X_{3t} + \varepsilon$ ……...……(3.3)

Y is financial performance of Deposit Taking SACCOs (Dependent Variable),

β_0 is the constant term,

β_3, measure the influence of the dependent variable Y to a unit change in the independent variable,

X_3 is Operational Efficiency,

εis the error term

$Y_t = \beta_0 + \beta_4 X_{4t} + \varepsilon$ ……....……..……(3.4)

Y is financial performance of Deposit Taking SACCOs (Dependent Variable),

β_0 is the constant term,

$\beta_4$measure the influence of the dependent variable Y to a unit change in the independent variable,

X_4 is Asset Quality,

εis the error term

$Y_t = \beta_0 + \beta_5 X_{5t} + \varepsilon$ ……(3.5)

Y is financial performance of Deposit Taking SACCOs (Dependent Variable),

β_0 is the constant term,

β_5, measure the influence of the dependent variable Y to a unit change in the independent variable,

X_5 is Capital Sufficiency,

$\varepsilon$is the error term

The multiple regression model to be adopted is;

$$Y_t = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + \beta_5 X_{5t} + \varepsilon \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3.6)$$

Where;

Y is financial performance of Deposit Taking SACCOs (Dependent Variable),

β_0 is the constant term,

β_1, β_2, β_3, $\beta_4\beta_5$ measure the influence of the dependent variable Y to a unit change in the independent variable,

X_1 is Liquidity,

X_2 is Leverage,

X_3 is Operational Efficiency,

X_4 is Asset Quality,

$X_5$is Capital Sufficiency,

$\varepsilon$is the error term

The regression moderator model to be adopted is;

$$Y_t = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + \beta_5 X_{5t} + \beta_6 M_t * X_t + \varepsilon \quad \ldots\ldots\ldots..(3.7)$$

Where;

Y is financial performance of Deposit Taking SACCOs (Dependent Variable),

β_0 is the constant term,

β_1, β_2, β_3, $\beta_4\beta_5$ measure the influence of the dependent variable Y to a unit change in the independent variable,

X_1 is Liquidity,

X_2 is Leverage,

X_3 is Operational Efficiency,

X_4 is Asset Quality,

$X_5$is Capital Sufficiency,

M is Moderating Variable (Firm Size)

X is financial distress (Composite mean of Liquidity, Leverage, Operation Efficiency, Asset Quality and Capital Sufficiency).

$\varepsilon$is the error term

3.8.2 Diagnostic Tests

The study conducted diagnostic tests to ensure that the information acquired does not contradict any of the panel regression model's main assumptions since, if there is, the result would be deceptive with subjective conclusions.

3.8.2.1 Normality Test

The hypothesis that the error term is typically distributed and has a continuous variation provides the foundation for the significance tests, such the standard error and t tests. In keeping with this, the research should be designed to ensure that the single direction error segment models in the panel data and in destinations are consistently distributed and have a uniform distribution. The research used the normalcy tests of Bera and Jarque (1981). The components of the error term are assumed to be regularly distributed under the null hypothesis. The best appropriate test is a non-parametric one if the data are not regularly distributed.

Table 3.2:

Shapiro Wilk Test

Variable	Obs	W	V	z	Prob>z
FP	835	0.94680	28.474	8.232	0.10524
LR	835	0.87108	229.571	13.362	0.06001
FL	835	0.84634	403.379	14.748	0.05219
OE	835	0.92863	145.246	12.237	0.07228
AA	835	0.89490	270.346	13.764	0.05901
CA	835	0.89545	216.525	13.218	0.06172
FS	835	0.98723	6.836	4.725	0.54291

Shapiro Wilk test was adopted and the results indicated that P value were more than 5% which reveals that the variable were normally distribution.

3.8.2.2 Multi-collinearity Test

If there is a profound correlation between at least two variables, the multi-collinearity problem might arise. It could have an impact on how relapse parameters are measured

(Hair, Babin, and Anderson, 2018). Using the variance inflated factor (VIF), multi-collinearity may be found. To assess if the association poses a risk or not, the VIF values was computed. When the VIF for any autonomous variable is larger than 10, it shows that the variable is greatly clarified by other factors.

Table 3.3:

Variance Inflation Factors

Variable	VIF	1/VIF
OE	1.63	0.612700
FL	1.54	0.649018
CA	1.30	0.766763
LR	1.22	0.819441
AA	1.09	0.919581
Mean VIF	1.36	

According to the results Table 3.2 the variable operation efficiency (OE), financial leverage (FL), capital sufficiency (CA), liquidity ratio (LR) and asset quality (AA) had VIF below 5. The mean VIF was 1.36 which indicated that there was no multi-collinearity among the independent variables.

3.8.2.3 Heteroscedasticity Test

When there are significant differences between observations of different sizes, heteroscedasticity a constant variance throughout all the predicted values of the dependent variable. The Breuch Pagan test was used by the researcher to handle consistently large heteroscedasticity standard errors. This test, according to Breuch Pagan, determines if the variance of the error term is constant.

The result from Breusch-Pagan / Cook-Weisberg test for heteroskedasticity where the Ho: Constant variance were;

chi2(1) = 9963.94

Prob > chi2 = 0.0000

The figure above shows that the probability value of the chi-square statistic is less than 0.05. Therefore, the null hypothesis of constant variance can be rejected at a 5% level of significance. It implies the presence of heteroscedasticity in the residuals. However, the study adopted Robust panel regression which treat heteroscedasticity as well as serial autocorrelation in the model.

3.8.2.4 Panel Unit Root Test

According to Nason and Sapatin (2014), a stationary process is one in which the statistical features of mean, variance, and autocorrelation do not vary over time. A panel unit root test has significance since the study data is made up of panel data, and the researcher used it to determine if a time series variable is stationary or not. A panel unit root test is utilized in the assessment, per Phillips & Moon (2018), to prevent the occurrence of spurious regression effects. The Fisher Phillips-Perron test was used in this investigation to look for panel unit roots.

Table 3.4: Panel Unit Root Test

	Statistic	p-value
Unadjusted t	-23.5520	
Adjusted t*	-25.1643	0.000

The stationarity unit-root test was done to confirm whether there is stationarity in all panels. The LLC bias-adjusted test statistic $t * \delta = -25.1643$ is significantly less than zero ($P < 0.05$). This resulted rejection of null hypothesis of a unit-root that there is presence of a unit root and favor the alternative that panels are stationary.

3.8.2.5 Autocorrelation Test

The autocorrelation phenomenon occurs when consecutive residuals appear to be connected with one another (Arrelano & Bond, 2019). Using the Wooldridge test, the researcher examined the data for first-order autocorrelation. According to Wooldridge (2013), testing for first-order serial correlation is critical since it renders standard hypothesis tests and interval estimates insignificant. To correct the autocorrelation violation, the estimate vce (robust) variance-covariance matrix was employed.

Wooldridge test for autocorrelation in panel data results where H_0: no first-order autocorrelation was given as;

F(1,166) = 10.803

Prob > F = 0.0012

P value (Prob>F) is less than 0.05, it indicates the presence of serial correlation. The treatment of robust panel regression was adopted to reduce the effect serial correlation in the models.

3.8.2.6 Hausman Specification Test

In this investigation, the Hausman test was used to determine whether to estimate a fixed effects model or a random effects model since the data to be gathered is panel data, which includes both cross section and time series data (Hair et al., 2018). Fixed effects vs. random effects is the hypothesis to be investigated for the desired model. Stata software was used for this. If the P value is less than 0.05, the research used fixed effects; otherwise, random effects was used.

Table 3.5:

Hausman Test

	——— Coefficients ———			
	(b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
LR	.0463855	.0517804	-.0053949	.0039419
FL	-.0178914	-.0241616	.0062702	.
OE	.473317	.5771403	-.1038233	.0070845
AA	-.6700816	-.5719342	-.0981474	.
CA	-.2899224	-.1872781	-.1026442	.

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 228.81
Prob>chi2 = 0.0600

The p-value of the Hausman test was more than the 5% significance level, therefore the null hypothesis was rejected and conclude that the random effect model was appropriate.

3.9 Ethical Considerations

This study fully complied all ethical consideration in research as per Collis and Hussey (2014), who stated that ethical considerations of the research need to be upheld. Research considerations outline procedures for the responsible conduct of a research entailed adhering to norms and standards regarding research. All researches are guided by particular ethical principles and professional standards thus this study adhered to all guideline in collecting secondary data.

The researcher first sought permission from University of Kabianga, Board of Graduate Studies who issued a letter of introduction (Appendix I) indicating that the researcher

is a postgraduate student at the institution. The introductory letter was used to secure a research permit from National Commission for Science, Technology and Innovation (NACOSTI). The acquired permit was used to secure research clearance from Deposit Taking SACCOs in Kenya so as to undertake the study. To observe copyrights and avoid plagiarism, the researcher acknowledged all the sources of information collected from reviewed journals, articles, textbooks, unpublished and published theses as well as other research materials. The researcher also ensured that all data collected was used solely for academic purposes.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

The chapter entails data collected from 2018 to 2022 which were analyzed based on the years to product mean and standard deviations. Inferential statistics were drawn from the data to test individual impact and over impact of financial distress factor on financial performance. Similarly, data extracted assisted in examining the moderating effect of firm size on the relationship between financial distress factors and financial performance. The results were presented on tables.

4.2 Response Rate

Out of 176 Saving and Credit Cooperative Societies 167 of them qualified with complete records from 2018 to 2022. This made a response rate of 94.9% of the total respondents with an observable data of 835 data set for the five years. Mugenda and Mugenda (2003) propose that a response rate above 80% was excellent for further statistical analysis with this premise the study continued with descriptive and inferential statistical analysis.

4.3 Descriptive Results

The descriptive statistical results were used to present the nature of the data collected from the 167 SACCOs examined. The mean and standard deviation were obtained based on the measurement adopted in liquidity, leverage, operation efficiency, asset quality, capital sufficiency, firm size and financial performance. The descriptive were

analyzed based on the years as well as the overall measure of each variable used in the analysis.

4.3.1 Liquidity

Liquidity was measured using two ratios based on the nature of the organization namely; liquid assets to total deposits ratio and total loans to total deposit ratio. Both ratios were used by SASRA in reporting the liquidity of the SACCOs since the core business is to offer saving and loans to their members.

Table 4.1:

Liquid Assets to Total Deposits Ratio

	Over	Mean	Std. Err.	[95% Conf.	Interval]
LR1					
	2018	.1807153	.0036392	.1735723	.1878582
	2019	.1891488	.0087186	.1720358	.2062617
	2020	.2221197	.0035366	.2151779	.2290615
	2021	.2324097	.00373	.2250885	.239731
	2022	.2122134	.0031825	.2059668	.21846

According to the results in Table 4.1, 2021 registered the highest liquid assets to total deposit ratio at 23.24% followed by 2020 with 22.2%, 2022 with 21.2%, 2019 with 18.9% and 2018 with 18.1%. The variation in liquid assets to total deposits stand at 0.3% to 0.4% except in 2019 which was at highest at 0.9% which might be associated with COVID-19 pandemic. The liquid assets to total deposit express how much deposable asset the SACCOs in ratio to the deposit of their members. Therefore, in 2020, 2021 and 2022 the SACCOs had favorable liquidity in terms of liquid asset to

total deposit as compared with 2018 and 2019. Hence, there was an increasing trend in liquid asset to total deposit over the five years.

Table 4.2:

Total Loans to Total Deposit Ratio

	Over	Mean	Std. Err.	[95% Conf.	Interval]
LR2					
	2018	1.050995	.0265433	.9988951	1.103094
	2019	1.114065	.0525929	1.010835	1.217295
	2020	1.041904	.022947	.9968637	1.086945
	2021	1.058195	.025376	1.008386	1.108003
	2022	1.076876	.0259826	1.025877	1.127875

Table 4.2 reveals total loans to total deposit ratio which is another common ratio utilized by SASRA in reporting Liquidity. The findings revealed that in 2019 the total loans to total depostit was the highest with 1.114 which depects that most members acquired loans than those who were depositing which might be associated with COVID-19 pandemic where there were few deposit and more loans to suppress the impact of the pandemic. Similarly, the variation increased in 2019 to 5.3% from range of 2.2% to 2.6% across other years. However, in 2022, 2021, 2018 and 2020 the total loan to total deposit were 1.08, 1.06, 1.05 and 1.04. The result indicated that there has been a slight increase increasing trend in total loans as compared with total deposit from 2020 to 2022.

Table 4.3:

Liquidity Ratio

Year	min	max	mean	sd
2018	.26475	2.313867	.6158549	.184922
2019	.2058865	5.17809	.651607	.3915872
2020	.1951143	1.260689	.6320121	.1556892
2021	.1851782	1.593531	.6453021	.1693963
2022	.1661382	1.538673	.6445448	.173936
Total	.1661382	5.17809	.6378642	.2324799

The composite liquidity ratio showed its peak at 65.2% in 2019, with the highest variation of 39.2%, possibly linked to the financial uncertainties caused by the COVID-19 pandemic. In 2018, the liquidity ratio was at its lowest, 61.6%. From 2020 to 2022, the ratio remained relatively stable, averaging 63.2%, 64.5%, and 64.5%, respectively, with variations ranging between 15.6% and 18.5%. The overall liquidity ratio during the 2018–2022 period averaged 63.8%, with a variance of 23.2%, reflecting moderate fluctuations in liquidity among SACCOs in Kenya.

4.3.2 Leverage

The financial leverage of SACCOs was measured using two key ratios: the total liabilities to core capital ratio and the total liabilities to total assets ratio, both of which are widely adopted by SASRA for assessing leverage levels.

Table 4.4:

Total Liabilities to Core Capital Ratio

	Over	Mean	Std. Err.	[95% Conf.	Interval]
FL1					
	2018	4.818465	1.47e-15	4.818465	4.818465
	2019	5.00798	7.58e-16	5.00798	5.00798
	2020	4.455258	4.72e-16	4.455258	4.455258
	2021	4.518506	.0004794	4.517565	4.519447
	2022	3.645013	.4981351	2.667267	4.622759

According to the findings in Table 4.4 financial leverage range from 3.65 to 5.01 in 2022 and 2019 respectively. In 2019, the SACCOs had the highest ratio of liabilities as compared to core capital due to the COVID-19 pandemic. Similarly, the variation was low over 2019 and in 2022 the variation was high which indicates during the distress period the total liabilities to core capaital ratio tend be low as compared during non-distress period. The results also indicated that there was reducing trend in between 2018 to 2022 in the ratio of total liability to core capital which indicate a favourable condition where liabilities have reduced.

Table 4.5:

Total Liability to Total Assets Ratio

	Over	Mean	Std. Err.	[95% Conf.	Interval]
FL2					
	2018	.7237334	1.45e-16	.7237334	.7237334
	2019	.7126356	1.12e-16	.7126356	.7126356
	2020	.6936837	1.46e-16	.6936837	.6936837
	2021	.7143758	.0000758	.714227	.7145246
	2022	.650315	.0131263	.6245505	.6760794

Financial leverage as measured using total liability to total assets in Table 4.5 shows a decreasing trend over 2018 to 2022 from 72.4% to 65.0%. This implies that there is continuous reduction in total liability to total assets over the period of five years. It variance have also increased over the past five years across the SACCOs. The reduction of total liabilities implies an increase in core capital across the SACCOs.

Table 4.6:

Financial Leverage Ratio

Year	min	max	mean	sd
2018	2.771099	2.771099	2.771099	0
2019	2.860308	2.860308	2.860308	0
2020	2.574471	2.574471	2.574471	0
2021	2.616163	2.662522	2.616441	.0035874
2022	-6.880716	28.97544	2.147664	3.249646
Total	-6.880716	28.97544	2.593997	1.470531

Financial leverage was as measured using the composite leverage of total liability to core capital and total liability to total asset ratios revealed that declining trend between 2018 to 2022 from 2.77 to 2.14. The highest financial leverage ratio was 2.86 during 2019 which might be associated with the pick of COVID-19 pandemic. The overall financial level was 2.59 with a standard deviation of 1.47.

4.3.3 Operational Efficiency

Operation efficiency was measures using total operation expenses to total income and total income to core capital ratio. The summary of operation efficiency was presented in terms of mean and standard deviation over the five years.

Table 4.7:

Total Operation Expenses to Total Income Ratio

Over	Mean	Std. Err.	[95% Conf.	Interval]
OE1				
2018	.3914239	.032398	.3278327	.4550152
2019	.3528042	.0133238	.3266521	.3789563
2020	.347492	.0137992	.3204068	.3745772
2021	.3588677	.0130951	.3331646	.3845709
2022	.3691914	.0140093	.3416938	.3966889

Operation efficiency as expresed by total operation expenses to total income ratio reveals that in 2018 there ratio was 39.1% which was the highest and the lowest during 2020 with 35.9%. Operation expenses to total income had flactuated over the five years with a drop frm 39.1% to 34.7% between 2018 to 2020 and an increase to 36.9% in 2022. The variation across the SACCOs was costant between 13% to 14% between 2019 to 2022, however, in 2018 it was at its highest level of 32%.

Table 4.8:

Total Income to Core Capital Ratio

Over	Mean	Std. Err.	[95% Conf.	Interval]
OE2				
2018	.9847861	.02514	.9354411	1.034131
2019	1.064154	.0253433	1.01441	1.113898
2020	.9300596	.0218318	.8872079	.9729112
2021	.9244942	.0209297	.8834131	.9655753
2022	.7221007	.0355755	.6522728	.7919287

Operation efficiency was also examined by total income to core capital represented in Table 4.9. In 2019, the total income to core capital ratio was at its highest of 1.06,

however, in 2022 it recorded the lowest og 0.72. The overal trend in total income to core capital has been reducing over the five year period from 0.98 in 2018 to the lowest of 0.72 in 2022. Therefore, total income has reduced during the period five based on the core capital.

Table 4.9:

Operation Efficiency Ratio

Year	min	max	mean	sd
2018	.5582079	2.541514	.688105	.1817805
2019	.5778086	1.464856	.7084792	.1152533
2020	.2796	1.137935	.6387758	.0989451
2021	.5431463	1.194724	.641681	.0826197
2022	-.7534415	2.100031	.5456461	.2273683
Total	-.7534415	2.541514	.6445374	.1611934

The composite operational efficiency, as presented in Table 4.10, reached its peak in 2019. However, there was a declining trend in operational efficiency from 2018 to 2022, decreasing from 68.8% to 54.6%. The overall mean operational efficiency during this period was 64.5%, with a standard deviation of 16.1%, indicating a notable variation in performance among the SACCOs.

4.3.4 Asset Quality

The study assessed asset quality using non-performing loans to gross loans and loan liability provision to total income ratio. The output results were presented from 2018 to 2022 considering the mean and standard deviation results.

Table 4.10:

Non-Performing Loan to Gross Loan Ratio

Over	Mean	Std. Err.	[95% Conf.	Interval]
AA1				
2018	.063	4.95e-18	.063	.063
2019	.06147	5.78e-18	.06147	.06147
2020	.0839564	8.31e-18	.0839564	.0839564
2021	.0885974	1.79e-17	.0885974	.0885974
2022	.1188181	.010958	.0973096	.1403265

The non-performing loans to gross loan ratio in Table 4.10 reveals a reducing trend from 2018 to 2022 from 6.3% to 11.9% respectively. The increase in non-performing loan in relation to gross loans indicates increase in losses associated with high non-performing loans. The variation also had increased over the same period of time across the SACCOs.

Table 4.11:

Loan Liability Provision to Total Income Ratio

Over	Mean	Std. Err.	[95% Conf.	Interval]
AA2				
2018	.4522	0	.	.
2019	.4279	0	.	.
2020	.4412605	.0000605	.4411418	.4413792
2021	.4513	1.45e-16	.4513	.4513
2022	.4557784	.0000216	.4557361	.4558208

Table 4.11 indicated that the loan liability provision to total income ratio has fluctuated over 2018 to 2022. The highest loan liability provision to total income was in 2022 with 45.6%. This range between 42.8% as the lowest in 2019 and the highest 45.6% in 2022.

However, there are very low variation across the years and the SACCOs within the five-year period.

Table 4.12:

Asset Quality Ratio

Year	min	max	mean	sd
2018	.2576	.2576	.2576	0
2019	.244685	.244685	.244685	0
2020	.2625782	.2676282	.2626085	.0003908
2021	.2699487	.2699487	.2699487	0
2022	.2297	.6923	.2872983	.070812
Total	.2297	.6923	.2644281	.0345973

The overall asset quality ratio showed a maximum of 28.7% and a minimum of 24.5% in 2019. Between 2018 and 2022, there was an increasing trend in the asset quality ratio, rising from 25.8% to 28.7%. The average asset quality ratio over this period was 26.4%, with a standard deviation of 3.5%, indicating a relatively stable yet improving asset quality among the SACCOs.

4.3.5 Capital Sufficiency

Capital sufficiency was assessed using the core capital to total assets ratio and the core capital to total deposits ratio. The data were analyzed over a five-year period to evaluate the mean and standard deviation of capital sufficiency, providing insights into the financial health and stability of the SACCOs.

Table 4.13:

Core Capital to Total Assets Ratio

Over	Mean	Std. Err.	[95% Conf.	Interval]
CA1				
2018	.1502	4.13e-17	.1502	.1502
2019	.1423	2.31e-17	.1423	.1423
2020	.1557	2.15e-17	.1557	.1557
2021	.1581	1.49e-17	.1581	.1581
2022	.2011455	.0085531	.1843573	.2179337

Table 4.13 results indicates that the core capital to total assets was at its highest of 20.1% in 2022. In 2019 the core capital to total assets were at the lowest at 14.2% which might be associated with reduction of core capital due to the COVID-19 pandemic and increase in liabilities during the same period. However, there was an increasing trend of core capital to total asset ratios over years from 15.0% in 2018 to 20.1% in 2022.

Table 4.14:

Core Capital to Total Deposit Ratio

Over	Mean	Std. Err.	[95% Conf.	Interval]
CA2				
2018	.2306154	.004644	.2215	.2397307
2019	.231634	.0106769	.2106772	.2525907
2020	.2396676	.003816	.2321774	.2471578
2021	.2456148	.0039419	.2378776	.253352
2022	.3218729	.0161231	.2902263	.3535195

In Table 4.14, the results indicated that core capital to total deposits had increasing trend from 23.1% in 2018 to 32.2% in 2022. The increase in core capital to total deposit ratio indicate an increase in share capital invest from shareholders over the same period.

This indicates that investor has increased over the deposits made during the five-year period.

Table 4.15:

Capital Sufficiency Ratio

Year	min	max	mean	sd
2018	.1502	.4756333	.1904077	.030007
2019	.1348105	1.015171	.186967	.068988
2020	.1557	.34254	.1976838	.0246571
2021	.1622605	.34782	.2018574	.0254702
2022	-.4505633	.7182634	.2615092	.1579936
Total	-.4505633	1.015171	.207685	.0842482

The composite capital sufficiency ratio indicated that there had been an increase in capital sufficiency ratio during the period of 2018 to 2022 from 19.0% to 26.2%. However, in 2019 the capital sufficiency registered the lowest at 18.7% where most of the capital sufficiency was lowest based on the socio-economic effect of COVID-19 period.

4.3.6 Firm Size

Firms size were assess using log of total assets and sale ratio that is sale to total asset. The two ratio were incorporate to form composite firm size where the mean and standard deviation were used to over the five year period.

Table 4.16:

Total Assets

Over	Mean	Std. Err.	[95% Conf.	Interval]
FS1				
2018	9.007064	.0501851	8.90856	9.105568
2019	9.050263	.0506123	8.95092	9.149605
2020	9.081113	.0514477	8.980131	9.182095
2021	9.11972	.0518943	9.017861	9.221579
2022	9.155722	.0523672	9.052935	9.258509

The log total asset in Table 4.16 indicate indated that there was an increase in total asset from 9.007064 in 2018 to 9.155722 in 2019. This revealed that the firm size in terms of total asset have an increasing trend over the five year period across the SACCOs in Kenya.

Table 4.17:

Sales Ratio

Over	Mean	Std. Err.	[95% Conf.	Interval]
FS2				
2018	.1479149	.003776	.1405032	.1553265
2019	.1514291	.0036063	.1443505	.1585077
2020	.1448103	.0033992	.1381383	.1514823
2021	.1461625	.003309	.1396676	.1526575
2022	.145799	.0032641	.1393922	.1522057

The revenue to total asset ratio was also used to examine the change in the size of firm over period of five years. Sales ratio has remained constant over the five-year period with the highest 15.1% in 2019 and the lowest of 14.5% in 2020. Its variation was also constant during the same period at 0.3%.

Table 4.18:

Firm Size

Year	min	max	mean	sd
2018	3.92603	5.338892	4.577489	.3214752
2019	3.949485	5.419726	4.600846	.3252262
2020	3.949485	5.443233	4.612962	.330876
2021	3.949485	5.453778	4.632941	.333723
2022	3.949485	5.463706	4.650761	.3377639
Total	3.92603	5.463706	4.615	.3300484

The composite firm size exhibited an upward trend, rising from 4.577 in 2018 to 4.651 in 2022. The overall mean firm size was 4.615, with a standard deviation of 33.0%. This indicates that SACCOs experienced growth in both assets and sales over the five-year period, reflecting an expansion in their operations and financial capacity. The consistent increase suggests that SACCOs have been effectively scaling their resources and market presence during this timeframe.

4.3.7 Financial Performance

Financial performance of SACCOs was analyzed using the return on asset (ROA) and return on equity (ROE). Hence, financial performance of SACCOs was measure using composite mean of return on asset and return on equity. This were presented in terms of mean and standard deviation for the period of 2018 to 2022.

Table 4.19:

Return on Asset

	Over	Mean	Std. Err.	[95% Conf.	Interval]
ROA					
	2018	.1011149	.003776	.0937032	.1085265
	2019	.1039291	.0036063	.0968505	.1110077
	2020	.0998103	.0033992	.0931383	.1064823
	2021	.0995625	.003309	.0930676	.1060575
	2022	.097599	.0032641	.0911922	.1040057

Table 4.19 reflect the return of asset among SACCOs in Kenya over the five years. The results show reducing trend of net income to total asset from 10.1% in 2019 to 9.8% in 2022. The reducing trend was homogenous across the SACCOs over the five-year period as indicate by a constant standard error that range between 0.3% to 0.4%

Table 4.20:

Return on Equity

	Over	Mean	Std. Err.	[95% Conf.	Interval]
ROE					
	2018	.6732016	.02514	.6238565	.7225466
	2019	.7303523	.0253433	.6806082	.7800964
	2020	.6410422	.0218318	.5981906	.6838939
	2021	.629744	.0209297	.5886629	.6708251
	2022	.4722203	.0215573	.4299073	.5145333

Financial performance was also measure using return on equity ratio within the five years as demostrated in Table 4.20. The results indicated a decline in net income in relation to equity over the past five years from 67.3% in 2018 to 47.2% in 2022, however, the return on equity in 2019 was the highest at 73.0%. The variation was

remained constant during the five year period that ranged from 2.1% to 2.5% across the SACCOs.

Table 4.21:

Financial Performance

Year	min	max	mean	sd
2018	-.1435035	1.352366	.3871582	.1868385
2019	-.0903083	1.41483	.4171407	.1870558
2020	-.1670087	1.070093	.3704263	.1630279
2021	-.0477705	1.13738	.3646533	.1566165
2022	-.5573072	.8275919	.2849096	.1526765
Total	-.5573072	1.41483	.3648576	.1750934

The financial performance of SACCOs showed a declining trend from 38.7% in 2018 to 28.5% in 2022, despite achieving a peak of 41.7% in 2019, during the COVID-19 pandemic. This suggests that while SACCOs demonstrated resilience in 2019, they faced challenges in sustaining performance over time. The drop in profitability from 18.7% to 15.3% highlights potential issues with capital management, operational efficiency, and asset utilization. The findings suggest that improving internal factors such as strategic planning, human capital efficiency, and capital sufficiency could help SACCOs reverse the decline and enhance financial performance in the future.

4.4 Inferential Statistics

The study conducted a factor loading analysis to identify the components associated with each variable based on similar loadings. Additionally, Pearson correlation analysis was used to evaluate the relationships between variables. Finally, both simple and

multiple linear regression analyses were performed at a 5% significance level to test the study hypotheses.

4.4.1 Factor Analysis

The factor analysis was conducted using a factor loading matrix, where components with high correlations were identified. Factors with loadings above 0.4 were retained, resulting in seven distinct factors being extracted and presented based on their significant loadings.

Table 4.22:

Factor Loading Matrix

	1	2	3	4	5	6	7
CA1	.886						
CA2	.857						
ROE		.964					
ROA		.867					
OE2			.946				
OE1			.626				
AA1				.795			
AA2				.494			
FL2					.875		
FL1					.712		
LR1						.786	
LR2						.722	
FS1							.447
FS2							.865

Extraction Method: Principal Component Analysis

a. 7 components extracted.

The results of the principal component analysis (PCA) presented in Table 4.22 revealed seven distinct components or factors. The first factor represented Capital Sufficiency and was indicated by two variables: the core capital to total asset ratio (CA1) and the

core capital to total deposit ratio (CA2). These two ratios were averaged to form a composite measure of Capital Sufficiency (CA).

The second factor corresponded to Financial Performance, which was measured by return on equity (ROE) and return on assets (ROA). These two variables were used to compute the overall Financial Performance (FP). The third factor represented Operational Efficiency and was based on the total income to core capital ratio (OE2) and total operational expenses to total income ratio (OE1). A composite measure of Operational Efficiency (OE) was calculated using these two variables. The fourth component was Asset Quality, represented by the non-performing loans to gross loans ratio (AA1) and the loan loss provision to total income ratio (AA2). A composite mean was used to calculate the overall Asset Quality (AA).

The fifth factor that loaded was Financial Leverage, which included the total liabilities to total assets ratio (FL1) and the total liabilities to core capital ratio (FL2). These variables were combined to form the Financial Leverage (FL) measure. The sixth factor, Liquidity Ratio (LR), was based on two variables: the liquid assets to total deposits ratio (LR1) and the total loans to total deposits ratio (LR2). These were used to develop the composite Liquidity Ratio (LR). The final component, Firm Size, was indicated by the log of sales (FS1) and the sales ratio (FS2). A composite measure of Firm Size (FS) was created using these two variables.

4.4.2 Pearson Correlation Analysis

Person correlation analysis was adopted to examined the interrelationship between financial distress factor, firm size and financial performance. The Pearson correlation matrix in Table 4.22 was adopted.

Table 4.23:

Pearson Correlation Analysis

	LR	FL	OE	AA	CA	FS	FP
LR	1.0000						
FL	0.0310	1.0000					
OE	0.0306	0.5873	1.0000				
AA	-0.0158	-0.1732	-0.2477	1.0000			
CA	0.4027	-0.1791	-0.2129	-0.0661	1.0000		
FS	0.1465	-0.0064	-0.0333	-0.0968	-0.0326	1.0000	
FP	0.1214	0.1224	0.5809	-0.2083	-0.0159	-0.0211	1.0000

According Table 4.23, operation efficiency had a moderate positive significant relationship with financial performance (R=0.5809). This implies that with an increase in operation efficiency there is a significant increase in financial performance. Financial performance had a weak negative relationship with asset quality (R=-0.2083) and capital adequacy (R=-0.0159). The increase in asset quality and capital sufficiency leads to low financial performance. However, there existed a weak positive relationship between financial performance with liquidity (R=0.1214) and financial leverage (R=0.1224). This indicates that higher liquidity and financial leverage had a positive impact on the financial performance.

4.4.3 Regression Analysis

The regression analysis comprised simple and multiple linear regression analysis. The simple regression models were adopted to examine individual hypothesis for individual items while a multiple regression was used to analyze the overall effect financial distress factors on financial performance. The moderating effect of firm size was examined using the moderated regression analysis.

Table 4.24:

Liquidity and Financial Performance

```
Random-effects GLS regression                   Number of obs     =        835
Group variable: Firm                            Number of groups  =        167

R-sq:                                           Obs per group:
     within  = 0.0002                                         min =          5
     between = 0.0511                                         avg =        5.0
     overall = 0.0147                                         max =          5

                                                Wald chi2(1)      =       0.46
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =     0.4994
```

FP	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
LR	.0151446	.0224213	0.68	0.499	-.0288005	.0590896
_cons	.3551974	.0179236	19.82	0.000	.3200678	.3903271
sigma_u	.12917573					
sigma_e	.11467846					
rho	.55924121	(fraction of variance due to u_i)				

The first objective was to examined whether or not liquidity had relationship with financial performance of SACCOs in Kenya. The results in Table 4.24 had 835 observations from 167 SACCOs with balanced data for five years revealed that liquidity did not significantly predict the financial performance of SACCOs ($Prob>chi^2=0.4994>0.05$). The results also indicated that 55.9% of variation in performance was associated with change in SACCOs (rho =0.559).

The simple regression analysis model for model 4.1 was given as;

$$Y = 0.355 + 0.015X_1 + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(4.1)$$

This revealed that a unit increase in liquidity (X_1) resulted to positive increase of 0.015 in financial performance of Deposit Taking SACCOs (Y). However, liquidity had no statistically significant relationship with financial performance of SACCOs in Kenya ($\beta_1=0.015$, $p=0.499>0.05$).

Table 4.25:

Financial Leverage and Financial Performance

```
Random-effects GLS regression                   Number of obs     =        835
Group variable: Firm                            Number of groups  =        167

R-sq:                                           Obs per group:
     within  = 0.0676                                         min =          5
     between = 0.0016                                         avg =        5.0
     overall = 0.0150                                         max =          5

                                                Wald chi2(1)      =      45.71
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =     0.0000
```

FP	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
FL	.0193845	.0028671	6.76	0.000	.0137651	.0250039
_cons	.3145743	.0133149	23.63	0.000	.2884776	.3406709
sigma_u	.13368812					
sigma_e	.11074416					
rho	.59304653	(fraction of variance due to u_i)				

The second objective analyzed the relationship between financial leverage and financial performance. From the results 835 panels data presenting a balance data from 167 SACCOs revealed that the financial leverage was a significant predictor on financial performance (Prob>chi^2=0.000<0.05). The variation across the SACCOs provided 59.3% in financial performance which was related with financial leverage (Rho =0.593). The summary model was given as;

$$Y = 0.315 + 0.019X_2 + \varepsilon \quad (4.2)$$

A unit increase in financial leverage (X_2) contributed 1.9% increase in financial performance (Y). Additionally, the results revealed that financial leverage had a positive statistically significant relationship with financial performance of Deposit Taking SACCOs (β_2=0.019, p=0.000<0.05).

Table 4.26:

Operation Efficiency and Financial Performance

```
Random-effects GLS regression                   Number of obs     =       835
Group variable: Firm                            Number of groups  =       167

R-sq:                                           Obs per group:
     within  = 0.3588                                         min =         5
     between = 0.4104                                         avg =       5.0
     overall = 0.3374                                         max =         5

                                                Wald chi2(1)      =    439.57
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =    0.0000
```

FP	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
OE	.4922361	.0234778	20.97	0.000	.4462204	.5382518
_cons	.0475931	.0174228	2.73	0.006	.013445	.0817411
sigma_u	.10157366					
sigma_e	.09183319					
rho	.55023517	(fraction of variance due to u_i)				

The third objective established whether or not operation efficiency was related to financial performance of SACCOs in Kenya. The panel data set from 835 observation revealed that operation efficiency statistically predicted financial performance of SACCOs in Kenya (Prob>chi^2=0.000<0.05). A variation of 55.0% in financial performance across SACCOs in Kenya was associated with operation efficiency (Rho = 0.550). The model summary was given as follows;

$$Y = 0.048 + 0.492X_3 + \varepsilon \quad \text{……..……(4.3)}$$

This reveals that unit increase in operation efficiency (X_3) led to 49.2% increase in financial performance of Deposit Taking SACCOs (Y). However, the model indicated that there was statistically significant relationship between operation efficiency and financial performance of Deposit Taking SACCOs in Kenya (β_3=0.492, p=0.000<0.05).

Table 4.27:

Asset Quality and Financial Performance

```
Random-effects GLS regression                   Number of obs     =       835
Group variable: Firm                            Number of groups  =       167

R-sq:                                           Obs per group:
     within  = 0.1206                                         min =         5
     between = 0.0047                                         avg =       5.0
     overall = 0.0434                                         max =         5

                                                Wald chi2(1)      =     91.99
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =    0.0000
```

FP	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
AA	-1.118071	.1165746	-9.59	0.000	-1.346553	-.8895886
_cons	.6605069	.032733	20.18	0.000	.5963513	.7246625
sigma_u	.13397496					
sigma_e	.1075517					
rho	.60810711	(fraction of variance due to u_i)				

The fourth objective examined whether or not asset quality was related to financial performance of SACCOs in Kenya. A total of balance panel data of 835 observation revealed that asset quality statistically predicted financial performance of SACCOs in Kenya (Prob>chi^2=0.000<0.05). A variation of 60.8% in financial performance across SACCOs in Kenya was associated with asset quality (Rho = 0.608). The summary results were given as follows;

$$Y = 0.661 - 1.118X_4 + \varepsilon \quad \text{……..……(4.4)}$$

The model summary implied that for any unit increase in asset quality results to a decrease of 1.118 unit on financial performance of SACCOs. Therefore, asset quality had a negative statistically significant relationship with financial performance of Deposit Taking SACCOs in Kenya (β_4 =-1.118, 0.000<0.05).

Table 4.28:

Capital Sufficiency and Financial Performance

```
Random-effects GLS regression                   Number of obs     =        835
Group variable: Firm                            Number of groups  =        167

R-sq:                                           Obs per group:
     within  = 0.1113                                         min =          5
     between = 0.1465                                         avg =        5.0
     overall = 0.0003                                         max =          5

                                                Wald chi2(1)      =      58.25
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =     0.0000
```

FP	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
CA	-.3933504	.0515363	-7.63	0.000	-.4943598	-.2923411
_cons	.4465506	.0149913	29.79	0.000	.4171682	.4759331
sigma_u	.12262357					
sigma_e	.10811851					
rho	.56261522	(fraction of variance due to u_i)				

The fifth objective examined the relationship between capital sufficiency and financial performance of SACCOs in Kenya. The results from 835 observed panel data revealed that capital sufficiency statistically predicted financial performance of SACCOs in Kenya ($Prob>chi^2=0.000<0.05$). A variation of 56.3% in financial performance across SACCOs in Kenya was associated with capital sufficiency (Rho = 0.563). The results were summarized as follows;

$$Y = 0.447 - 0.393X_5 + \varepsilon \quad \text{.....(4.5)}$$

According to the model, a unit increase in capital sufficiency would result to a decrease of 39.3% in financial performance. There was a negative statistical significant relationship between capital sufficiency and financial performance (β_5=-0.393, p=0.000<0.05).

Table 4.29:

Financial Distress and Financial Performance

```
Random-effects GLS regression                   Number of obs     =       835
Group variable: Firm                            Number of groups  =       167

R-sq:                                           Obs per group:
     within  = 0.4415                                         min =         5
     between = 0.4628                                         avg =       5.0
     overall = 0.3969                                         max =         5

                                                Wald chi2(5)      =    595.67
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =    0.0000
```

FP	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
LR	.0517804	.0191711	2.70	0.007	.0142058	.089355
FL	-.0241616	.0030444	-7.94	0.000	-.0301284	-.0181947
OE	.5771403	.0320587	18.00	0.000	.5143063	.6399743
AA	-.5719342	.1032452	-5.54	0.000	-.7742911	-.3695772
CA	-.1872781	.0489932	-3.82	0.000	-.283303	-.0912533
_cons	.2126456	.0408845	5.20	0.000	.1325134	.2927778
sigma_u	.08706137					
sigma_e	.08534404					
rho	.50996003	(fraction of variance due to u_i)				

The overall relationship between financial distress factors had financial performance of SACCOs in Kenya was examined using the multiple regression model. Liquidity(LR), financial leverage (FL), operation efficiency (OE), asset quality (AA) and capital sufficiency (CA) were appropriate predictors of financial distress that significantly predicted financial performance (Prob>chi^2=0.000<0.05). A variation of 51.0% in financial performance across SACCOs in Kenya was associated with financial distress factors (Rho = 0.510). The summary

multiple regression adopted was;

$$Y = 0.213 + 0.052X_1 - 0.024X_2 + 0.577X_3 - 0.572X_4 - 0.187X_5 + \varepsilon \quad \ldots\ldots(4.6)$$

The summary model implies that a unit increase in liquidity (X_1) leads to 0.052-unit increase in financial performance. A unit increase in financial leverage (X_2) leads to a decrease of 0.024 unit in financial performance. A unit increase in financial operation efficiency (X_3) leads to 0.577 unit in increase in financial performance which was the highest financial distress factors. The same unit increase in asset quality (X_4) leads to a decrease of 0.572 unit in financial performance. This was the highest negative financial factor that had negative impact on financial performance. Finally, a unit increase in capital sufficiency (X_5) leads to a decrease of 0.187 unit in financial performance.

Table 4.30:

Moderating Effect of Firm Size on Financial Distress and Financial Performance

```
Random-effects GLS regression                   Number of obs     =       835
Group variable: Firm                            Number of groups  =       167

R-sq:                                           Obs per group:
     within  = 0.5733                                         min =         5
     between = 0.3081                                         avg =       5.0
     overall = 0.3991                                         max =         5

                                                Wald chi2(6)      =    907.44
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =    0.0000
```

FP	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
LR	.3422659	.0279765	12.23	0.000	.2874329	.3970989
FL	-.156969	.0105195	-14.92	0.000	-.177587	-.1363511
OE	3.667813	.237644	15.43	0.000	3.20204	4.133587
AA	-3.438169	.2342627	-14.68	0.000	-3.897316	-2.979023
CA	-1.205969	.0871849	-13.83	0.000	-1.376848	-1.035089
c.DF#c.FS	-1.170458	.088712	-13.19	0.000	-1.34433	-.9965856
_cons	.1719895	.0368823	4.66	0.000	.0997015	.2442776
sigma_u	.08865065					
sigma_e	.07414797					
rho	.58838214	(fraction of variance due to u_i)				

The final objective was to examine the moderating effect of firm size on the relationship between financial distress and financial performance. The model summary revealed

that financial distress variables that is liquidity, financial leverage, operation efficiency, asset quality, capital sufficiency and the interaction between financial distress and firm size were appropriate predictors for financial performance (Prob>chi^2=0.000<0.05). A variation of 58.8% in financial performance was related to financial distress as moderated by firm size as SACCOs.

The regression moderator model to be adopted is;

$$Y = 0.172 + 0.342X_1 - 0.157X_2 + 3.668X_3 - 3.438X_4 - 1.206X_5 - 1.170M * X + \varepsilon \quad \text{.....(4.7)}$$

Firm size plays a critical role in amplifying both the positive and negative effects of the independent variables on financial performance. Larger firms benefit more from operational efficiency (X_3) with coefficient of 3.668 and liquidity (X_1) with coefficient of 0.342, but they are more sensitive to negative factors like financial leverage (X_2) with coefficient of -0.157, asset quality (X_4) with coefficient of -3.438, and capital sufficiency (X_5) with coefficient of -1.206. The interactive effect between firm size and financial distress was given by coefficient of -1.170 which implies an increase in firms' size has a negative effect on financial distress factors leading to poor financial performance. The firm size magnifies the effects of liquidity, financial leverage, operational efficiency, asset quality, and capital sufficiency on financial performance.

The results revealed that the interaction between distress factors (X) and firm size (M) was significant which implied that firm size had negative significant moderating effect on the relationship between financial distress and financial performance (β_6 =-1.170, p=0.00<0.05). This indicates that larger firms, despite benefiting from higher liquidity and operational efficiency, face challenges such as the complexities of managing

financial leverage, asset quality, and capital sufficiency, which offset some of the positive effects. As a result, the relationship between these factors and financial performance becomes more volatile in larger firms. Overall, the results underscore the importance of managing liquidity, operational efficiency, and asset quality carefully, particularly for larger firms, to optimize financial performance.

4.4.4 Test of Hypotheses

> H_o1: Liquidity has no statistically significant relationship with financial performance of Deposit taking SACCOs.

The first objective examined the relationship between liquidity and financial performance. The null hypothesis was accepted since the significant value was more than 5% significant level (β_1=0.015, p=0.499>0.05). This implies that liquidity had no statistically significant relationship with financial performance of Deposit taking SACCOs.

In line with the current study, Said and Tumin (2018) found that liquidity had little influence on bank performance in China and Malaysia, suggesting that the impact of liquidity on financial performance can vary significantly depending on country-specific factors. This concurs with the current study's results, indicating that liquidity might not be a critical determinant of financial performance for financial institutions in certain contexts.

Conversely, several studies have found a positive relationship between liquidity and financial performance. The results contradict Yameen, Farhan and Tabash (2019) who investigated liquidity on profitability of pharmaceutical companies listed in Bombay

Stock Exchange which found that liquidity ratio and quick ration had positive significant effect on profitability. However, the study was based on liquidity and quick ratio. However, the current study was based on liquid asset to total deposits ratio as well as total loan to total deposit ratio which were appropriate for SACCOs while financial performance was measured using ROA and ROE.

A weak positive association between liquidity and bank's profitability was found by Ahmad (2016) where current ratio, net-working capital and quick ratio were used to measure liquidity based on Standard Chartered Bank in Pakistan between 2004 and 2014. The measure of liquidity varied from the current study who found that liquidity in terms of liquid asset to total deposits ratio and total loan to total deposit ratio had insignificant influence on financial performance of SACCOs in Kenya between 2018 and 2022. Similarly, Samo and Murad (2019) found that liquidity had a positive significant effect on ROA in Pakistan textile sector. The current study findings revealed that liquidity was insignificant on combined effect of ROA and ROE which was done in SACCOs in Kenya.

Some studies have identified a negative relationship between liquidity and financial performance. Sahni and Kulkarni (2018) found that higher liquidity leads to funds being tied up in non-productive assets, negatively impacting profitability in the construction and real estate sector in India. Li, Musah, and Kong (2020) also reported a significant negative impact of liquidity on the return on equity (ROE) for non-financial firms in Ghana. These findings suggest that excessive liquidity can hinder financial performance, although this may not be applicable to deposit-taking SACCOs due to their unique operational dynamics.

In Kenya, studies have produced varied results. Njeru (2016) found that liquidity management significantly impacts the financial performance of deposit-taking SACCOs, emphasizing the importance of effective liquidity regulation. On the other hand, Wekesa (2019) reported a negative but statistically insignificant relationship between liquidity and financial performance in the sugar industry, highlighting the potential for industry-specific effects.

The current study's finding that liquidity does not significantly impact the financial performance of deposit-taking SACCOs aligns with some literature while contradicting other studies that report positive or negative relationships. This underscores the importance of considering industry-specific and contextual factors when examining the liquidity-performance relationship. Further research is needed to explore these dynamics in more detail, particularly within the context of deposit-taking SACCOs in Kenya.

This finding aligns with Wrecker's financial distress theory. Wrecker's theory suggests that financially distressed firms often suffer from poor performance due to multiple negative shocks, leading to losses and eventual distress. These firms tend to perform worse than financially stable ones because investors typically withdraw their resources in anticipation of collapse. However, the absence of a relationship between liquidity and financial performance in this context might suggest that liquidity alone does not drive the performance outcomes of SACCOs.

The theoretical implication of the study's finding is that liquidity does not have a direct impact on the financial performance of these SACCOs, contrary to expectations from Keynes' Liquidity Preference Theory. According to Keynes, firms hold money for three

reasons: transactional, precautionary, and speculative motives. In theory, SACCOs require liquidity to meet daily operations, safeguard against emergencies, and take advantage of future investment opportunities. However, in practice, SACCOs often face liquidity constraints that force them to borrow at high interest rates, thus narrowing their profit margins. This could explain why liquidity did not significantly impact financial performance in this study. Additionally, critiques of Keynes' theory argue that interest rates are influenced by a variety of factors beyond liquidity preferences, such as the marginal efficiency of capital and market conditions, suggesting a more complex relationship between liquidity and financial performance than the theory accounts for. Thus, while Keynes' theory provides a framework for understanding the demand for liquidity, its narrow focus on interest rates may limit its application in explaining the financial dynamics within SACCOs.

> H_o2: Leverage has no statistically significant relationship with financial performance of Deposit taking SACCOs.

In the second objective, the relationship between leverage and financial performance was examined. The results lead to rejection of null hypothesis and acceptance of alternative since the significant value 0.000 was less than significant level of 5% (β_2=0.019, p=0.000<0.05). The study concluded that leverage had statistically significant relationship with financial performance of Deposit taking SACCOs.

The findings of this study concur with those of Saleh (2017), who discovered that financial leverage was the most crucial factor in determining a company's profitability during the global financial crisis. Saleh highlighted that high financial debt can significantly impact a company's performance negatively, both before and after a

financial crisis. This study's results align with Saleh's findings, indicating that leverage plays a critical role in financial performance, though the direction of impact can vary based on context and period.

Similarly, the results of Rehman (2018) support the current study's conclusions, as Rehman found that leveraged borrowing, measured by the debt-to-equity ratio, positively correlated with sales growth and ROA in Pakistan's sugar firms. This consistency across different sectors and regions suggests a broader applicability of the relationship between leverage and financial performance.

However, several studies found a negative relationship between leverage and financial performance, which contrasts with the current study's findings. For instance, Foong (2016) revealed that leverage negatively impacts organizational performance unless combined with product diversification. Additionally, Razak (2018) found a negative association between financial leverage and the financial performance of Malaysian general insurance companies. These discrepancies highlight the influence of industry-specific factors and operational contexts on the leverage-performance relationship.

Ali (2020) analyzed the influence of various types of leverage on profitability in Pakistan's food and fertilizer sectors and found that financial and combined leverage had an insignificant impact on profitability, while operating leverage had a negative influence. This mixed finding underscores the complexity of leverage's impact on financial performance and suggests that different forms of leverage may have varying effects depending on the specific metrics used and the industry context.

Ndubuisi, Ifechi, and Chijioke (2019) found a significant negative relationship between financial leverage and profitability for non-financial firms listed on the Nigerian Stock

Exchange. The study's focus on profitability metrics such as EPS and ROE offers a nuanced view that sometimes contrasts with the broader financial performance metrics used in the current study, such as ROA and ROE.

Chesang (2016) investigated financial leverage in the agricultural sector and found that certain measures of leverage, such as the designated employer representative, significantly influenced profitability, while long-term debt did not. This sector-specific finding suggests that the impact of leverage can vary significantly across different industries, aligning with the current study's focus on deposit-taking SACCOs.

In conclusion, while the current study found that leverage significantly impacts the financial performance of deposit-taking SACCOs, the broader literature presents a mixed picture. Some studies support the positive impact of leverage, while others highlight negative or insignificant relationships, often influenced by industry-specific factors and the particular forms of leverage examined. This variability underscores the importance of context in assessing the relationship between leverage and financial performance.

The positive statistical relationship between financial leverage and financial performance in deposit-taking SACCOs supports Wrecker's financial distress theory by illustrating how stakeholders might benefit from a firm's financial turmoil. According to Wrecker's theory, financial distress provides an opportunity for shareholders to extract private benefits, as seen in Kalckreuth's argument that shareholders may prioritize their private gains when a company faces default. This theory suggests that the observed positive relationship could stem from the strategic actions taken by stakeholders to maximize their returns during distress.

In periods of financial instability, stakeholders might leverage financial resources more aggressively, thus enhancing financial performance despite the distress. This aligns with the findings that higher financial leverage can lead to better financial outcomes for SACCOs, as the stakeholders might be optimizing their returns in light of the potential benefits highlighted by Wrecker's theory. Consequently, the results indicate that the strategic use of financial leverage during distress can contribute to improved financial performance, supporting the notion that financial distress, when managed properly, can be beneficial for stakeholders.

Similarly, agency theory explains the dynamics between SACCO managers (agents) and owners (principals), suggesting that while leverage can enhance returns, agency conflicts may arise if managers prioritize personal gains over shareholder interests. This conflict underscores the importance of ensuring that leverage is used responsibly, as mismanagement could lead to financial instability, aligning with the idea that managers may not always act in the best interests of the owners, thereby impacting financial performance.

> H_o3: Operational efficiency has no statistically significant relationship with financial performance of Deposit taking SACCOs.

The third objective assessed whether operational efficiency had relationship with financial performance. As per the results the significant value of 0.000 which was less than 5% significant level led to rejection of null hypothesis and acceptance of alternative hypothesis (β_3=0.492, p=0.000<0.05). Therefore, operation efficiency has positive significant influence on financial performance of Deposit taking SACCOs in Kenya.

The findings align with the assertion by Olalere, Temitope, and Oluwatobi (2018), who described operational efficiency as a business's ability to offer products or services at competitive rates while maintaining high quality. This study supports the idea that efficient operations can enhance financial performance by optimizing resource use and improving service delivery, which is crucial for deposit-taking SACCOs.

Similarly, Saleh (2017) proposed that firm executives should enhance the efficiency with which physical assets generate revenue to maximize profits. This proposition concurs with the current study's results, emphasizing that operational efficiency is vital for improving financial performance, as seen in the significant positive impact on SACCOs in Kenya.

Chortareas, Girardone, and Ventouri (2019) conducted a study on EU commercial banks and concluded that operational efficiency is closely linked to financial success. Their findings indicate that higher levels of operational efficiency contribute positively to financial performance. Although the context differs, with their focus on banks and regulatory policies under Basel II, the underlying principle that operational efficiency drives financial performance is consistent with the current study's findings for Kenyan SACCOs.

Kosikoh (2018) investigated operational efficiency as a potential distress factor affecting financial performance using metrics such as the operating expense ratio and net worth turnover ratio. The study's findings suggested that improved operational efficiency leads to better financial performance, supporting the current study's conclusion that operational efficiency positively impacts SACCOs' financial outcomes.

This consistency highlights the importance of managing operational costs and maximizing asset utilization.

In contrast, Klingenberg et al. (2018) explored the relationship between operational innovation and financial success in manufacturing companies. They found no consistent correlation between operational efficiency (measured through inventory management ratios) and financial performance indicators like ROA, ROE, and BEP. Although their study was conducted in a different context, focusing on manufacturing companies in developed countries, it highlights the complexity of isolating the impact of operational efficiency from other organizational activities. This difference suggests that the relationship between operational efficiency and financial performance may vary significantly across sectors and regions.

The majority of the available literature on the relationship between operational efficiency and financial performance has been conducted outside Kenya, as noted by studies such as Klingenberg et al. (2018), Jeong & Phillips (2019), and Pranowo & Manurung (2018). However, studies like Kosikoh (2018) and Ongore & Kusa (2018) provide insights within the Kenyan context. Despite this, the study by Chortareas, Girardone, and Ventouri (2019) underscores the general principle that operational efficiency is crucial for financial success, though their findings may not be directly applicable to Kenya's SACCOs due to differing regulatory and economic environments.

The current study showed that operational efficiency significantly enhances the financial performance of deposit-taking SACCOs in Kenya is supported by various literature. Although there are some contradictions, especially in different contexts like manufacturing, the overall consensus points towards the importance of operational

efficiency in driving financial success. This underscores the need for SACCOs to focus on improving their operational processes to achieve better financial outcomes.

Economies of scale theory suggests that as SACCOs grow and improve operational efficiency, they benefit from reduced per-unit costs and increased financial stability. These efficiencies arise from factors like bulk purchasing, specialized labor, and technological improvements, which enhance the overall performance of larger firms. In the context of SACCOs, operational efficiency through economies of scale would allow them to maximize resource utilization, reduce operating costs, and thereby improve financial performance. As SACCOs become more efficient, they can better manage risks, expand their market presence, and enhance profitability, contributing to sustained financial success.

Agency theory is also relevant, as operational efficiency requires effective governance and alignment of interests between SACCO managers (agents) and members (principals). According to agency theory, conflicts may arise if managers prioritize their own interests over those of the shareholders. However, when operational efficiency is high, it often indicates that managers are effectively managing resources and making decisions that align with shareholder interests. This minimizes agency costs, promotes transparency, and increases trust between managers and shareholders. By enhancing operational efficiency, SACCOs can reduce agency-related conflicts and ensure that their financial performance is improved through responsible and strategic management. Thus, both economies of scale and agency theory underscore the importance of aligning organizational growth, governance, and operational efficiency to achieve optimal financial outcomes

H_o4: Asset quality has no statistically significant relationship with the financial performance of Deposit taking SACCOs.

According to simple regression results for the forth objective, the null hypothesis was rejected and alternative accepted, since the significant value of 0.000 was less than significant level of 5% (β_4 =-1.118, 0.000<0.05). These implied that asset quality had statistically significant relationship with the financial performance of Deposit Taking SACCOs in Kenya.

Barus et al. (2018) provide relevant insights, asserting that asset quality in banks can be measured by examining loan advances and non-performing loans. Their findings suggest that poor credit risk management leads to reduced asset quality and increased non-performing loans, which in turn adversely affect profitability. This perspective aligns with the current study's results, emphasizing the detrimental effect of poor asset quality on financial performance.

Klein (2018) explored non-performing loans in Central, Eastern, and South-Eastern Europe, finding that these loans are influenced by economic indicators and financial institution characteristics. The study concluded that a higher share of non-performing loans can hinder economic recovery, suggesting that asset quality significantly impacts the broader economic and financial environment. While this study focuses on a different geographical region, it concurs with the current results by highlighting the negative implications of poor asset quality on financial performance.

Conversely, Vigneswara (2018) investigated the quality and profitability of bank assets in India and found no significant impact of non-performing assets on commercial bank profitability. This contradictory finding suggests that the relationship between asset

quality and financial performance may vary by context and financial environment. The study contrasts with the current results, indicating that asset quality's impact on financial performance is not universally consistent.

Adeolu (2017) examined the relationship between asset quality and bank performance in Nigerian commercial banks, revealing a statistically significant positive relationship. Adeolu's findings differ from the current study, which found a negative impact of asset quality on financial performance. This discrepancy highlights the variability in how asset quality affects financial performance across different financial institutions and regions.

Imran et al. (2021) studied the Islamic banking sector in Pakistan, finding that asset quality does not significantly impact bankruptcy risk within the Islamic banking system. However, they noted an interaction between capital asset ratio and asset quality. While this study does not directly align with the current results, it suggests that asset quality's influence on financial performance may be moderated by other financial metrics, such as the capital asset ratio.

Olweny and Mamba (2018) investigated the relationship between banking sector characteristics and bank performance in Kenya. They found a negative and significant relationship between asset quality and profitability, consistent with the current study's findings. Their study underscores the importance of managing credit risk to enhance financial performance, reinforcing the detrimental effect of poor asset quality on profitability.

Barus, Muturi, and Kibati (2018) examined the impact of asset quality on the financial performance of Kenyan SACCOs, finding that the quality of assets significantly influences financial success. Their results align with the current study, highlighting the critical role of asset quality in determining financial performance in the Kenyan context.

The literature on the relationship between asset quality and financial performance reveals mixed results. While studies by Olweny and Mamba (2018) and Barus, Muturi, and Kibati (2018) support the current findings, other studies, such as Vigneswara (2018), show no significant impact, and Adeolu (2017) found a positive relationship. These differences suggest that the impact of asset quality on financial performance may depend on various factors, including the financial institution type, geographical context, and specific financial metrics considered.

The results indicating that asset quality had a negative statistically significant relationship with the financial performance of deposit-taking SACCOs support Wrecker's financial distress theory. Wrecker's theory posits that financially distressed firms experience numerous negative shocks, leading to worse performance compared to financially stable firms. This negative impact on asset quality, as reflected in low deposits and high non-performing loans, aligns with the theory's assertion that distressed firms face significant financial challenges. These challenges often result from stakeholders extracting private benefits and non-dividend advantages as the firm nears default, which can deplete resources and further degrade asset quality. Thus, the observed negative relationship between asset quality and financial performance in SACCOs supports Wrecker's theory by illustrating how financial distress and resultant poor asset quality can lead to inferior financial performance.

H_o5: Capital sufficiency has no statistically significant relationship with the financial performance of Deposit taking SACCOs.

The fifth objective examined the relationship between capital sufficiency and financial performance. The findings rejected the null hypothesis where significant value of 0.000 was below the significant level (β_5=-0.393, p=0.000<0.05). The results indicated that capital sufficiency had negative statistical significant relationship with financial performance of SACCOs in Kenya.

In line with current study, Acharya, Pierret, and Steffen (2018) investigated the effect of bank capital on financial performance in US banks and found a strong negative relationship between leverage ratio, a measure of capital sufficiency, and financial performance. This finding aligns with the current study, suggesting that higher capital sufficiency might not always translate to better financial performance, possibly due to the increased costs associated with maintaining higher capital levels.

Similarly, Kartal (2019) examined factors affecting Turkish banks' capital structures and found that deposits had a negative impact on the capital buffer, while factors such as lagged capital, economic growth, portfolio risk, and return on equity had positive impacts. The negative impact of deposits on the capital buffer supports the current findings, indicating that managing capital adequacy can be challenging and may negatively affect financial performance if not balanced properly.

Buyuksalvarc and Abdioglu (2019) explored the variables affecting capital adequacy ratios in Turkish banks. They found that loans, return on equity, and leverage negatively impacted capital adequacy ratios, while loan reserves and return on assets had positive impacts. This mixed impact suggests that while some factors can enhance capital

adequacy, others can detract from it, supporting the notion that maintaining optimal capital levels is complex and can negatively affect financial performance if not managed effectively.

Ogunode, Awoniyi, and Ajibade (2022) evaluated the impact of sufficient capital on the corporate performance of publicly traded non-financial companies in Nigeria. Their findings showed a negative impact of capital adequacy ratio on corporate performance, which concurs with the current study. This suggests that higher capital adequacy requirements can impose financial burdens, reducing the overall performance of firms, including SACCOs.

Adeyemi (2019) investigated the causes of Nigerian bank collapse, identifying lack of capital as a significant factor. While Adeyemi's study highlighted the importance of adequate capital for financial stability, it found no direct link between capital adequacy and financial performance. This contrasts with the current study, which found a negative relationship, suggesting that while adequate capital is necessary for stability, excess capital might hinder performance.

Mwangi (2020) examined the challenges faced by Kenyan SACCOs in implementing capital adequacy standards. The study found that these standards reduced operational risks and enhanced public confidence but did not directly link capital adequacy to financial performance. This partially supports the current study, as maintaining capital adequacy appears to have mixed effects, providing stability but potentially hindering performance.

Ngui and Jagongo (2017) studied the impact of capital sufficiency on the financial performance of Kenyan SACCOs. Their findings indicated that capital adequacy positively affected financial performance, which contradicts the current study. This discrepancy may arise from different methodologies or time frames, highlighting the complexity of the relationship between capital sufficiency and financial performance.

Sangmi (2019) pointed out that factors such as branch expansion and company diversification are influenced by capital sufficiency. The study used capital sufficiency ratio and interest margin ratio to assess capital sufficiency, finding that a higher ratio is preferred as it indicates a sufficient risk buffer. This aligns with the current study's use of these metrics, though the negative impact on financial performance suggests that maintaining high capital levels might impose financial constraints on SACCOs.

Ongore and Kusa (2018) found that capital sufficiency significantly influenced the efficiency of Kenyan commercial banks, supporting the current study's findings. However, they did not explore its impact on financial performance as a potential indicator of financial distress, leaving a gap that the current study addresses.

Song (2018) and Karles (2019) investigated how banks handled Basel's capital sufficiency requirements, finding a negative relationship between market risk and capital buffer. These findings support the current study, indicating that higher capital requirements can negatively impact financial performance by increasing the financial burden on institutions.

On the contrary, Ikpefan (2018) examined Nigerian banks and found no association between capital sufficiency and return on assets (ROA). This contradicts the current study, which found a negative relationship between capital sufficiency and financial

performance, suggesting that the impact of capital sufficiency may vary across different financial environments.

Amina (2016) studied the impact of core capital ratio on cooperative societies' performance in Nairobi, concluding that core capital adequacy significantly affects performance by managing credit risk and fostering public confidence. This aligns with the current study's findings that capital sufficiency impacts financial performance, though the negative relationship suggests that excessive capital requirements might hinder performance.

Overall, the literature presents mixed findings on the relationship between capital sufficiency and financial performance. While some studies align with the current results, indicating a negative impact, others show positive or no significant relationships. These discrepancies highlight the complexity of this relationship and suggest that the impact of capital sufficiency on financial performance may vary depending on the specific context and financial environment.

According to Keynes, firms, including SACCOs, hold money for three primary reasons: transactional, precautionary, and speculative motives. SACCOs, like other firms, need liquidity for day-to-day operations (transactional motive), to cover unexpected financial shocks (precautionary motive), and for potential future investments (speculative motive). However, excessive capital sufficiency, or liquidity, may indicate that SACCOs are holding too much idle capital, which could otherwise be used for productive investments. This idle capital, rather than being invested in income-generating activities, limits the SACCOs' ability to achieve better financial returns, thus

contributing to the negative relationship between capital sufficiency and financial performance.

Moreover, Keynes' theory suggests that while maintaining liquidity is essential for operational flexibility and risk management, SACCOs face challenges if they over-prioritize liquidity at the expense of leveraging investment opportunities. The negative relationship found in the study aligns with Keynes' assertion that capital held for precautionary or speculative motives often earns lower interest, especially in the short term. SACCOs may find themselves with insufficient returns on their capital if they over-accumulate liquidity instead of optimizing their lending and investment operations. Furthermore, the cost of acquiring external funds (such as loans from commercial banks) to cover capital shortfalls could narrow profit margins, especially when high interest rates are involved, as indicated by liquidity preference theory. Hence, the negative impact of capital sufficiency on financial performance in SACCOs is a reflection of an imbalance between maintaining liquidity and effectively deploying capital for growth and profitability.

> H_o6: Firm size has no statistically significant moderating effect on the relationship between financial distress factors and financial performance of Deposit Taking SACCOs.

The sixth objective finding revealed that the interaction between firm size and financial distress coefficient was significant since the p-value of 0.00 was less than 5% significant level (β_6 =-1.170, p=0.00<0.05). This led to rejection of null hypothesis and acceptance of alternative. This implied that firm size had statistically significant and

negative moderating effect on the relationship between financial distress factors and financial performance of Deposit Taking SACCOs.

El-Rabat, Aldel-Fatah, and Mohamed (2023) found that firm size moderated the relationship between financial distress and earnings management in Egyptian firms, mitigating the negative effects of financial distress. This concurs with the current study, supporting the idea that larger firms can influence the impact of financial distress, though the direction of moderation differs, with the current study finding a negative effect.

Corvino et al. (2019) investigated firm size's moderating influence on relational capital and performance in European firms, showing that firm size significantly moderates performance relationships, which aligns with the current study's emphasis on the importance of firm size as a moderator. However, their focus on relational capital rather than financial distress means their findings partially support the current results without directly addressing financial distress factors.

Muange and Kiptoo (2020) found that firm size moderates the relationship between joint marketing alliances and firm performance, with larger firms experiencing enhanced performance from such alliances. This aligns with the current study by highlighting the significant role of firm size in moderating performance outcomes, albeit in a different context.

Wayongah and Mule (2019) examined the moderating effect of firm size on the relationship between financial leverage and financial performance in Kenyan non-financial enterprises. They found that firm size negatively moderated this relationship,

similar to the current study's findings that larger firms experienced a more pronounced negative impact from financial distress.

Otwoko, Maina, and Kwasira (2021) concluded that firm size positively moderates the relationship between interest rate determinants and financial performance in DTS, contrasting with the current study's negative moderation effect of firm size on financial distress factors. This suggests that the direction of moderation can vary depending on the specific financial variables involved.

Victor (2019) did not find firm size to significantly moderate the relationship between loan performance and credit risk in Kenyan DTS, which contradicts the current study's findings. This suggests that the moderating role of firm size may differ based on the specific performance metrics and contexts being analyzed.

Aduralere and Oyelade (2019) and Alipour, Sheikhi, and Agajani (2019) also investigated firm size as a moderating factor in financial performance relationships, finding varying impacts. Aduralere and Oyelade (2019) found positive and negative impacts depending on the performance measures used, while Alipour, Sheikhi, and Agajani (2019) found that firm size significantly moderated the relationship between capital structure and financial distress, similar to the current study.

Abbasi and Malik (2015) concluded that firm size moderates the relationship between firm growth and financial performance, aligning with the current study's findings by emphasizing the significant role of firm size as a moderator. Vithessonthi and Tongurai (2015) found that the impact of leverage on performance depended on firm size, with larger firms experiencing a more negative impact, which aligns with the current study's finding of a negative moderating effect of firm size on financial distress factors.

Shehzad, Haan, and Scholtens (2013) and Sufian and Kamarudin (2012) found mixed results regarding the impact of firm size on profitability, with Shehzad et al. finding no substantial positive relationship and Sufian and Kamarudin finding a positive influence in the context of Bangladeshi commercial banks. These studies do not directly address the moderating role of firm size in connection with financial distress factors among deposit-taking SACCOs in Kenya, limiting their direct applicability to the current study.

Therefore, the current study's findings on the significant negative moderating effect of firm size on the relationship between financial distress factors and financial performance of deposit-taking SACCOs in Kenya are partially supported by the literature. While some studies align with the idea of firm size being a significant moderator, the direction and context of this moderation can vary, highlighting the complex role firm size plays in financial performance relationships.

Interpreted the results in the lens of economies of scale theory, suggests that as SACCOs grow in size, they may not fully enjoy the expected benefits of economies of scale, such as cost reductions and operational efficiency. Instead, large SACCOs may experience diseconomies of scale, where their size leads to inefficiencies, higher costs, and difficulties in management, thus exacerbating the effects of financial distress factors. According to Marshall’s theory, economies of scale are beneficial up to a certain point, but beyond this threshold, firms can encounter diminishing returns due to complex operational structures and higher coordination costs. This aligns with the negative moderating effect found in the study, where the larger size of SACCOs hindered their ability to cope with financial distress, negatively impacting financial performance.

The study's results indicating a statistically significant moderating effect of firm size on the relationship between financial distress factors and the financial performance of Deposit Taking SACCOs align well with Wrecker's financial distress theory. This theory posits that distressed enterprises tend to perform worse than financially stable ones, suggesting that stakeholders may derive private benefits from such turmoil. Larger SACCOs, with more substantial assets and resources, may have a greater capacity to absorb financial shocks and manage distress factors, aligning with the notion that distressed firms can navigate financial difficulties better when they have more substantial resources.

Furthermore, the larger scale might provide these SACCOs with better negotiating power, access to financial markets, and operational flexibility, thereby mitigating the negative impacts of financial distress and supporting the theory's assertion that stakeholders can benefit from such situations. The significant moderating effect of firm size on financial performance underscores the importance of resource availability and scale in managing financial distress, resonating with Wrecker's theory that distressed entities can still function effectively and offer stakeholder benefits under certain conditions.

In summary, the negative coefficient for this interaction ($\beta = -1.170$) indicates that as firm size increases, the negative effects of financial distress factors become more pronounced, worsening financial performance. When relating these findings to the Altman Z-score model for the service industry, which predicts bankruptcy risk based on a firm’s financial ratios, the results suggest that operational efficiency is crucial for financial health. However, high leverage, poor asset quality, and insufficient capital may signal financial distress, reducing the firm’s Z-score. The moderating role of firm

size in the second equation indicates that larger firms might face greater risks of financial distress, aligning with the Z-score model's emphasis on managing financial ratios to avoid insolvency.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The chapter consist of summary of the study which were adopted in developing the conclusion and recommendations of the study. It summarizes liquidity, leverage, operation efficiency, asset adequacy, capital sufficiency, firm size and financial performance. The summary results also examined the relation between liquidity, leverage, operation efficiency, asset adequacy and capital sufficiency with financial performance. It also examined the moderating effect of firm size on financial distress and financial performance of SACCOs in Kenya. The results provided sufficient conclusions and recommendations that adds knowledge as well as guide the SACCOs in Kenya.

5.2 Summary of the Findings

5.2.1 Liquidity and Financial Performance

The analysis of liquidity using two primary ratios—liquid assets to total deposits and total loans to total deposits—indicated a generally favorable liquidity status for SACCOs from 2020 to 2022, showing an increasing trend over these years. The ratios demonstrated a significant peak in liquid assets to total deposits in 2021, with notable fluctuations around the COVID-19 pandemic period in 2019. Similarly, the total loans to total deposits ratio was highest in 2019, reflecting the economic impacts of the pandemic, with a consistent increase observed from 2020 onwards. Despite the overall liquidity ratios suggesting a solid liquidity position, the study concluded that liquidity

did not significantly influence the financial performance of SACCOs in Kenya, as the statistical analysis showed no significant predictive relationship between the two.

5.2.2 Financial Leverage and Financial Performance

The financial leverage of SACCOs was analyzed using two key ratios: total liabilities to core capital and total liabilities to total assets, both of which are commonly used by SASRA. The findings showed that financial leverage peaked in 2019, largely due to the COVID-19 pandemic, with a general decreasing trend in the ratios from 2018 to 2022, indicating a reduction in liabilities and an increase in core capital. This trend suggests improved financial stability over the five-year period. The composite leverage ratios also reflected a similar decline, with the highest leverage observed in 2019. The study's second objective was to assess the relationship between financial leverage and financial performance, revealing that financial leverage significantly predicted financial performance. The analysis indicated that increases in financial leverage were associated with substantial improvements in financial performance, demonstrating a positive and statistically significant relationship between these two factors for deposit-taking SACCOs in Kenya.

5.2.3 Operation Efficiency and Financial Performance

Operation efficiency in SACCOs was evaluated using the ratios of total operation expenses to total income and total income to core capital. The analysis showed fluctuating operation expenses relative to total income, with the highest ratio observed in 2018 and the lowest in 2020, followed by an increase in 2022. The variation in this ratio was stable from 2019 to 2022 but peaked in 2018. When examining total income

relative to core capital, the highest ratio was recorded in 2019, with a general decline over the five years, indicating reduced income against core capital. The overall trend in operation efficiency, combining these metrics, showed a decline from 2018 to 2022. The study's third objective was to determine the relationship between operation efficiency and financial performance, revealing a statistically significant predictive relationship. Increased operation efficiency was associated with significant improvements in financial performance, indicating that better operation efficiency led to enhanced financial performance for deposit-taking SACCOs in Kenya.

5.2.4 Asset Quality and Financial Performance

The study evaluated asset quality using the ratios of non-performing loans to gross loans and loan liability provisions to total income from 2018 to 2022. The results indicated a rising trend in non-performing loans relative to gross loans, suggesting increased losses due to higher non-performing loans. Variability in this ratio also increased over the period. The loan liability provision to total income ratio fluctuated, peaking in 2022, with low variation across the years. Overall, the asset quality ratio showed an increasing trend from 2018 to 2022. The analysis concluded that asset quality significantly predicted financial performance, with a negative relationship. Specifically, higher asset quality, as measured by these ratios, was associated with a decrease in financial performance, indicating that as the quality of assets declined, the financial performance of deposit-taking SACCOs in Kenya also worsened.

5.2.5 Capital Sufficiency and Financial Performance

Capital sufficiency was analyzed using the ratios of core capital to total assets and core capital to total deposits over a five-year period. The core capital to total assets ratio showed an increasing trend, peaking in 2022 and reaching its lowest point in 2019, likely due to the impact of the COVID-19 pandemic. Similarly, the core capital to total deposits ratio also increased consistently from 2018 to 2022, indicating higher shareholder investment relative to deposits. The composite capital sufficiency ratio reflected this upward trend, despite a dip in 2019. The study's fifth objective was to examine the relationship between capital sufficiency and financial performance, revealing that capital sufficiency significantly predicted financial performance. However, this relationship was negative, indicating that increases in capital sufficiency were associated with decreases in financial performance for deposit-taking SACCOs in Kenya.

5.2.6 Moderating Effect of Firm Size on Distress Factor and Financial Performance

The study assessed firm size using the log of total assets and the sales to total assets ratio over a five-year period. The results indicated an increasing trend in total assets, demonstrating growth in firm size across the SACCOs in Kenya. The sales to total assets ratio remained relatively constant, with slight variations. The composite measure of firm size also showed an upward trend, reflecting overall growth in both assets and sales. The study's final objective was to examine the moderating effect of firm size on the relationship between financial distress and financial performance. The analysis revealed that financial distress variables, including liquidity, financial leverage,

operation efficiency, asset quality, and capital sufficiency, were significant predictors of financial performance, with firm size significantly moderating this relationship. The interaction between financial distress factors and firm size was significant, indicating that firm size played a crucial role in influencing how financial distress affected financial performance in deposit-taking SACCOs in Kenya.

5.3 Conclusions of the Study

5.3.1 Liquidity and Financial Performance

In the first objective, the study concluded that liquidity had insignificant relationship with SACCOs. The analysis of liquidity, measured by liquid assets to total deposits and total loans to total deposits ratios, indicated a generally favorable liquidity status for SACCOs from 2020 to 2022, with peaks and fluctuations influenced by the COVID-19 pandemic. Despite these findings, the study concluded that liquidity did not significantly impact the financial performance of SACCOs in Kenya. The statistical analysis revealed no significant predictive relationship between liquidity and financial performance, suggesting that other factors might play a more critical role in determining financial outcomes for these institutions.

5.3.2 Financial Leverage and Financial Performance

Financial leverage, assessed through ratios of total liabilities to core capital and total liabilities to total assets, peaked in 2019 due to the COVID-19 pandemic but showed a general decreasing trend from 2018 to 2022. This trend indicated reduced liabilities and increased core capital, suggesting improved financial stability. The study found that

financial leverage significantly predicted financial performance, with increases in leverage associated with substantial improvements in financial performance. This positive and statistically significant relationship underscored the importance of effective leverage management for enhancing the financial outcomes of deposit-taking SACCOs in Kenya.

5.3.3 Operation Efficiency and Financial Performance

Operational efficiency was evaluated using total operation expenses to total income and total income to core capital ratios. The analysis revealed fluctuations in operation expenses relative to total income, with significant variations in 2018 and a general decline in efficiency from 2018 to 2022. Despite these fluctuations, the study concluded that operational efficiency had a statistically significant predictive relationship with financial performance. Improved operational efficiency was associated with significant enhancements in financial performance, highlighting the critical role of managing operational expenses and income effectively in achieving better financial results for SACCOs.

5.3.4 Asset Quality and Financial Performance

The study concluded that asset quality significantly predicted financial performance, but with a negative relationship. Higher asset quality, as indicated by the ratios, was associated with decreased financial performance, suggesting that declining asset quality adversely affected the financial outcomes of deposit-taking SACCOs in Kenya. Asset quality was assessed using the ratios of non-performing loans to gross loans and loan liability provisions to total income. The results indicated an increasing trend in non-

performing loans, suggesting rising losses due to higher non-performing loans. Despite fluctuations, the overall asset quality ratio showed an increasing trend from 2018 to 2022.

5.3.5 Capital Sufficiency and Financial Performance

Capital sufficiency was analyzed using core capital to total assets and core capital to total deposits ratios. The findings showed an increasing trend in these ratios from 2018 to 2022, despite a dip in 2019 due to the pandemic. This trend indicated higher shareholder investment and improved financial stability. However, the study concluded that capital sufficiency had a negative relationship with financial performance. Increases in capital sufficiency were associated with decreases in financial performance, suggesting that while capital sufficiency is crucial, other factors might offset its potential benefits on the financial outcomes of SACCOs.

5.3.6 Moderating Effect of Firm Size on Distress Factor and Financial Performance

The study concluded revealed that firm size significantly moderated this relationship, suggesting that larger firms could better manage financial distress factors, thereby influencing their financial performance. The interaction between distress factors and firm size was significant, underscoring the importance of firm size in determining the financial resilience and performance of deposit-taking SACCOs in Kenya. Firm size, assessed using the log of total assets and the sales to total assets ratio, showed an increasing trend, indicating growth across the SACCOs. The study examined the moderating effect of firm size on the relationship between financial distress factors

(liquidity, financial leverage, operational efficiency, asset quality, and capital sufficiency) and financial performance.

5.3.6 Theoretical Implication

The theoretical contribute to Wrecker's financial distress theory, which posits that financially distressed firms often underperform due to multiple negative shocks leading to asset depletion and poor performance. The results showed that liquidity alone does not drive the performance outcomes of SACCOs; instead, factors like asset quality and non-performing loans are more critical, aligning with Wrecker's view that asset depletion primarily influences performance. The positive relationship between financial leverage and performance suggests that stakeholders might benefit from financial turmoil, leveraging resources more aggressively during distress to optimize returns. Additionally, the significant moderating effect of firm size indicates that larger SACCOs, with better resources, can better manage financial shocks, providing a more nuanced understanding of how financial distress and firm size interact to influence performance. These insights affirm the importance of considering broader distress factors and resource availability in managing financial performance, in line with Wrecker's theory.

5.4 Recommendations of the Study

5.4.1 Liquidity and Financial Performance

The study recommended that SACCOs maintain their current liquidity management practices but not rely solely on liquidity measures as a strategy for improving financial

performance. Given that liquidity did not significantly impact the financial performance of deposit-taking SACCOs in Kenya. Instead, they should focus on other financial health indicators and explore diversified investment opportunities that could enhance profitability. Further, conducting regular liquidity stress tests can help ensure preparedness for economic shocks, like those experienced during the COVID-19 pandemic, thereby safeguarding financial stability.

5.4.2 Financial Leverage and Financial Performance

The study recommended that SACCOs maintain an optimal balance between leveraging and risk management. Since there is significant positive relationship between financial leverage and financial performance suggests that SACCOs should leverage their liabilities effectively to boost financial outcomes. This can be achieved by implementing robust risk assessment frameworks and ensuring compliance with regulatory leverage limits. Additionally, SACCOs should consider strategic borrowing and capital investments that can drive growth and improve their core capital base, enhancing overall financial stability and performance.

5.4.3 Operation Efficiency and Financial Performance

With operational efficiency significantly predicting financial performance, SACCOs should prioritize enhancing their operational processes. It is recommended that SACCOs implement cost-cutting measures, streamline operations, and adopt technology to reduce operational expenses. Furthermore, investing in staff training and development can improve productivity and operational effectiveness. By focusing on

increasing income relative to expenses and optimizing resource allocation, SACCOs can achieve better financial performance and sustainable growth.

5.4.4 Asset Quality and Financial Performance

The study recommended that SACCOs enhance their credit risk management practices to reduce the level of non-performing loans. Due negative impact of declining asset quality on financial performance highlights the need for SACCOs to improve their asset management strategies. Implementing stricter loan appraisal processes, continuous monitoring of loan portfolios, and adopting effective recovery strategies for non-performing loans can help in maintaining better asset quality. By ensuring high asset quality, SACCOs can mitigate losses and improve their financial performance.

5.4.5 Capital Sufficiency and Financial Performance

Study recommends that SACCOs focus on optimizing their capital structure by balancing capital adequacy with profitability. Despite the negative relationship between capital sufficiency and financial performance, maintaining adequate capital sufficiency is essential for regulatory compliance and financial stability. SACCOs should encourage shareholder investments and retain earnings to build a strong capital base. Additionally, exploring innovative financial instruments and partnerships can help SACCOs enhance their capital without adversely impacting financial performance.

5.4.5 Moderating effect of Firm Size on Distress Factor and Financial Performance

The significant moderating effect of firm size on the relationship between financial distress factors and financial performance suggests that larger SACCOs are better positioned to manage financial distress. The study recommends that SACCOs focus on growth strategies to increase their asset base and market share. Mergers and acquisitions could be considered to achieve economies of scale and enhance resilience against financial distress. Moreover, implementing comprehensive financial planning and management practices can help SACCOs of all sizes improve their capacity to manage distress factors and achieve better financial performance.

5.5 Recommendations for Further Studies

Further research should be conducted to assess the moderating effect of firm size on each variable related to financial distress. This analysis will help identify which specific financial distress variables are significantly influenced by firm size and how these relationships impact overall firm performance.

Additionally, it would be valuable to explore the impact of global crises, such as climate change and natural disasters, on financial distress within SACCOs. Understanding how these external factors contribute to financial instability can provide insights into risk management practices and the resilience of SACCOs in the face of environmental challenges. Such a study could also inform policymakers and stakeholders about the importance of sustainability initiatives in the cooperative sector.

Moreover, further investigations into the role of technological innovation and digital transformation are warranted. Research can focus on how these advancements assist firms in mitigating financial distress. Exploring the adoption of technology in financial practices can reveal effective strategies that SACCOs might implement to enhance operational efficiency and overall performance. Additionally, cross-regional and cross-industry comparative studies could provide a broader context for understanding how different sectors and geographical areas respond to financial distress.

Finally, future research should also examine other financial distress factors that influence performance by expanding the scope of investigation to include various determinants, researchers can identify additional variables that significantly impact the financial health of SACCOs. This comprehensive approach will contribute to a more nuanced understanding of financial performance in the cooperative sector and offer practical recommendations for SACCOs striving to improve their financial resilience and sustainability.

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APPENDICES

APPENDIX I: Introductory Letter

Geoffrey Ngetich Iletaach

University of Kabianga

School of Business and Economics,

RE: DATA COLLECTION

I am a Ph.D student at the University of Kabianga working on a doctoral degree in business administration titled "Financial Distress Factors, Firm Size, and Financial Performance of Deposit Taking Savings and Credit Cooperative Organizations (SACCOs) in Kenya."

I respectfully request that you assist me conduct this research by providing secondary data on the study variable. Please rest assured that your responses to this survey will be treated entirely confidential and used for academic reasons exclusively.

Thank you in advance for taking the time to take part in this survey.

Yours Sincerely,

Geoffrey Ngetich Iletaach

PHD/BSA/0010/2021

Appendix II: Data Extraction Sheet

Name of the SACCO: ……..

Variable	**2018 KSh.**	**2019 KSh.**	**2020 KSh.**	**2021 KSh.**	**2022 KSh.**
Liquidity					
Quick Assets to total liabilities ratio					
Quick Assets to Total asset ratio					
Financial Leverage					
Debt-Equity Ratio					
Debt to asset ratio					
Operation Efficiency					
Operating Efficiency Ratio					
Net Worth Turnover Ratio					
Asset Quality					
Total NPL to Total loans ratio					
NPL Provision to Operating income ratio					
Capital Sufficiency					
Capital sufficiency ratio					
Net interest margin ratio					
Financial Performance					
R.O.A					
R.O.E					
Firm Size					
Total Asset of the SACCOs					
Sales ratio					

Appendix III: List of Registered SACCOs

Names of the Deposit Taking SACCO Society, Postal Address and Location of Head Office

1. 2NK SACCO Society Ltd P.O. Box 12196 – 10109, Nyeri Kang'aru Corner Building, Gakere Road, Nyeri
2. Acumen SACCO Society Ltd P.O. Box 1325 – 00200, Nairobi Great-Wide Mall, Magadi Road, Ongata Rongai Kajiado
3. Afya SACCO Society Ltd P.O. Box 11607 – 00400, Nairobi. Afya Centre, Tom Mboya Street, Nairobi CBD Nairobi
4. Agro-Chem SACCO Society Ltd P.O. Box 94 – 40107, Muhoroni. Unierectus Building, Muhoroni Town Kisumu
5. Ainabkoi SACCO Society Ltd P.O. Box 120 – 30101, AinabkoiAinabkoi Building, Ainabkoi Trading Centre Uasin Gishu
6. Airports SACCO Society Ltd P.O. Box 19001 – 00501, Nairobi. Airports SACCO Building, KAA HQs, J.K.I.A, Nairobi
7. Amica SACCO Society Ltd P.O. Box 816 – 10200, Murang'a. Mugama Unions Building, Uhuru Street, Murang'aMurang'a
8. Ammar SACCO Society Ltd P.O Box 6957 – 01000, Thika. Pushpa Plaza, Kwame Nkrumah Rd, Thika Town Kiambu
9. Ardhi SACCO Society Ltd P.O. Box 28782 – 00200, Nairobi. Survey of Kenya Field Hqs, Off Thika Rd, Nairobi Nairobi

10. Asili SACCO Society Ltd P.O. Box 49064 – 00100, Nairobi. Asili Co-op Centre, Ngara Road, Ngara, Nairobi Nairobi

11. Azima SACCO Society Ltd P.O. Box 1124 – 01000, Thika. Azima SACCO Plaza, Wabera street, Thika Town Kiambu

12. Bandari SACCO Society Ltd P.O. Box 95011 – 80104, Mombasa. Bandari SACCO Plaza, Moi Avenue, Mombasa City Mombasa

13. Baraka SACCO Society Ltd P.O. Box 1548 – 10101, Karatina. Baraka SACCO Bldg, Off Kiaruhiu, Karatina Town Nyeri

14. Baraton University SACCO Society Ltd P.O Box 2500 – 30100, Eldoret. University of Eastern Africa, Baraton, Eldoret Town Uasin Gishu

15. Biashara SACCO Society Ltd P.O. Box 1895 – 10100, Nyeri. Biashara SACCO Building, Kimathi Way, Nyeri Town Nyeri

16. Biashara Tosha SACCO Society Ltd P.O Box 189 – 60101, Manyatta. Gakundu F.C.S Bldg, Embu-Kianjokoma Rd, Manyatta Embu

17. Bi-High SACCO Society Ltd P.O. Box 90 – 60500, Marsabit. Marsabit Teachers Plaza, Mosque Rd, Marsabit Town Marsabit

18. Bingwa SACCO Society Ltd P.O. Box 434 – 10300, Kerugoya. Tea Growers Complex Bldg, Kutus/Karatina Rd, Kerugoya Town Kirinyaga

19. Boresha SACCO Society Ltd P.O. Box 80 – 20103, Eldama Ravine. Teachers Plaza, Market Road, Eldama Ravine Town Baringo

20. Capital SACCO Society Ltd P.O Box 1479 – 60200, Meru. MACCU Building, Kenyatta Highway, Meru Town Meru

21. Centenary SACCO Society Ltd P.O. Box 1207 – 60200, Meru. Intercity Centre, Kenyatta Avenue, Meru Town Centre Meru

22. Chai SACCO Society Ltd P.O. Box 278 – 00200, Nairobi. KTDA Plaza, Moi Avenue, Nairobi CBD Nairobi

23. Chuna SACCO Society Ltd P.O. Box 30197 – 00100, Nairobi. Engineering Dept. UON, Harry Thuku Rd, Nairobi City Nairobi

24. Chuka University SACCO Society Ltd P.O. Box 109 – 60400, Chuka Chuka University, Chuka Town Tharaka-Nithi

25. Cosmopolitan D.T. SACCO Society Ltd P.O. Box 1931 – 20100, Nakuru. Natec Building, Mburu Gichua Street, Nakuru Town Nakuru

26. County SACCO Society Ltd P.O. Box 21 – 60103, Runyenjes. County SACCO Building, Kanja Market Centre Embu

27. Daima SACCO Society Ltd P.O. Box 2032 – 60100, Embu. Daima SACCO Building, Manyatta Market Centre Embu

28. Defence SACCO Society Ltd P.O. Box 40668 – 00100, Nairobi DOD HQS, Nairobi Nairobi

29. Dhabiti SACCO Society Ltd P.O. Box 353 – 60600, Maua. Dhabiti SACCO Building, Kanuni Road, Maua Town Meru

30. Dimkes DT SACCO Society Ltd P.O. Box 886 – 00900, Kiambu. Bishop Magua House, Biashara Street, Kiambu Town Kiambu

31. Dumisha SACCO Society Ltd P.O Box 84 – 20600, Mararal. Teachers Plaza, Harambee street, Maralal Town. Samburu

32. Eco-Pillar SACCO Society Ltd P.O. Box 48 – 30600, Kapenguria Teachers Plaza, Lotodo Street, Kapenguria Town West Pokot

33. Edis SACCO Society Ltd P.O. Box 228 -20400, BometNgocho Building, Opp. NCPB Bomet Depot, Bomet Town Bomet

34. Egerton SACCO Society Ltd P.O. Box 178 – 20115, Egerton. Egerton SACCO Plaza, Egerton University, Njoro Nakuru

35. Elimu SACCO Society Ltd P.O Box 10073 – 00100, Nairobi. ElimuHse, Mubiru Road, South B, Nairobi City Nairobi

36. Enea SACCO Society Ltd P.O. Box 1836 – 10101, Karatina. Kiangararu House, Karatina Town Nyeri

37. Faridi SACCO Society Ltd P.O. Box 448 – 50400, Busia. Faridi Housing Plaza, Busia Town Busia

38. Fariji SACCO Society Ltd P.O. Box 589 – 00216, Githunguri. Diplomat House, Githunguri Town Kiambu

39. Fortitude SACCO Society Ltd P.O. Box 237 – 40305, Mbita. Fortitude SACCO Building, Mbita Township Homa Bay

40. Fortune SACCO Society Ltd P.O. Box 559 – 10300, Kerugoya. Fortune Plaza, Opp. ACK Cathedral, Kerugoya Town Kirinyaga

41. Fundilima SACCO Society Ltd P.O. Box 62000 – 00200, Nairobi. Fedha House, JKUAT, Thika Road, Juja Town Nairobi

42. GDC SACCO Society Ltd P.O.Box896 – 00216, Githunguri. GDC SACCO Plaza, Market Street, Githunguri Town Kiambu

43. Golden Pillar SACCO Society Ltd P.O. Box 3192 – 60200, Meru. Imenti Complex, Main Stage, Meru Town Meru

44. Good Faith SACCO Society Ltd P.O. Box 224 – 00222, Uplands. Kiwa House, Githunguri Road, Uplands Town, Nyambari Kiambu

45. Goodhope SACCO Society Ltd P.O. Box 158 – 20500, Narok. Mwalimu Plaza, Narok Town Narok

46. Goodway SACCO Society Ltd P.O Box 626 – 10300, Kerugoya. Machere Plaza, Stage street, Kerugoya Town. Kirinyaga

47. GusiiMwalimu SACCO Society Ltd P.O. Box 1335 – 40200, Kisii. GusiiMwalimu Complex, Kisii Town Kisii

48. Harambee SACCO Society Ltd P.O. Box 47815 – 00100, Nairobi. Harambee SACCO Plaza, Nairobi City Centre Nairobi

49. Hazina SACCO Society Ltd P.O. Box 59877 – 00200, Nairobi. Hazina SACCO Bldg. Kibera Rd, Off Ngong Rd. Nairobi Nairobi

50. Home Business SACCO Society Ltd P.O Box 1073- 20300, Nyahururu TEK BIZ Centre, Koinange Road, Nyahururu Town Laikipia

51. Ilkisonko SACCO Society Ltd P.O Box 91 – 00209, Loitokitok. Musangairo F.S Building, Loitoktok/Emali Road, Loitoktok Town Kajiado

52. Imarika SACCO Society Ltd P.O. Box 712 – 80108, Kilifi. KITECOH Complex, Kwa CharoWa Mae Street, Kilifi Town Kilifi

53. Imarisha SACCO Society Ltd P.O. Box 682 – 20200, Kericho. Kipsigis Teachers Co-op House, Kericho Town Kericho

54. Invest and Grow (IG) SACCO Society Ltd P.O. Box 1150 –50100, Kakamega. IG Plaza, Khalisia-3 Road, Kakamega Town Kakamega

55. Jacaranda SACCO Society Ltd P.O. Box 1767 – 00232, Ruiru. Finance House, Ground Floor, Ruiru Town Kiambu

56. Jamii SACCO Society Ltd P.O. Box 57929 – 00200, Nairobi. Jamii SACCO Court, Mukenia Rd, South B, Nairobi Nairobi

57. JamiiYetu SACCO Society Ltd P.O. Box 469 – 60600, Maua. MMH SACCO Plaza, Kanuni - Meru Rd, Maua Town Meru

58. Jitegemee SACCO Society Ltd P.O. Box 86937 – 80100, Mombasa. Kizingo House 2, Kaunda Road, Mombasa City Mombasa

59. Joinas SACCO Society Ltd P.O. Box 669 – 00219, Karuri. KanjaHse, Limuru-Banana Rd, Banana Hill Town Kiambu

60. Jumuika SACCO Society Ltd P.O. Box 14 – 40112, Awasi. Chemelil Sugar Sports Complex, Chemelil Town Kisumu

61. Kabiyet SACCO Society Ltd P.O Box 195 – 30303, Kabiyet. Kabiyet Nandi

62. Kencream SACCO Society Ltd P.O. Box 300131 – 00200, Nairobi. Creamery House, Dakar Road, Nairobi Nairobi

63. Kenpipe SACCO Society Ltd P.O. Box 314 – 00507, Nairobi. Kenpipe Plaza, Off Nanyuki Rd, Industrial Area, Nairobi Nairobi

64. Kenversity SACCO Society Ltd P.O. Box 10263 – 00100, Nairobi. Kenversity Plaza, KahawaSukari Area, Nairobi Nairobi

65. Kenya Achievas SACCO Society Ltd P.O. Box 3080 – 40200, Kisii. Achievas Plaza Nyamache-Igembe-Igage Rd, Nyamache Town Kisii

66. Kenya Bankers SACCO Society Ltd P.O. Box 73236 – 00200, Nairobi. Kenya Bankers SACCO Centre, 3rd Ngong Avenue, Nairobi City. Nairobi

67. Kenya Highlands SACCO Society Ltd P.O. Box 2085 – 002000, Kericho. Temiik House, Kericho – Kisumu Road, Kapsoit Market Centre Kericho

68. Kenya National Police DT SACCO Society Ltd P.O. Box 51042 – 00200, Nairobi. Kenya Police SACCO Plaza, Ngara Rd, Ngara, Nairobi Nairobi

69. KimbilioDaima SACCO Society Ltd P.O. Box 81 – 20225, Kimulot. Chepsol Plaza, Kimulot Town Centre Kericho

70. Kimisitu SACCO Society Ltd P.O. Box 10454 – 00200, Nairobi AEA Plaza, Valley Road. Nairobi City Nairobi

71. Kingdom SACCO Society Ltd P.O. Box 8017 – 00300, Nairobi. Empower House, Githurai 45, off Thika Rd, Githurai Area, Nairobi Nairobi

72. Kite SACCO Society Ltd P.O. Box 2073 – 40100, Kisumu. Kenya Re-Insurance Plaza, Bank Street, Kisumu Kisumu

73. Kitui Teachers SACCO Society Ltd P.O. Box 254 – 90200, Kitui. Kitui Teachers SACCO Plaza, Kalundu Road, Kitui Town Kitui

74. Kolenge Tea SACCO Society Ltd P.O Box 291 – 30301, Nandi Hills. Nandi-Hills Plaza, Market Street, Nandi Hills Town Nandi

75. Koru SACCO Society Ltd P.O. Box Private Bag-40100, Koru Homa lime Company, Koru Town Kisumu

76. K-Pillar SACCO Society Ltd P.O. Box 83 – 20403, Mogogosiek. K-Pillar Bldg, Bomet –Litein Rd, Mogogosiek Town Bomet

77. K-Unity SACCO Society Ltd P.O. Box 268 – 00900, Kiambu. Mapa House, BiasharaStreet,Kiambu Town Kiambu

78. Kwetu SACCO Society Ltd P.O Box 818 – 90100, Machakos. Mwalimu Centre, Syokimau Road, Machakos Town Machakos

79. Lainisha SACCO Society Ltd P.O. Box 272 – 10303, Wang'uru. SACCO Building, Embu-Nairobi Rd, Wanguru Town Kirinyaga

80. Lamu Teachers SACCO Society Ltd P.O. Box 110 – 80500, Lamu. Lamu Teachers Housing Bldg. Galogalo Street, Lamu Town Lamu

81. Lengo SACCO Society Ltd P.O. Box 1005 – 80200, Malindi. Standard Arcade, Lamu Rd, Malindi Town Kilifi

82. Mafanikio SACCO Society Ltd P.O Box 86515 – 80100, Mombasa. Mombasa Teacher's Plaza, Jomo Kenyatta Avenue,Mombasa Town Mombasa

83. Magadi SACCO Society Ltd P.O. Box 13 – 00205, Magadi. Pam View Building, Magadi Road, Magadi Town Kajiado

84. Magereza SACCO Society Ltd P.O. Box 53131 – 00200, Nairobi. Mageso Chambers, Moi Avenue, Nairobi City Centre Nairobi

85. Maisha Bora SACCO Society Ltd P.O. Box 30062 – 00100, Nairobi. Unilever Kenya Office, Commercial Street, Industrial Area, Nairobi Nairobi

86. Mentor SACCO Society Ltd P.O. Box 789 – 10200, Murang'a. Mentor Complex, Uhuru Road, Murang'a Town Murang'a

87. Metropolitan National SACCO Society Ltd P.O. Box 5684 – 00100, Nairabi, Kiambu. Chai House, Koinange Street, Nairobi City Centre Nairobi

88. Mombasa Port SACCO Society Ltd P.O. Box 95372 – 80104, Mombasa. Mombasa Port SACCO Plaza, Mwakilingo Road, Mombasa Mombasa

89. Mudete Factory Tea Growers SACCO Society Ltd P.O. Box 221 – 41053, Khayega. SACCO Plaza, Kakamega- Kisumu Road, Khayega Town Kakamega

90. Muki SACCO Society Ltd P.O Box 398 – 20318, North KinangopMuki House, Ndunyu-Njeru Town Centre Nyandarua

91. Mwalimu National SACCO Society Ltd P.O. Box 62641 – 00200, Nairobi. Mwalimu Towers, Upper Hill, Nairobi Nairobi

92. Mwietheri SACCO Society Ltd P.O. Box 2445 – 60100, Embu. Rungeto Farmers Co-op Society Bldg, Githure Market Centre Embu

93. Mwito SACCO Society Ltd P.O. Box 56763 – 00200, Nairobi. Mwito House, Desai Road, Nairobi City Nairobi

94. Nacico SACCO Society Ltd P.O. Box 34525 – 00100, Nairobi. NACICO Plaza, Landhies Road, Nairobi City Nairobi

95. Nafaka DT SACCO Society Ltd P.O. Box 30586 – 00100, Nairobi. Nairobi Silos Complex, Outer-Ring Road, Nairobi Nairobi

96. Nandi Farmers SACCO Ltd P.O Box 333 – 30301, Nandi Hills Market Street, Nandi Hills Plaza, Nandi Hills Town Nandi

97. Nation DT SACCO Society Ltd P.O. Box 22022 – 00400, Nairobi. Cambrian House, Moi Avenue, Nairobi CBD Nairobi

98. Nawiri SACCO Society Ltd P.O Box 400 – 60100, Embu. EMCO Hse, Taifa Road, Embu Town Embu

99. Ndege Chai SACCO Society Ltd P.O. Box 857 – 20200, Kericho. Ndege Chai House, Kisumu-Kericho Highway, Kericho Town Kericho

100. Ndosha SACCO Society Ltd P.O. Box 532 – 60401, Chogoria– Maara. Ndosha SACCO Plaza, Chogoria Town Tharaka-Nithi

101. New Fortis SACCO Society Ltd P.O. Box 1939 – 10100, Nyeri. Newfortis SACCO Complex, Off Kenyatta Road, Nyeri Town Nyeri

102. Nexus SACCO Society Ltd P.O Box 251 – 60202, Nkubu. Kathera House, Embu-Nkubu Road, Nkubu Town Meru

103. Ng'arisha SACCO Society Ltd P.O. Box 1199 – 50200, Bungoma. Bungoma Teachers SACCO Plaza, Moi Avenue, Bungoma Town Bungoma

104. NRS SACCO Society Ltd P. O Box 575 – 00902, Kikuyu. 62-Ondiri Building, Kikuyu Road, Kikuyu Town Kiambu

105. NSSF SACCO Society Ltd P.O. Box 43338 – 00100, Nairobi. Social Security House, Bishops Road, Nairobi Nairobi

106. Nufaika SACCO Society Ltd P.O Box 735 – 10300, Kerugoya. Machere Building, Machere Street, Kerugoya Town Kirinyaga

107. Nyala Vision SACCO Society Ltd P.O Box 27 – 20306, Ndaragwa. Kimathi Street, Mahiga Building Nyandarua

108. NyambeneArimi SACCO Society Ltd P.O. Box 493 – 60600, Maua. NyambeneArimi Plaza, Maua-Kanuni Rd, Ndaragwa Town Meru

109. Nyati SACCO Society Ltd P.O. Box 7601 – 00200, Nairobi Oddysey Plaza - Mukoma Rd, Nairobi Nairobi

110. Ollin SACCO Society Ltd P.O Box 83 – 10300, Kerugoya. Ollin SACCO Complex, Total-DC Rd. Off, Kutus-Karatina Highway, Karatina Town Kirinyaga

111. Orient SACCO Society Ltd P.O. Box 1842 – 01000, Thika. Former CDF Offices, Section 9 Road, Thika Town Kiambu

112. Patnas SACCO Society Ltd P.O Box 601 – 20210, Litein. Patnas Plaza, Kericho- Sotik Road, Litein Town Kericho

113. Prime Time SACCO Ltd P.O. Box 512 – 30700, ItenMwalimu Plaza, Iten-Eldoret Road, Iten Town Elgeyo Marakwet

114. PUAN SACCO Society Ltd P.O Box 404 – 20500, Narok. Farmers Building, Narok- Nakuru Road, Narok Town Narok

115. Qwetu SACCO Society Ltd P.O Box 1186 – 80304, Wundanyi TATECOH Building, Wundanyi Town Taita Taveta

116. Rachuonyo Teachers SACCO Society Ltd P.O. Box 147 – 40332, KoseleOyugis-Kisii Road, Oyugis Town Homa Bay

117. Safaricom SACCO Society Ltd P.O. Box 66827 – 00800, Nairobi. Safaricom Care Centre, WaiyakiWay,Westlands, Nairobi Nairobi

118. Sheria SACCO Society Ltd P.O. Box 34390 – 00100, Nairobi. Sheria SACCO Hse, Off-Matumbato Street, Upper-Hill, Nairobi Nairobi

119. Shirika Deposit Taking SACCO Society Ltd P.O Box 43429 – 00100, Nairobi. Shirika Co-op Hse, Kipande / Ngara Rd, Ngara, Nairobi City Nairobi

120. Shoppers SACCO Society Ltd P.O. Box 16 – 00507, Nairobi Nature House, Tom Mboya Street, Nairobi CBD Nairobi

121. Simba Chai SACCO Society Ltd P.O. Box 977 – 20200, Kericho. Kericho – Brooke Centre Kericho/Nakuru Highway, Kericho Town Kericho

122. Siraji SACCO Society Ltd P.O. Box Private Bag, Timau. NKM Place, Nanyuki – Meru Highway Meru

123. Skyline SACCO Society Ltd P.O. Box 660 – 20103, Eldama Ravine. Skyrise Plaza, Eldama Ravine Eldoret Road, Eldama Ravine Town Baringo

124. Smart Champions SACCO Society Ltd P.O Box 64 – 60205, GithongoMuranene Building, near Githongo Chief's Camp, Githongo Trading Centre Meru

125. Smart-Life SACCO Society Ltd P.O Box 118 – 30705, Kapsowar. Marakwet Teachers Plaza, Moi Street, Kapsowar - Sinon Rd, Kapsowar Town Elgeyo Marakwet

126. Solution SACCO Society Ltd P.O. Box 1694 – 60200, Meru. Meru Mwalimu Plaza, Gakoromone Road, Meru Town Meru

127. Sotico SACCO Society Ltd P.O. Box 959 – 20406, Sotik. Amoket Estate, Sotik Town Bomet 128. Southern Star SACCO Society Ltd P.O Box 514 – 60400, Chuka Mt. Building, Embu-Meru Road, Chuka Town Tharaka-Nithi

128. Stake Kenya SACCO Society Ltd P.O. Box 208 – 40413, Kehancha Stake Kenya SACCO Plaza, Kehancha-Ntimaru Rd. Kehancha Town Migori

129. Stawisha SACCO Society Ltd P.O Box 27 – 50203, Kapsokwony. Mwalimu plaza, Kapsokwony - Kaptama Road. Kapsokwony Town Elgeyo Marakwet

130. Stima DT SACCO Society Ltd P.O. Box 75629 – 00100, Nairobi. Stima SACCO Plaza, Mushembi Road, Parklands, Nairobi Nairobi

131. Strategic-Urembo SACCO Society Ltd P.O. Box 78506, Nairobi. LungaLunga Square, Industrial Area Nairobi Nairobi

132. Suluhu SACCO Society Ltd P.O Box 489 – 90400, Mwingi. MwingiMwalimu Plaza, Kyuso Road, Mwingi Town Kitui

133. Supa SACCO Society Ltd P.O. Box 271 – 20600, Maralal. Supa Plaza, Posta Road Maralal Town Samburu

134. Tabasamu SACCO Society Ltd P.O. Box 123 – 80403, Kwale. Tunawiri House, Kwale-Kinango Rd, Kwale Town Kwale

135. Tabasuri SACCO Society Ltd P.O. Box 80862 – 80100, Mombasa. Texas Plaza, Fidel Odinga Road, Mombasa City Mombasa

136. TAI SACCO Society Ltd P.O. Box 718 – 00216, Githunguri. Tai Plaza, Uplands/Limuru Road, Githunguri Town Kiambu

137. Taifa SACCO Society Ltd P.O. Box 1649 – 10100, Nyeri. NCU Building, Gakere Road, Nyeri Town Centre Nyeri

138. Taqwa SACCO Society Ltd P.O. Box 10180 – 00100, Nairobi Jamia Plaza, 3rd floor Kigali Street, Nairobi Nairobi

139. Taraji SACCO Society Ltd P.O. Box 605 – 40600, Siaya. Mwalimu Plaza, Oginga Odinga Street, Siaya Town Siaya

140. Telepost SACCO Society Ltd P.O. Box 49557 - 00100, Nairobi City Square Post Office, Haile Selassie Road, Nairobi Nairobi

141. Tembo SACCO Society Ltd P.O. Box 91 – 00618, Ruaraka. Tembo SACCO Complex, Garden Estate Rd, Mukima Drive, Ruaraka Nairobi

142. Tenhos SACCO Society Ltd P.O. Box 391 – 20400, Bomet. Tenhos Bldg. Kericho - Silibwet Rd, Tenwek, BometBomet

143. Thamani SACCO Society Ltd P.O. Box 467 – 60400, Chuka. Thamani SACCO Building, Chuka Town Tharaka-Nithi

144. The Apple SACCO Society Ltd P.O Box 153 – 50305, Sirwa. TASCCOS House, KapsabetChavakali Road, Chepsonoi Trading Centre Nandi

145. The Noble SACCO Society Ltd P. O. Box 3466 – 30100, Eldoret The Noble SACCO Building, Eldoret Town Uasin Gishu

146. Times-U SACCO Society Ltd P.O. Box 310 – 60202, Nkubu. Along KCB Street, Nkubu Town Meru

147. Tower SACCO Society Ltd P.O. Box 259 – 20303, Ol'kalou. Tower SACCO FOSA Bldg, Nyahururu- Ol'kalou Road, Ol'Kalou Township Nyandarua

148. Trans- Elite County SACCO Society Ltd P.O Box 547 – 30300, Kapsabet. Former Barclays Bank Building, Kapsabet Town, Nandi

149. Trans Nation SACCO Society Ltd P.O. Box 15 – 60400, Chuka. Mwalimu Centre Building, DC Rd, Chuka Town Tharaka-Nithi

150. Trans-Counties SACCO Society Ltd P.O. Box 2965 – 30200, Kitale. Trans-Counties SACCO Office, Plot 45, Kapsara Centre Trans Nzoia

151. Trans-National Times SACCO Society Ltd P.O. Box 2274 – 30200, Kitale Teachers' Plaza Building, KANU Street, Kitale Town Trans Nzoia

152. Ufanisi DT SACCO Society Ltd P.O Box 2973 – 00200, Nairobi. Development House, Moi Avenue, Nairobi City Centre Nairobi

153. Ukristo Na UfanisiWa Anglicana SACCO Society Ltd P.O Box 872 – 00605, Nairobi. ACK Emmanuel Church Riruta, Riruta Area, Nairobi Nairobi

154. Ukulima Saco Society Ltd P.O. Box 44071 – 00100, Nairobi. Ukulima Co-operative House, Haile Selassie Avenue, Nairobi City Centre Nairobi

155. Unaitas SACCO Society Ltd P.O. Box 38791 – 00100, Nairobi. Cardinal Otunga Plaza, Kaunda street, Nairobi Nairobi

156. Uni-County SACCO Society Ltd P.O Box 10132 – 20100, Nakuru Kenyatta Avenue, Vickers House, Nakuru Town Nakuru

157. Unison SACCO Society Ltd P.O Box 414 – 10400, Nanyuki. Unison SACCO Bldg. Nanyuki/ Nyeri Rd, Nanyuki Laikipia

158. United Nations SACCO Society Ltd P.O. Box 2210 - 00621, Nairobi. UN-Complex Bldg, Gigiri Area, Nairobi Nairobi

159. Universal Traders SACCO Society Ltd P.O. Box 2119 – 90100, Machakos. Traders House, Syokimau Road, Machakos Town. Machakos

160. Ushuru SACCO Society Ltd P.O. Box 52072 – 00200, Nairobi. Ushuru SACCO Centre, Wood Avenue, Kilimani, Nairobi City Nairobi

161. Vihiga County Farmers SACCO Society Ltd P.O Box 309 – 50317, Chavakali. Chavakali-Kapsabet Road Kakamega

162. Viktas SACCO Society Ltd P.O Box 2183 – 20300, Nyahururu. Glanin Bldg. Nyeri/ Nyahururu Road, Mairo – Inya Trading Centre Nyandarua

163. Vision Africa SACCO Society Ltd P.O Box 18263 – 20100, Nakuru. Kenyatta Avenue, Rajdeep Bldg. Nakuru Town Centre Nakuru

164. Vision Point SACCO Society Ltd P.O. Box 42 – 40502, Nyansiongo. Borabu Farmers Union Building, Keroka - Sotik Highway, Nyansiongo Town Nyamira

165. Wakenya Pamoja SACCO Society Ltd P.O. Box 829 – 40200, Kisii. Kahawa House, Kisii-Keroka Road, Kisii Town Kisii

166. Wakulima Commercial SACCO Society Ltd P.O. Box 232 – 10103, Mukurweni. MWD LTD Complex Mukurweini –Nyeri Road, Mukurweini Town Nyeri

167. Wana-anga SACCO Society Ltd P.O. Box 34680 – 00501, Nairobi. Meteorological Hqs, Ngong Road, Nairobi City Nairobi

168. Wananchi SACCO Society Ltd P.O. Box 910 – 10106, Othaya. Wananchi SACCO Building, Nyeri-Othaya-Kiriani Road Othaya Town Centre Nyeri

169. Wanandege SACCO Society Ltd P.O. Box 19074 – 00501, Nairobi. Wanandege Plaza, Old North Airport Road, Embakasi, Nairobi Nairobi

170. Washa SACCO Society Ltd P.O. Box 83256 – 80100, Mombasa. Ralli House, Nyerere Avenue, Mombasa Town Mombasa

171. Waumini SACCO Society Ltd P.O. Box 66121 – 00800, Nairobi. Applewood Adams Bldg, 2nd Floor, Ngon'g Rd, Adams Arcade, Nairobi Nairobi

172. Wevarsity SACCO Society Ltd P.O Box 873 – 50100, Kakamega. MMUST School of Nursing, Kakamega-Webuye Road, Kakamega Town Kakamega

173. Winas SACCO Society Ltd P.O. Box 696 – 60100, Embu. Winas SACCO Building, Kenyatta Highway, Embu Town Embu

174. Yetu SACCO Society Ltd P.O. Box 511 – 60202, Nkubu. SACCO Building, Nkubu-Mikumbune Road, Nkubu Town Centre Meru.

Appendix IV: Letter from University of Kabianga

UNIVERSITY OF KABIANGA
ISO 9001:2015 CERTIFIED
OFFICE OF THE DIRECTOR, BOARD OF GRADUATE STUDIES

REF: PHD/BSA/0010/2021 DATE: 1ST JULY, 2024

Geoffrey Ngetich Iletaach,
Accounting and Finance Department,
University of Kabianga,
P.O Box 2030- 20200,
KERICHO.

Dear Mr. Iletaach,

RE: CLEARANCE TO COMMENCE FIELD WORK/DATA COLLECTION

I am pleased to inform you that the Board of Graduate Studies has considered and approved your PhD research proposal entitled **"Financial Distress Factors, Firm Size and Financial Performamnce of Deposit Taking Saccos in Kenya."**

Subsequently the Board has also approved the following supervisors for appointments.

1. Dr. Penina Langat
2. Dr. Gichuki Kingori

You may now proceed to commence field work/data collection on condition that you obtain a research permit from NACOSTI and /or an ethical review permit from a relevant ethics review board.

You are also required to publish two (2) articles in a peer reviewed journal, with all your supervisors, before your oral defense of thesis.

You are required to submit through your supervisors, and HoD, progress reports every three months, to the Director, Board of Graduate Studies.

Please note that it is the policy of the University that you complete your studies within three years from the date of registration. Do not hesitate to consult this office in case of any difficulties encountered in the course of your studies.

I wish you all the best in your research and hope that your study will yield original contribution for the betterment of humanity.

Yours Sincerely,

Dr. Ronald K. Rop
DIRECTOR, BOARD OF GRADUATE STUDIES.
RKR/lc

cc 1. Dean, SBE
2. HOD, Accounting and Finance
3. Supervisors

Appendix V: NACOSTI Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **744869**

Date of Issue: **02/August/2024**

RESEARCH LICENSE

This is to Certify that Mr.. GEOFREY NGETICH ILETAACH of University of Kabianga, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Kericho on the topic: FINANCIAL DISTRESS FACTORS, FIRM SIZE AND FINANCIAL PERFORMANCE OF DEPOSIT TAKING SACCOS IN KENYA for the period ending : 02/August/2025.

License No: **NACOSTI/P/24/38587**

744869

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

See overleaf for conditions