

**EFFECT OF BOARD COMPOSITION AND COVID-19 ON FINANCIAL PERFORMANCE OF
DEPOSIT TAKING SAVING AND CREDIT COOPERATIVE SOCIETIES IN KENYA**

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DECLARATION

I hereby certify that I wrote this thesis totally on my own. It has not been made available for examination at any university or college. All citations to other people's works have been properly acknowledged.

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SUPERVISOR DECLARATION

This research thesis has been submitted with regards to the requirements of the award for the Degree of Master of Commerce with my approval as the appointed supervisor.

Signature.......... Date 25/03/2025



Dr. Moses Nyangu

DEDICATION

With profound gratitude, I dedicate this thesis to my beloved family, whose unwavering support and boundless encouragement have been my guiding light through the intricate journey of academic exploration. To my father, Dr. Isaac Sheunda, for his financial and emotional support. To my wife, Dorine, for her endless love, sacrifices, and unwavering support. To my sons, Karl and Jeremy, may this thesis be an inspiration to your future careers and endeavours.



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ABSTRACT

An institution's financial performance greatly depends on the proper makeup of its board of directors. Each member brings a unique set of skills, expertise, experience, and networks. Despite having a board of directors guided by ethical norms, the Deposit Taking Savings and Credit Cooperatives (SACCOs) sector has suffered due to a wave of fraud impacting risk management and reporting. Despite growing academic interest in the relationship between board composition and financial performance, little is known about the impact following the COVID-19 outbreak, and existing conclusions are often contradictory. This study sought to determine the impact of board composition on the financial performance of deposit-taking SACCOs in Kenya. Specifically, it examined how the financial performance of these SACCOs before and after the COVID-19 era was impacted by the gender, size, frequency, and experience of board members. The study employed stakeholder and agency theories to empirically ascertain the extent to which board composition influenced financial performance. The findings reveal that a higher proportion of female board members has a significant negative effect on the financial performance of DT-SACCOs in Kenya. Higher female representation on boards is associated with lower ROA, particularly in the pre-COVID period. However, this relationship weakened during the pandemic, indicating that board diversity might become more valuable during crisis periods. Moreover, the findings show that board size has a non-linear relationship with financial performance, characterized by an inverted U-shaped pattern, suggesting an optimal board size exists, beyond which additional members may reduce effectiveness. For board experience, the results, while showing a positive relationship with financial performance, did not demonstrate statistical significance across the study period. Nonetheless, the results indicated that the COVID-19 pandemic significantly moderated the relationship between board composition and financial performance. The findings indicate that the effectiveness of different board characteristics varied across the pre- and post-COVID periods. This suggests that crisis periods require different governance approaches.

Keywords: *Board Composition, SACCOS, Financial Performance*

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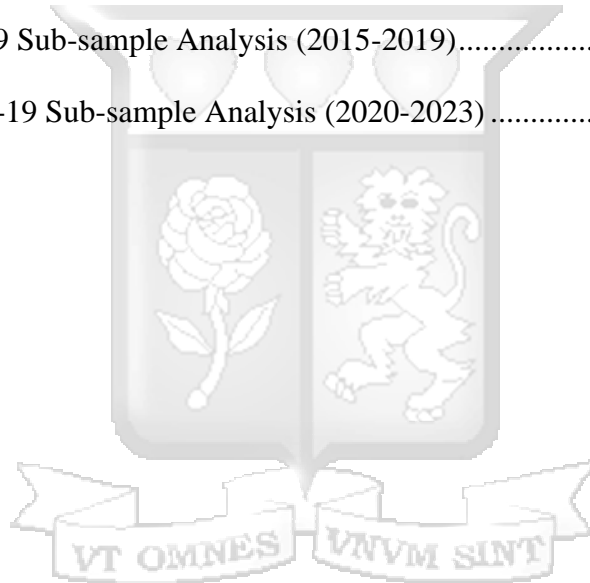
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ABBREVIATIONS AND ACRONYMS

BSE	Bombay Stock Exchange
DPS	Dividends per share
DT	Deposit-taking
EPS	Earnings per share
IDX	Indonesia stock exchange
IT	Information and Technology
NACOSTI	National Commission of Science, Technology, and Innovation
OLS	Ordinary Least Squares regression
PER	Price-to-earnings ratio
PBIT	Profit before interest and tax
R&D	Research and Development
ROA	Return on assets.
ROE	Return on equity.
SACCOS	Saving and Credit Cooperative Societies
SASRA	Sacco Societies Regulatory Authority
SPSS	Statistical Package for the Social Sciences
S&P 500	Standard and Poor's 500
USD	United States of America dollar
WOCCU	World Council of Credit Unions

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Board composition, encompassing factors such as board size, gender diversity and board experience, has garnered significant attention globally, due to its influence on corporate governance and the increasing demand for transparency and accountability in business management (EmadEldeen et al., 2021). The composition of a board impacts on the quality of monitoring and decision-making, which in turn affects the overall operation and financial outcomes of an organization (Duppati et al., 2019). The necessity to guarantee the financial stability and expansion of Savings and Credit Cooperative Societies (SACCOs) in Kenya is the driving force behind research into the impact of board composition on financial performance. Millions of members receive financial services from SACCOs, which are essential to the Kenyan economy (SASRA, 2022). But throughout time, SACCOs' financial performance has varied in Kenya, with registered and unregistered SACCOs performing significantly differently (Nyangau & Oluoch, 2021). For example, in 2021, Kenyan SACCOs' Return on Assets (ROA) hit a record low of 1.59%, down from 2.65% in 2020 (SASRA, 2022). This decline in financial performance affects various stakeholders, including SACCO members, employees, and the wider community, highlighting the importance of understanding the factors influencing SACCO performance, such as board composition (Mwangi & Kimunguyi, 2018; Nwanji et al., 2019; Owalo et al., 2021).

Board composition has been proven to have a favorable impact on a company's financial performance globally, including in the United States, where a balanced mix of executive and non-executive members has been linked to increased profitability (Müller, 2014). In addition, in Pakistan and China, board size and composition have been shown to have a significant effect on the financial performance of listed banks, with larger boards and a higher proportion of independent directors associated with better financial outcomes (Zia ur Rehman, 2020). It has been discovered that board composition, especially the inclusion of independent members, improves company performance in developed nations such as China, underscoring the need of efficient corporate governance practices (Yasser et al., 2017). These worldwide results highlight how important board composition is in determining an organization's financial performance in various settings (Bennouri et al., 2018).

Regional research on the connection between board makeup and financial success has been carried out in a number of African nations. The financial performance of banks in Nigeria has been shown to be significantly impacted by the size and makeup of their boards; better profitability is linked to larger boards and a higher percentage of non-executive members (Bebeji et al., 2015; Apochi et al., 2022). Similarly, it has been demonstrated that the inclusion of independent directors on boards has a favorable impact on the financial performance of commercial banks in Ethiopia and Cameroon (Kamdem & Asaah, 2020; Edeti & Garg, 2020). The financial success of listed firms in South Africa has been found to be significantly influenced by the size and makeup of the board; a balanced mix of executive and non-executive members has been proven to improve financial results (Muchemwa et al., 2016).

Numerous researchers have looked at the connection between board composition and financial success in Kenya; the results show that board characteristics have a big influence on organizational outcomes. The financial performance of Kenyan commercial banks has been found to be significantly impacted by the makeup of their boards; increased profitability is correlated with a larger percentage of independent directors and gender diversity (Muiruri, 2018; Abdirashid, 2021). Furthermore, it has been demonstrated that the size and independence of the board have a major impact on the financial success of firms listed on the Nairobi Securities Exchange (Ngulumbu & Aduda, 2016; Otwani, 2018). The significance of board composition in influencing financial performance in a variety of industries, including listed companies, banks, and microfinance institutions, has also been emphasized by other Kenyan studies. Better financial outcomes are correlated with board size, independence, diversity, and expertise (Wanyama & Olweny, 2013; Ongore et al., 2015; Mori & Olomi, 2021). These findings underscore the significance of board composition in shaping the financial success of organizations in the Kenyan context. However, limited studies have been done expressly on how board composition affects deposit-taking SACCOs' financial performance in Kenya, especially in light of the COVID-19 epidemic. Addressing this research gap and adding to the body of knowledge already available on-board composition and financial performance in the SACCO sector were the goals of the study.

1.1.1 The Concept of Governance in SACCOs

The contemporary company environment presents challenging situations that demand wise decision-making and proper governance procedures (Ahmed & Rugami, 2019). Because it may have a beneficial effect on sustainable growth, the idea of good governance is currently being embraced by developing nations more and more. Corporate governance is the process by which a company uses its authority to manage the entirety of its socioeconomic resource portfolio with the goal of maximizing shareholder value and defending interests of all other involved parties in line with its stated mission (Gitonga & Miano, 2020).

SACCOs are financial entities that provide customers with financial services, much like banks are. According to Messabia et al. (2022), SACCOs fulfill the same functions as banks in global financial systems. To accommodate the expectations of the different stakeholders, governance seeks to find a compromise between private, socioeconomic, and collective targets while also promoting the effective employment of assets, liability, management, and administration (Ssekiziyivu et al., 2018). It is widely thought that effective corporate governance fosters trust and confidence among investors. SACCOs are now enhancing their corporate governance procedures because they understand that doing so raises values and the bottom line. At the forefront of these procedures is ensuring the board of directors is properly constituted. Given the critical function of the board in the governance of an organization, it is assumed that its composition has to be sensitive to the fundamental delegated duties, including monitoring and supervising, preventing opportunistic executive behavior, and giving counsel to decision-makers to enhance SACCO management (Garcia Martin & Herrero, 2018). With an end goal of generating continuous value to shareholders and taking into consideration the demands of other interested parties, corporate governance is understood as the method and constitution utilized to oversee and run the operations of an organization. As noted by Gitonga and Miano (2020), good corporate governance is viewed as the essential building block for organizations to boost productivity, efficiency, and effectiveness as well as to be effectively governed and controlled.

There is little literature addressing the theoretical link between corporate governance and accountability, even though it is a crucial predictor (Jain & Jamali, 2016). Nevertheless, the available scant literature has several drawbacks; hence, further study is needed to explain the experimental relationship, more so with upcoming economies, as the existent research has produced conflicting findings (Khan et al., 2021). Specifically, the board compositional features' impact on accountability, including the size of the board, gender, and ethnic formation.

Accountability is the duty and responsibility to provide justification for deeds and behaviour and goes hand in hand with responsibility (Gitonga & Miano, 2020). In SACCO operations, shareholders hold the board of directors responsible for how the business fulfills its obligations. To ascertain the extent of corporate accountability and responsibility, the study analyzed whether various board of directors'-related attributes (board gender, board ethnicity, and board size) affect the performance of DT-SACCOs in Kenya, drawing insights from agency theory and stakeholder theory.

1.1.2 Financial Performance

The concept of performance alludes to producing actual value that is quantified by long-term profitability, liquidity, solvency, efficiency, and effectiveness. Financial performance is a technique for assessing a company's operational and policy actions' financial responsibility over a given period (Fatihudin et al., 2018). Financial performance gauges a SACCO's overall financial health during a specific period and is used to compare organizations' success over the previous years. As a result, all financial performance metrics should be aggregated (Fatihudin et al., 2018). Performance measures a SACCO's condition, performance, and adherence to accounting rules and regulations. Nonetheless, more information is needed about how the board composition of deposit-taking savings and credit co-operative societies in Kenya, affects their financial performance.

Key financial ratios and other metrics may be employed to determine the financial success of SACCOs over a certain period. The time frame might range between one to three or five years. To evaluate development and performance, ratios can be compared year over year. A ratio compares two or more data components during a specified period, often shown as a percentage (Juma & Maseko, 2022). The financial performance also measures how well a SACCO generates income using resources from its main business model. It gauges SACCO's financial stability. Several views on financial performance are considered to give a complete picture of SACCOS activities concerning various projected returns. The common financial success metrics include profitability, the returns on investment and assets, value-additions, and margins (Githii et al., 2019).

According to WOCCU's criteria for assessing performance, the asset endowment, liabilities, performance of the loan book, business management, the caliber of the workforce, and industry

rules are the aspects that affect cooperative's success (Kenani & Bett, 2018). Financial performance was evaluated using the Sacco Society Regulatory Authority's (SASRA) assessment of the dt-Saccos based on total assets, member deposits, loans provided, total capital, and the surplus shown in yearly accounts. The current study relied on return on assets (ROA), which measures an asset's contribution to producing a net profit, to assess the relationship between board composition and DT-SACCOS's financial performance in Kenya. ROA was selected for this study because it offers a more balanced perspective of profitability in comparison to other financial performance measures. Supriyadi (2021) avers that a significantly high ROA ratio is a demonstration of the efficiency and efficacy of the organization's asset management.

1.1.3 Co-operative Governance, Board Composition, and Financial Performance

Effective co-operative governance upholds democratic decision-making principles and produces the highest degree of financially rewarding productivity permissible for the maintenance or continuation of the co-operative identity (Chaves et al., 2008). The democratic decision-making process and economic performance, particularly when the cooperative is undergoing economic growth and managerial development, provide a significant challenge for co-operative governance. As noted by Sugiyanto and Rahayu (2018), cooperatives must be administered with appropriate governance by adhering to the ideals and principles of cooperatives as an economic and social institution. Cooperatives should base their governance on their status as social and economic organisations. The interaction between cooperative members and their board representatives is governed by cooperative governance. As monitoring and controlling managerial activities is a crucial component of cooperative governance (Kyazze et al., 2017), jurisdiction and administration by the board should provide a monitoring framework to evaluate the productivity of cooperative societies. As a result, the key problems of governance in SACCOs are managing entangled demands, rationalizing gaps between interests of different stakeholder parties, and directing and supervising the subordinates. More transparent interactions emanate from a well-developed structure of governance, which also lowers many risks and enhances security inside the SACCOs' systems.

The structure and makeup of the board is crucially important in the day-to-day SACCO governance given the supervisory and advisory responsibilities accorded to the board (Cherotich & Obwogi, 2018). As a result, there is now a perception that boards of directors may

affect a company's success through influencing its strategic decision-making. Boards are crucial in managing and directing businesses on behalf of owners and other investors (Mlay et al., 2022; Hakelius & Nilsson, 2020). In the recent past, the subject of Board Composition has become one of the highly contentious issues in corporate governance. Typically, boards play crucial responsibilities in creating strategic direction, offering guidance and resources, leadership as well as general control (Nwanji et al., 2019), which enhances the effectiveness of the governance of different organizations. Boards also support members and other partners as well in initiating actions to guarantee that both their issues and those of other stakeholders are considered. According to Elad et al. (2018), this is accomplished by addressing the unique handling, regulating, and owning duties and the agency concerns necessitating management boards' involvement to efficiently and professionally carry out the oversight responsibilities assigned to them.

An important discussion in the research on cooperative governance has long centered on the connection between board composition and financial success. The amount of media coverage of corporate misconduct has skyrocketed during the last several years. In the corporate sector, it seems like a fresh disclosure of widespread top management corruption and ineffective board monitoring is made every now and then. This has caused academics and decision-makers to speculate that board composition may affect strategic choice-making, which in turn may affect corporate performance (Cherotich & Obwogi, 2018). Different researchers have shown that the efficacy of the board is affected by such factors as board size, experience, and gender diversity (Mlay et al., 2022; Elad et al., 2018; Muchiri & Kimunguyi, 2018; Odero & Egessa, 2021). This composition focuses on how diverse cultures, educational levels, gender, experience levels, and ages influence organizational financial operations.

1.1.4: The moderating effect of COVID-19 pandemic on DT-SACCO Governance

In Kenya, the COVID-19 epidemic had a major effect on a number of industries, notably finance, where Deposit-Taking Savings and Credit Cooperatives (DT SACCOs) faced particular difficulties. The pandemic's possible effects on the makeup of the DT SACCO board are investigated in this study, with particular attention paid to board experience, gender diversity, and size.

There is limited empirical research directly links COVID-19 and board size changes in DT SACCOs. However, anecdotal evidence and expert opinions suggest potential reasons for size alterations such as cross-cutting measures and need for increased efficiency during the pandemic period. Muriithi and Njoroge (2022) noted that as the pandemic strained SACCO finances, reducing board size was considered by some DT-SACCOs to save costs associated with board member remuneration and allowances. In addition, smaller boards were perceived to be more efficient in decision-making during the crisis.

Studies suggest a pre-existing gender gap in DT SACCO boards, with women typically holding a minority of positions (Mutua & Kinyanjui, 2014). The pandemic could have exacerbated this disparity due to increased workload and responsibilities; and prioritization of male-dominated sectors during economic recovery initiatives. Ong'ure (2021) argued that women disproportionately carried the burden of childcare and household duties during lockdowns, limiting their time and energy for board involvement.

Experienced board members are crucial for navigating complex situations like the pandemic. However, the impact of COVID-19 on board experience is multifaceted: Retention of experienced members as the pandemic crisis prompted some experienced members to step down due to health concerns, risk aversion, or workload pressures (Ong'ure 2021); and also due to need for new perspectives, the pandemic necessitated the inclusion of members with expertise in crisis management, digitalization, or other relevant areas to address new challenges that came about due COVID-19 pandemic.

1.2 Problem Statement

In Kenya, deposit-taking SACCOs have had varying financial results throughout the years, with a noticeable downturn in recent years. The Return on Assets (ROA) of Kenyan SACCOs fell from 2.65% in 2020 to a record low of 1.59% in 2021, according to SASRA (2022). This sharp decline in ROA can be largely attributed to the impact of the COVID-19 pandemic, which has had significant adverse effects on various sectors of the economy, including the SACCO industry (Aimable, 2022; Kiptoo et al., 2022). The pandemic has led to widespread unemployment, decreased productivity, revenue losses, and supply chain disruptions, resulting in a 61% decline in business performance across all economic sectors (UNCTAD, 2020). SACCOs, which rely

heavily on member contributions, have been particularly vulnerable to the economic fallout of the pandemic (Baldwin & Mauro, 2020).

Although it is clear that COVID-19 has a negative influence on SACCO financial performance, little study has been done on how board composition may help lessen the negative impacts of the epidemic on SACCO performance. The resilience and sustainability of businesses in times of crisis have been found to be significantly influenced by effective corporate governance, especially with regard to the makeup of the board (Aimable, 2022). There is conflicting evidence in the literature on board composition and financial performance in the SACCO sector, though. Some studies (Muchiri & Kimunguyi, 2018; Gicheru & Mtongolo, 2018) found a positive correlation between board diversity and financial performance, while others (Githii, 2019) suggested that board gender composition is not a major concern for SACCO boards.

Likewise, studies on the relationship between board size and SACCO financial success have shown conflicting results. Although some research suggests that ROA in deposit-taking SACCOs is positively correlated with board size (Musau, 2021), other studies warn against excessively big boards, pointing out possible coordination issues (Kyoa, 2020). There has also been interest in how board experience affects SACCO performance, since research indicates that board member experience and financial success are positively correlated (Ong'ure, 2021). However, further research is needed to determine whether particular experience types are best for SACCO performance (Nyakundi et al., 2020). For SACCO boards, the gender makeup of the board is not a major problem (Githii, 2019).

The need for more study is highlighted by the contradictions in the body of knowledge about board composition and financial success in the SACCO sector, as well as the paucity of studies on how board composition might lessen the negative effects of COVID-19 on SACCO performance. By investigating the impact of board composition on the financial performance of deposit-taking SACCOs in Kenya, both prior to and during the COVID-19 outbreak, this study seeks to fill these research gaps. In order to resolve these discrepancies, this study examined the impact of board composition on the financial performance of DT-SACCOs in Kenya both prior to and during the COVID-19 pandemic.

1.3 Study Objectives

1.3.1 General Objective

Determining the impact of board composition on the financial performance of deposit-taking SACCOs in Kenya was the study's main goal.

1.3.2 Specific Objectives

The study sought to:

- i. Evaluate the effect of gender composition of board members on the financial performance of deposit-taking SACCOs in Kenya.
- ii. Examine the influence of board size on the financial performance of deposit-taking SACCOs in Kenya.
- iii. Establish the influence of board experience on the financial performance of deposit-taking SACCOs in Kenya.
- iv. Investigate the moderating effect of the COVID-19 pandemic on the relationship between board composition and the financial performance of deposit-taking SACCOs in Kenya.

1.4 Research Questions

- i. What is the impact of gender composition of board members on the financial performance of deposit-taking SACCOs in Kenya?
- ii. How does the size of the board of directors affect the financial performance of deposit-taking SACCOs in Kenya?
- iii. What is the influence of board experience on the financial performance of deposit-taking SACCOs in Kenya?
- iv. To what extent does the COVID-19 pandemic moderate the relationship between board composition and the financial performance of deposit-taking SACCOs in Kenya?

1.5 Scope of the Study

The goal of the research was to look at the possible impacts of board composition on the financial success of dt-Saccos registered to undertake operations in Kenya before and after the Covid-19 pandemic. Following the goals mentioned above, it attempted to identify the sample population's underlying gaps regarding the impacts of board composition as a part of management structure. The factors considered include board size, board experience, and gender.

Dt-Saccos served as the subject of the study, while the board members served as the subjects of observation. The study's main emphasis is the financial performance of the dt-Saccos from 2018 to 2022.

1.6 Significance of the Study

1.6.1 Regulators and Policy Makers

The research may aid the government in developing and implementing legislation that will help in regulating operations of SACCOs in Kenya. Further, this research can help the ministry of cooperatives and SASRA in developing new policies and putting them into practice to support the development of a robust SACCO business. The regulators may also be better informed on how better they can support SACCOs when facing difficult situations or pandemics.

1.6.2 SACCOs Management

The study may aid the management of deposit-taking SACCO sector in understanding the value of board composition in fostering organizational effectiveness. This would enable them to carefully choose their board members to guarantee that they provide excellent results. Moreover, the findings can help Saccos' administration in understanding the mediating role of Covid-19 on the financial success of dt-Saccos, which will inform future board composition decisions in case of another pandemic.

1.6.3 Academicians

This study may act as a foundation for future research and focus on areas that need greater investigation. The study would broaden the applicability of schools of thinking to other viewpoints that had not previously been considered.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter provides a review of literature on a number of previous studies that are related to the study and have been carried out in various sectors. It comprises the theoretical, empirical, and conceptual elements of the literature review. Theoretical literature focuses on the main theories on the relationship between SACCO's board composition and financial performance. Relevant empirical studies on SACCOs' financial performance and the influence of firm composition are included in the empirical literature section. The summary also identifies the gaps that the study is intended to fill.

2.2 Theoretical Review

The study was anchored on the agency theory and the stakeholder theory. The two theories were used to analyze the relationship between the financial performance of dt-Saccos and the membership of its board.

2.2.1 Stakeholder's Theory

According to the stakeholder theory, which was first presented in Edward Freeman's book "Strategic Management: A Stakeholder Approach" (1984), companies are social entities with duties that go beyond their duties as custodians of shareholders. By highlighting the influence businesses have on other parties that may be impacted by or affected by a company's mission fulfillment, the theory contradicts the once-dominant belief that a firm's primary objective is to create wealth for its owners (Bridoux & Stoelhorst, 2022). The study's theme—the impact of board composition on the financial performance of deposit-taking SACCOs in Kenya—makes the stakeholder theory especially pertinent. Members, staff, customers, suppliers, and the local community are just a few of the many stakeholders that SACCOs, being member-owned financial cooperatives, have (Clarkson, 1995). According to the idea, SACCOs must methodically attend to the demands and expectations of all stakeholders if they are to prosper and operate efficiently (Fernandez & Thams, 2019).

As member-owned financial cooperatives, SACCOs have a wide range of stakeholders, including members, employees, clients, suppliers, and the local community (Clarkson, 1995).

The concept states that in order for SACCOs to thrive and function effectively, they must systematically address the needs and expectations of all stakeholders (Fernandez & Thams, 2019). A diverse board can support an inclusive approach that takes into account a wide range of societal perspectives, strikes a balance between competing objectives, and avoids the domination of one group with interests (Alqatan et al., 2019). Further, the stakeholder theory suggests that among the plethora of stakeholders, boards must recognize the crucial stakeholders (such as important staff groups) whose engagement is necessary for financial performance in the form of long-term value creation (Chambers et al., 2013). Since boards oversee management and provide strategic guidance, the shareholder is the primary focus of the efficacy of boards in carrying out these obligations (Garcia-Torea et al., 2016).

This research attempted to understand how the diversity of board members can affect the board's ability to effectively consider and balance the interests of various stakeholders, ultimately leading to improved financial performance, by applying the stakeholder theory to the study of board composition and financial performance in deposit-taking SACCOs. The hypothesis offers a starting point for investigating how board composition affects SACCOs' ability to maximize shareholder value while simultaneously satisfying the demands and expectations of their many stakeholders.

2.2.2 Agency Theory

Jensen and Meckling (1976) are credited with developing the agency hypothesis, which postulates that conflicts of interest between a company's owners and management are the cause of agency expenditures. According to the theory, the board of directors has a duty to make sure that management works in the best interests of the shareholders by synchronizing management's goals with the company's owners (Squires & Elnahla, 2020). With this theory, a well-balanced board would be better able to address the issue of agency between management and shareholders and, as a result, guarantee that the company operates efficiently.

The theory assesses the appropriate level of risk sharing among various parties. It gradually extends to the management field to assess goal congruency and cooperation between individuals with different goals. The idea, in its most basic form, deals with circumstances in which an individual—referred to as the agent—is hired by another—referred to as the principal—to act on their behalf in return for a certain amount of money. Since both parties are taken to be utility

maximizers motivated by monetary and nonmonetary factors, impulse problems might arise, more so in situations where there is unreliability and information skewness (Hindasah & Harsono, 2021). With respect to corporate governance, board composition is viewed as a strategic business issue that impacts business management procedures.

According to Liu et al. (2020), board composition can improve performance for three reasons. First, having a gender-diverse board can aid in reducing the collective thinking problem, which develops in homogenous groups and is detrimental to the goal assessment of other points of view. In light of the agency thesis, scholars think there ought to be a more robust correlation between board size and corporate performance. A larger board had greater agency expenses, and more money was spent on coordination and communication as the board grew in size (Yan et al., 2021). Determining whether board size and business value should positively or negatively correlate makes sense when considering the factors that affect the board of directors. In addition to their expanded monitoring function, a diverse board is regarded to improve other agency theory concepts (Booth-Bell & Jackson, 2021).

2.3 Empirical Review

2.3.1 Gender Composition and Financial Performance

Arvanitis et al.'s (2022) study on whether gender diversity improves firm performance focusing on Greek-listed firms employed Tobin's Q and ROA as the metrics for financial success. The researchers employed three different metrics for measuring gender diversity (the percentage of female directors, the Blau index, and the Shannon index) and computed their effects on the firm's performance. The study's results show that gender diversity on the board of directors positively affects a firms' financial success. Similarly, Githii et al. (2019) investigated the attributes, distribution, management cognizance, and efficacy of credit co-operatives in Nairobi. It was indicated that the performance of Saccos was significantly positively impacted linearly by the whole board's properties. The study's regression analysis revealed that several board characteristic factors strongly influenced the performance of the Saccos, albeit to varying degrees and directions. According to the study, there was no statistically significant correlation between gender and financial achievement. The studies by Arvanitis et al. (2022) and Githii et al. (2019) give contradicting findings on the effect of gender diversity on financial performance of a business.

Moreover, other researchers have reported contradictory results on this subject. Simionescu et al. (2021), for example, looked at Standard & Poor's 500 Information Technology Sector to see if board gender had an impact on company performance. In addition to analyzing the impact of board gender diversity on financial success for S&P 500 IT-related firms, the study included many other specific corporate governance elements and firm-level control mechanisms. Other than the number of female CEOs in the case of ROA as evaluated by pooled OLS, researchers found evidence for a beneficial influence of women on corporate boards on both measures of company performance—ROA and PER. The number and percentage of women on board on PER grew, but there was no relationship with ROA and the gender diversity of the board, according to the panel data fixed-effects and random-effects analysis.

Similarly, Duppati et al. (2019) used evidence from India and Singapore to examine gender diversity and firm performance. The researchers used Tobin's Q as a proxy for growth potential and ROA as a proxy for company success. Generally, their findings showed a strong correlation between Singapore and India's financial success and female diversity on corporate boards. Boards with female representation fared better than corporations without female participation throughout the quota mandate period across various metrics. The findings also demonstrated that when Tobin's Q was employed as a performance proxy, the market had a favorable opinion of businesses with female board involvement. In conclusion, the findings of their study indicated that having more women on corporate boards raised shareholder value.

2.3.2 Board Member's Experience and Financial Performance

Improving the financial performance in a dynamic and competitive market is one of the difficulties deposits taking SACCOs (DT SACCOs) face. In this sense, board members play a critical role as they are in charge of establishing the strategic direction and supervising the SACCOs' administration. Nevertheless, there is little actual data about the impact of board members' backgrounds on DT SACCOs' financial success, particularly in Kenya.

In order to investigate the relationship between stock performance and the diversity of the board of commissioners' qualifications, skills, and ethnicity, Mary et al. (2019) used panel data analysis among 226 companies that were listed on the Indonesia Stock Exchange (IDX) between 2011 and 2017. The researchers used stock returns as a proxy for stock performance. The empirical findings demonstrated a statistically significant relationship between the experience of the

members of the board of commissioners and stock performance. These indicators reflect the different aspects of board members' experience, such as their number, background, skills, knowledge, commitment, and participation in the SACCOs' affairs. The analysis also reveals conflicting and equivocal information about the influence of board members' backgrounds on DT SACCOs' financial performance. While some studies (e.g., Muthee & Theuri, 2021; Nation Sacco Limited, 2021; Bandari Sacco, 2021) have found a negative or negligible relationship between board members' experience and financial performance, others (e.g., Mwangi & Kamwara Associates, 2021; Ochieng & Ongore, 2019) have found a positive and significant relationship. The review suggests that the relationship between board members' experience and financial performance may depend on various contextual factors, such as the regulatory environment, the market conditions, the SACCOs' characteristics, and the stakeholders' expectations.

The study's review concludes that there is a need for more empirical research on how board members' experience affects the financial performance of DT SACCOs in Kenya, using more comprehensive and consistent measures of both variables. The review also recommends that DT SACCOs should adopt good governance practices that enhance the quality and effectiveness of their board members, such as ensuring optimal board size, promoting board diversity, fostering board independence, enhancing board competence, and encouraging board involvement. These practices can help DT SACCOs to achieve their financial goals and fulfill their social mission.

2.3.3 Board Size and Financial Performance

Research on the relationship between board size and financial performance also shows a similar pattern. For example, Orozco et al. (2018) examined the association between the size of the boards of leading Colombian corporations and their reputation and financial performance as determined by the Business Monitor of Corporate Reputation, or MERCO. In order to categorize businesses based on performance and control characteristics, the researchers used a sectional sample of 84 significant Colombian enterprises from 2008 to 2012. They then performed correlations and cluster analyses on this sample. The average net sales for the previous years, ROE, and ROA, were used to gauge financial success. According to the research, big boards are linked to both strong corporate reputation performance and inferior financial performance.

In a separate study, Vaidya (2019) performed research to determine if board size had any impact on the business's financial success between 2018 and 2019 for BSE 100 companies. Board size was considered an independent variable in the study, whereas measures of financial success included Return on Assets, Profit before Interest and Tax, Return on Equity, Earnings per Share, Dividend per Share, and Tobin's Q. The findings demonstrated that ROA, ROE, and Tobin's Q favor businesses with boards of eight to 10 people. Additionally, it has been discovered that medium-sized boards function better than extremely tiny or very large boards. The results pointed to the need for more statistical significance for ROE, ROA, PBIT, EPS, DPS, and Tobin's Q when considering the effect of board size on firm performance. Unlike Orozco et al.'s (2018) findings, the author found that the performance of the company was unaffected by the size of the board.

Consequently, Yan et al. (2021) investigated the relationship between board size and firm performance using empirical research approaches and a sample of 372 US S&P 500 companies. The measurements used to evaluate corporate performance from the perspectives of accounting value and corporate market value were Tobin's Q and ROA, respectively. The findings were also out of the ordinary as they indicated a negative relationship between the success of the firm and the size of the board of directors. An odd number of directors was more productive than an even number, according to the findings of categorizing the sample based on the parity of the number of directors.

2.3.4: The Moderating effect of COVID-19 on Board Composition effects on the Financial Performance of DT-SACCOs

The impact of Deposit-Taking Savings and Credit Cooperatives (DT SACCOs) board composition on financial performance has been a subject of ongoing research. However, the recent COVID-19 pandemic presents a unique challenge, potentially altering this dynamic.

Pre-COVID-19 studies suggest board composition, including size, gender diversity, and experience, can influence DT SACCO financial performance (Ong'ure, 2021; Muriithi & Njoroge, 2021). In Addition, board size might have an inverted U-shaped relationship with performance, with smaller and larger boards potentially being less effective (Odhambo & Obonyo, 2022). Gender diversity can have positive effects on performance, but the relationship

can be complex and context dependent (Mutua & Kinyanjui, 2014). Board experience is generally considered beneficial for financial performance (Muriithi & Njoroge, 2021).

COVID-19 pandemic significantly impacted DT SACCOs, with loan defaults, reduced income, and increased operational costs (Odhiambo, 2021). This crisis might have necessitated changes in board composition to adapt and navigate challenges (Agutu & Okumu, 2022). COVID-19 could moderate the pre-existing relationship between board composition and financial performance in several ways: *Crisis leadership*: Experienced boards with crisis management expertise might have better navigated the pandemic, mitigating negative impacts (Agutu & Okumu, 2022). *Digitalization*: Boards with members possessing digital skills could have facilitated faster adoption of technology to adapt to changing operational needs (Odhiambo, 2021). *Risk management*: Boards with strong risk management practices might have been better prepared for the financial uncertainties brought by the pandemic.

2.4 Summary and Gaps

The findings of studies on the connection between financial success and gender diversity on boards have been conflicting. Using Tobin's Q and ROA as indicators, Arvanitis et al. (2022) discovered that gender diversity improved the financial performance of Greek-listed companies. However, despite the fact that board characteristics generally have a beneficial effect on Saccos' success, Githii et al. (2019) could not find a statistically significant association between gender and financial achievement in their research of credit co-ops in Nairobi, Kenya. Other researchers have also shown these contradictory results. The impact of board gender on company performance in the S&P 500 Information Technology Sector was investigated by Simionescu et al. (2021). Using pooled OLS, they found a positive effect on ROA and PER, but using panel data fixed-effects and random-effects analysis, they found no correlation between board gender diversity and ROA. Using data from Singapore and India, Duppati et al. (2019) discovered a significant relationship between financial performance and the presence of women on corporate boards, with boards with female participation outperforming those without.

The impact of board members' experience on the financial performance of deposit-taking SACCOs in Kenya remains understudied. While some research has been conducted in this area, the evidence is limited and inconclusive. Mary et al. (2019) found a statistically significant correlation between stock performance and the experience of board members among businesses

listed on the Indonesia Stock Exchange. However, the applicability of these findings to the Kenyan context is uncertain, given the differences in the business environments and the specific focus on stock performance rather than overall financial performance. Studies conducted in Kenya have yielded mixed results. Muthee and Theuri (2021), Nation Sacco Limited (2021), and Bandari Sacco (2021) found a positive and significant relationship between board members' experience and financial performance. In contrast, Mwangi and Kamwara Associates (2021) and Ochieng and Ongore (2019) found a negative or insignificant relationship. These inconsistencies in the findings suggest that the relationship between board members' experience and financial performance may be influenced by various contextual factors specific to the Kenyan environment, such as the regulatory framework, market conditions, SACCO characteristics, and stakeholder expectations. The limited scope and depth of the existing research in Kenya highlight the need for more comprehensive and consistent measures of both variables to better understand this relationship.

The relationship between board size and financial performance has also been a subject of research, with varying results. Orozco et al. (2018) found that large boards in top Colombian companies were associated with strong corporate reputation performance but inferior financial performance. In contrast, Vaidya (2019) found that medium-sized boards (8-10 members) in BSE 100 companies performed better than very small or very large boards, with no significant effect of board size on various financial performance measures. Yan et al. (2021), using a sample of US S&P 500 companies, found a negative correlation between board size and company performance, with odd-numbered boards being more productive than even-numbered boards. While these studies provide valuable insights into the relationship between board size and financial performance, their applicability to the Kenyan context, particularly in the case of deposit-taking SACCOs, is limited. The unique characteristics of the Kenyan business environment, such as the regulatory framework, market conditions, and cultural factors, may influence the optimal board size and its impact on financial performance differently than in other countries.

The COVID-19 pandemic has presented unprecedented challenges to businesses worldwide, including deposit-taking SACCOs in Kenya. While pre-COVID-19 studies suggest that board composition can influence DT SACCO financial performance (Ong'ure, 2021; Muriithi & Njoroge, 2021), the pandemic may have altered this dynamic. Existing research on the

moderating effect of COVID-19 on the relationship between board composition and financial performance in the Kenyan context is limited. Odhiambo and Obonyo (2022) suggest that board size might have an inverted U-shaped relationship with performance, with smaller and larger boards potentially being less effective during the pandemic. Mutua and Kinyanjui (2014) note that gender diversity can have positive effects on performance, but the relationship can be complex and context dependent. Agutu and Okumu (2022) argue that experienced boards with crisis management expertise might have better navigated the pandemic, mitigating negative impacts. Odhiambo (2021) suggests that boards with members possessing digital skills could have facilitated faster adoption of technology to adapt to changing operational needs during the crisis. While these studies provide some insights into the potential moderating effect of COVID-19 on the relationship between board composition and financial performance in Kenya, they are limited in scope and depth. The unique challenges faced by deposit-taking SACCOs during the pandemic, such as loan defaults, reduced income, and increased operational costs (Odhiambo, 2021), may have required specific adaptations in board composition and governance practices that are not adequately captured in the existing literature.

Therefore, the empirical review reveals significant gaps in the existing literature on the relationship between board composition and financial performance in deposit-taking SACCOs in Kenya, particularly in the context of the COVID-19 pandemic. The inconsistencies in the findings of previous studies, the limited scope and depth of research specific to the Kenyan context, and the unique challenges posed by the pandemic highlight the need for more comprehensive and context-specific research to better understand this relationship and inform effective governance practices in deposit-taking SACCOs.

Table 2.1: Summary and Gaps

Author	Topic	Findings	Gap
Githii et al. (2019)	Board Members' Characteristics, Dispersion, Managerial Cognition and Performance of Saving and Credit Co-operatives in Nairobi City County.	Gender had no statistically meaningful relationship with financial performance.	The study adopted a descriptive cross-sectional survey design and targeted all SACCOs operating within Nairobi by 2015. The current study employed a descriptive design to effectively show how variables influence each other and only targeted registered DT-SACCOs in Kenya.
Arvanitis et al. (2022)	Does Board Gender Diversity Improve Firm Performance? Evidence from Greek Listed Firms	Their findings demonstrate that gender diversity on boards positively affects the financial performance of a business.	The study's sample contained all listed firms in the Athens Stock Exchange for 2008–2020. The current study's sample involved the registered DT-Saccos in Kenya for the period just before the pandemic to the period after the pandemic (2017-2022).
Simionescu et al. (2021)	Does board gender diversity affect firm performance? Empirical evidence from Standard & Poor's 500 Information Technology Sector	The study found no relationship between the gender diversity of the board and ROA, but there was a favorable effect on the number and proportion of women on board	The study used pooled OLS to examine the gender effect on corporate boards on two measures of firm performance—ROA and PER. The current study uses a descriptive design to examine gender's effect on one firm performance measure (ROA).

		on PER.	
Duppati et al. (2019)	Gender diversity and firm performance: evidence from India and Singapore	The results suggested that gender diversity has a positive and significant effect on the financial performance of the firms of both countries.	The study investigated only one variable and its effect on firms in general. The current study examines several variables and their effect on DT-SACCOs' financial performance.
Mary et al. (2019)	Ethnic, Skill, Qualification Diversity of Board of Commissioners and Stock Performance	The empirical findings indicated that the ethnicity of the board of commissioners' members has an insignificant relationship with stock performance.	The study used panel data to examine the ethnic, skill, and qualification diversity of the board of commissioners and stock performance. The current study used secondary data to study gender, ethnic, and board size composition's effect on financial performance of SACCOs.
Vairavan and Zhang (2020)	Does a diverse board matter? A mediation analysis of board racial diversity and firm performance	The findings indicated that ethnic diversity on boards has no direct or indirect effects on performance.	The study used only secondary data from different sources, unlike the present study which strictly uses secondary data from audited SACCOs' financial statements.
Roy (2022)	The Impact of Age, Gender, and Ethnic Diversity on Organizational	The study found that workforce diversity (including age,	The study used structural equation modeling (SEM) and focused on select banks in Dhaka, Bangladesh. The current study focuses on DT-

	Performance: An Empirical Study of Bangladesh's Banking Sector	gender, and ethnic diversity) had a statistically significant and favorable link with performance.	SACCOS in Kenya and employs descriptive and inferential analysis.
Orozco et al. (2018)	Trends on the relationship between board size and financial and reputational corporate performance: The Colombian case	The study established that big boards are linked to both strong corporate reputation performance and inferior financial performance.	The study conducted correlations and cluster analysis for the performance (ROA, ROE, and Net sales) of companies in Colombia. The present study used descriptive and inferential statistics for DT-SACCOS in Kenya.
Vaidya (2019)	Board Size and Firm Performance: A Study on BSE 100 Companies	The results found a need for statistical significance for financial performance measures when considering the effect of board size on firm performance.	The study used secondary data from the annual reports of the sampled companies to study the effect of only one variable, board size. The present study examined three variables of board composition and their effect on financial performance using secondary data.
Yan et al. (2021)	The relationship between board size and firm performance	The findings indicated a negative relationship between business	The study used ROA and Tobin's Q to assess firm performance in terms of accounting value and corporate market value. The present study used ROA to assess SACCO's

		performance and the size of the board of directors.	performance before and after the Covid-19 pandemic.
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2.5 Conceptual Framework

The term "conceptual framework" refers to the comprehensive, rational guidance and collection of all elements that make up the basic presumptions, frameworks, plans, strategies, and techniques utilized to conduct your complete research project (Kivunja, 2018). As a result, the conceptual framework provides a means of understanding the relationship between board composition and Kenyan dt-Saccos' financial performance. Figure 2.1 illustrates the relationship between the variables, with the independent variables being the board's size, gender formation (the proportion of males to women on the board), and the experience of the board members. Financial success as determined by return on assets (ROA) is the dependent variable. The Covid-19 epidemic served as the study's moderating variable.

Gender, experience, and board size on the board were considered independent variables. These variables were all included in the overall measure of board composition, which was computed as an additive variable. This allowed the study to produce a single diversity score that took into account a variety of composition elements and lead to more conclusive conclusions about the interaction between the many composition metrics in the board and financial success.

Covid-19 served as the study's moderating variable. It was incorporated into the analysis since it has been reported to have had a significant influence on the financial success of all economic sectors in the country. The proportion of men to women was used to measure gender composition. The number of board directors was used to calculate the size of the board. The professional experience of different board members was employed as a measure of the SACCOs' experience composition. The financial success of the SACCOs, as determined by ROA, served as the dependent variable.

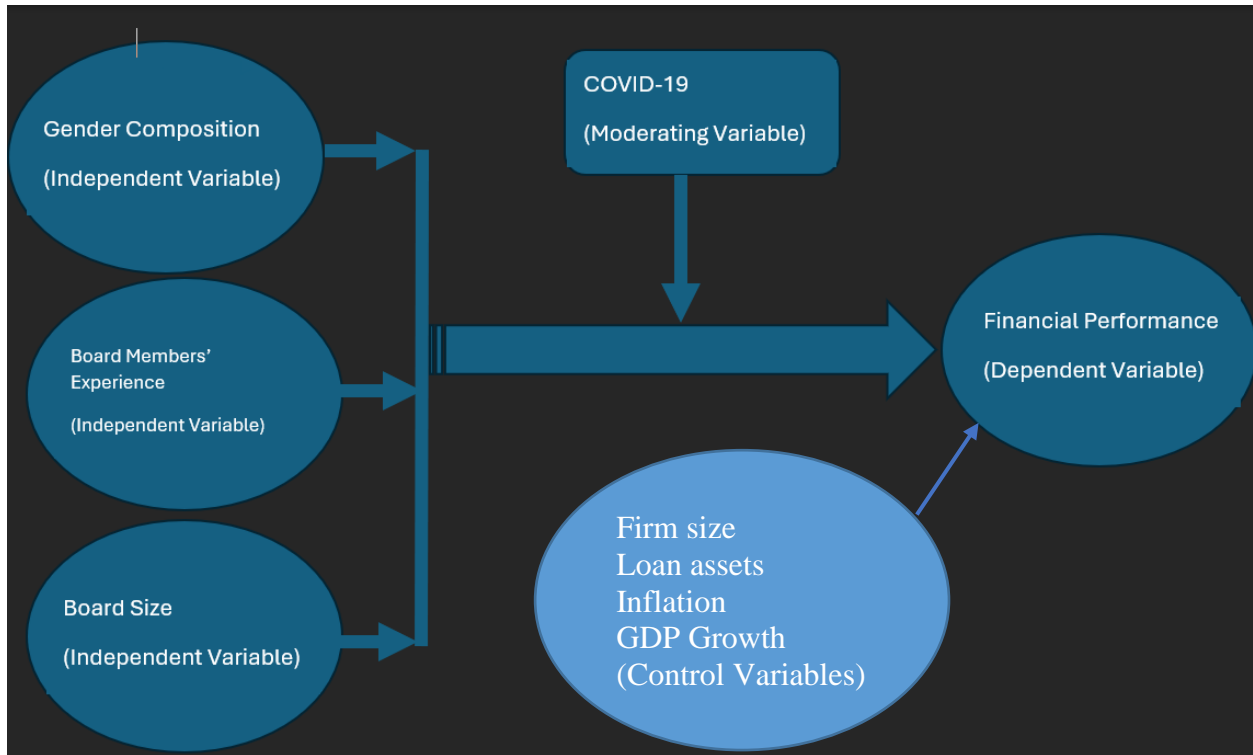


Figure 1: Conceptual Framework

2.6 Operationalization of Variables

Several levels of heterogeneity can be reflected in a board's composition. Age and gender diversity are typical metrics of board composition (Muchemwa et al., 2016), and one of these variables was employed in the current study. Measuring gender diversity on DT SACCO boards is crucial for understanding its impact on the organization's performance and promoting gender equality within the cooperative movement. Here are several methods and considerations:

The Direct Measures such as direct counts or calculating the proportion of female board members (Mutua & Kinyanjui, 2014) and the calculating the proportion of female chairs/vice-chairs: This indicates the level of representation in leadership positions on the board (Ong'ure, 2021).

The Indirect Measures which include:

Gini coefficient: The Gini coefficient is a statistical measure that represents the income or wealth distribution of a population, typically used to gauge economic inequality. It ranges from 0 (perfect equality) to 1 (perfect inequality).

Shannon entropy index: This measures diversity based on the number and proportion of different groups, reflecting the evenness of female representation across board positions (Muriithi & Njoroge, 2021).

The experience of board members is an additional indicator of board composition in literature, which is also employed in this study. Measuring board experience in Deposit-Taking Savings and Credit Cooperatives (DT SACCOs) is crucial for understanding its potential impact on the organization's performance and governance. However, the concept of "experience" is multifaceted and requires a multi-pronged approach for accurate assessment. Here, we explore various methods:

Tenure - This is the simplest measure, reflecting the number of years a board member has served in their current position. While straightforward, it doesn't capture different levels of engagement or specific skills developed (Mutua & Kinyanjui, 2014).

Prior Board Experience: Assessing experience on other boards (DT SACCOs or other organizations) can offer insights into broader perspectives and exposure to diverse governance practices (Muriithi & Njoroge, 2021).

Professional Qualifications and Training: Evaluating board members' relevant professional qualifications, certifications, and training programs related to finance, accounting, risk management, etc., can indicate specific skill sets and knowledge (Odhiambo & Obonyo, 2022).

Self-Reported Experience: Conducting surveys or interviews where board members report their experience in specific areas like financial analysis, strategic planning, or crisis management can provide subjective insights (Agutu & Okumu, 2022).

Performance Reviews and External Evaluations: Analyzing past performance evaluations or external assessments of the board's effectiveness can indirectly reflect the collective experience of members (Ong'ure, 2021).

Committee Membership and Leadership Roles: Examining a board member's participation in specific committees and leadership roles within the DT SACCO can indicate their engagement and experience in different areas (Muriithi & Njoroge, 2021).

No single measure is perfect, and combining several approaches provides a more comprehensive picture (Mutua & Kinyanjui, 2014). In addition, Agutu & Okumu (2022) noted that data

availability and accuracy on qualifications, training, and self-reported experience might require verification. Defining the specific aspects of experience relevant to DT SACCOs is crucial for meaningful interpretation (Odhiambo & Obonyo, 2022). The study shall combine the various aspects discussed to assess and score the experience levels of the SACCO board members.

Board size is the last variable that affects board composition in the current study. Board size was defined by Tulung and Ramdani (2018) as the total number of board members inside an organization. Returns on assets was used to gauge dt-Saccos's financial performance (ROA). Tulung and Ramdani (2018) view ROA as a useful indicator for determining how well a Sacco board member is doing their duties as it demonstrates how the organization's assets are being used to create revenue.

While the pre-pandemic relationship between board composition and financial performance in DT SACCOs has been explored (Muriithi & Njoroge, 2021; Mutua & Kinyanjui, 2014), the pandemic presents a unique opportunity to examine the moderating effect of COVID-19 on this relationship. This necessitates the development of effective methods to measure this impact. The study shall consider some aspects such as:

Changes in Board Composition:

Board size: Did the pandemic lead to changes in board size (e.g., reductions for cost-cutting)? Analyze board size pre- and post-pandemic (Agutu & Okumu, 2022).

Gender diversity: Did the pandemic disproportionately impact female board member representation due to increased workload burdens? Track changes in gender composition over time.

Board experience: Did experienced members step down due to health concerns or risk aversion? Analyze changes in board member tenure and expertise.

Decision-making and Strategic Responses:

Crisis management practices: Did boards with crisis management expertise implement more effective strategies to navigate the pandemic (e.g., loan restructuring)? Evaluate decision-making processes and their outcomes.

Digitalization efforts: Did boards with members possessing digital skills facilitate faster adoption of technology to adapt operations (Odhiambo, 2021)? Assess the use of digital tools and their impact on performance.

Risk management practices: Did boards with strong risk management practices exhibit greater financial resilience? Analyse risk management frameworks and their effectiveness in mitigating pandemic-related risks.

Financial Performance:

Financial ratios: Track key financial ratios like return on assets (ROA), return on equity (ROE), and non-performing loan (NPL) ratios to assess financial health pre- and post-pandemic.

Operational efficiency: Evaluate changes in operational efficiency metrics like cost-to-income ratio and loan delinquency rates.

The variables and the methods for measuring them are shown in Table 2.2.

Table 2.2: Operationalization of Variables

Variable	Indicator/Measurement	Source
Gender composition	Proportion of men/women	DT-SACCOs annual reports
Board Experience	Professional experience in years	DT-SACCOs annual reports
Board size composition	Number of members in the board	DT-SACCOs annual reports
ROA	Net profit after tax / value of assets	DT-SACCOs annual reports
COVID-19	Dummy variable, 1=COVID-19, 0=Otherwise	Author's computation
Firm size	Natural log of total assets	DT-SACCOs annual reports
Loan assets	Ratio of loans/total assets (%)	DT-SACCOs annual reports
Inflation	Rate of change of GDP deflator (%)	Central Bank of Kenya
GDP Growth	Rate of DGP growth (%)	Central Bank of Kenya

Source: Researcher (2024).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The research methods used in the study are covered in this chapter. These include the study's design, the population being studied, the sample size and sampling techniques, the data collection methods, the validity and reliability of the research equipment, the data processing process, and the philosophical perspective.

3.2 Research Philosophy

According to Saunders et al. (2019), research philosophy is a set of presumptions and beliefs on the advancement of knowledge in a certain discipline. Since it serves as the foundation for the research approach and techniques used in a study, the choice of research philosophy is essential. The main research philosophies are positivism, interpretivism, pragmatism, and realism (Žukauskas et al., 2018). Positivism is based on the idea that reality is objective and can be observed, measured, and quantified (Park et al., 2020). Positivist researchers aim to test theories and hypotheses through empirical investigation, often using quantitative methods. They seek to identify causal relationships between variables and generalize findings to a larger population. Interpretivism, on the other hand, emphasizes the subjective nature of reality and the importance of understanding human experiences and perceptions (Saunders et al., 2019). Interpretivist researchers use qualitative methods to explore the meanings that individuals attach to social phenomena and to develop a deeper understanding of the context in which these phenomena occur.

Pragmatism is a philosophy that focuses on the practical consequences of research (Žukauskas et al., 2018). Pragmatic researchers combine quantitative and qualitative methodologies in a single study, selecting approaches and methods that are most appropriate for addressing the research issue. According to Saunders et al. (2019), realism is a philosophy that recognizes the presence of an outside reality separate from human perceptions and beliefs. Realist scholars use both quantitative and qualitative techniques to try to understand the underlying structures and mechanisms that influence social phenomena. Following a review of several research philosophies, this study decided to use positivism to examine the connection between board

composition and financial performance in Kenya's registered deposit-taking SACCOs (DT-SACCOs).

A positive research approach was adopted for this research. The study aimed to test hypotheses about the impact of board composition on financial performance, which aligns with the positivist goal of identifying causal relationships between variables. The research questions and objectives can be addressed using quantitative methods, such as statistical analysis of secondary data, which is consistent with the positivist emphasis on empirical investigation and measurement. The positivist philosophy allows for the generalization of findings to the larger population of DT-SACCOs in Kenya, which is one of the goals of this study. Previous studies on board composition and financial performance have successfully employed a positivist approach (e.g., Arvanitis et al., 2022; Githii et al., 2019; Orozco et al., 2018), demonstrating its suitability for this type of research.

3.3 Research Design

In order to find out how board composition affected the financial performance of deposit-taking SACCOs (DT-SACCOs) in Kenya, this study used an explanatory research approach. Explanatory research seeks to identify causal relationships between variables and explain the nature of these relationships (Saunders et al., 2019). This design is appropriate for studies that aim to test hypotheses and determine the extent to which one variable influence another (Jilcha Sileyew, 2020). In the context of this study, an explanatory design allows for the examination of how different aspects of board composition, such as gender diversity, board size, and board experience, affect the financial performance of DT-SACCOs. By employing statistical analysis techniques, the study can quantify the strength and direction of these relationships while controlling for potential confounding variables. The explanatory design aligns with the positivist philosophy adopted in this study, as it emphasizes the use of empirical data and quantitative methods to test hypotheses and draw conclusions about causal relationships. Furthermore, this design has been successfully employed in previous studies investigating the impact of board composition on financial performance (e.g., Arvanitis et al., 2022; Githii et al., 2019; Orozco et al., 2018), demonstrating its suitability for this type of research.

3.4 Population and Sampling

The 176 SACCOs in Kenya that accept deposits make up the study's target population. However, because of time and financial limitations, the study only looked at 46 DT-SACCOs that were authorized to operate in Nairobi County by the SACCO Societies Regulatory Authority (SASRA). For a number of reasons, Nairobi County was chosen as the study's focal point. Firstly, Nairobi is the economic hub of Kenya, with a high concentration of businesses and financial institutions. DT-SACCOs operating in Nairobi are likely to be more established and have a larger market share compared to those in other regions. Second, people from different socioeconomic and cultural backgrounds live in Nairobi County, making it a varied place to live. The leadership and membership of DT-SACCOs reflect this variety, offering a representative sample for the research. Thirdly, Nairobi's DT-SACCOs are more likely to have financial data and records that are kept up to date, which is important for analyzing board composition and financial performance. Finally, considering Nairobi's strategic significance and its function as a financial hub, the study's conclusions might offer insightful information that would be useful for DT-SACCOs in other parts of Kenya.

Using a census sampling approach, the study included all 46 DT-SACCOs in Nairobi County in its sample. The comparatively modest population size and the quick turnaround time for information for every unit led to the selection of this strategy (Kothari, 2004). The study intends to offer a thorough examination of the connection between board composition and financial performance in this particular setting by including all DT-SACCOs in Nairobi. In order to capture the impact of board composition on financial performance prior to and during the COVID-19 epidemic, the research period (2015–2023) was chosen. This period of time makes it possible to analyze how DT-SACCOs modified their governance procedures and board makeup in reaction to the difficulties presented by the epidemic. Finally, the unit of analysis for this study consisted of the board members from each DT-SACCO. By concentrating on board members, the study may collect information on a range of board compositional factors, including gender diversity, board size, and board experience, and examine how these factors affect the DT-SACCOs' financial performance.

3.5 Data Collection

Data on board composition (experience, gender, and board size) was extracted from the relevant annual reports. The gathered data was split into four segments, with each segment gathering data

for one study variable. Only the audited financial records were used to extract financial performance data (return on assets) for the five years under study.

3.6 Diagnostic Test

The researcher looked at the use of statistics and the regression assumption. Regression diagnostic tests are crucial in confirming this connection since they show whether the assumptions underlying regression have been violated. Regression diagnostics' objective is to establish the compatibility of the estimated model with the assumptions made regarding the observed data and the model (Ferre, 2009). To ensure that the assumptions made by the regression are supported, the study performed autocorrelation, heteroscedasticity, and multicollinearity.

3.6.1 Autocorrelation

The autocorrelation test is done to ascertain if there exists any connection between different variables current and past values. The autocorrelation function exhibits the link between the spots split by different time lags (Zhou, 2019).

3.6.2 Heteroscedasticity

Heteroscedasticity is a type of "non-constant error variance," or an idea that, once the predictors are put into the regression model, the residual variability that is left fluctuates according to variables that are not in the model (Astivia & Zumbo, 2019). The likelihood of heteroscedasticity was assessed using the Breusch-Pagan Lagrange Multiplier (LM) test for homoscedasticity because the study used secondary data.

3.6.3 Multicollinearity

When there is a substantial correlation between two or more of the predictor variables in a multiple regression model, this is referred to as multicollinearity, or near-linear dependence (Daoud, 2017).

The variance decomposition percentage, condition index and condition number, and variance inflation factor (VIF) are examples of multicollinearity diagnostic tools (Kim, 2019). The study employed the Variance Inflation Factor (VIF) test to determine the interaction between the variables under study and check for the multicollinearity between the variables.

3.7 Data Analysis

To extract relevant information from data, data analysis entails certain calculations and assessments (Ibrahim, 2015). The data analysis may involve a number of procedures in order to get certain conclusions. Simple data can be sorted very fast, but complicated data needs proper processing. In order to describe the data gathered for each variable, descriptive statistics was employed to analyse quantitative data. The Statistical Package for Social Sciences (SPSS) version 28.0 software was applied for data coding, allowing the creation of tables and figures to visualise the data. Multiple regression and inferential analysis were also employed in determining the degree to which variables were associated. The following multiple regression model described the connection between the predictor variables (gender, experience, and board size) and the responsive variable (financial performance).

$$ROA_{it} = \beta_0_{it} + \beta_1X1_{it} + \beta_2X2_{it} + \beta_3X3_{it} + \beta_4X4_{it} + \beta_5Cont_Var_{it} + \varepsilon_{it} \dots\dots (1)$$

Where, ROA = Financial performance of DT-SACCOs as measured by return on assets

β_0 = intercept coefficient

X_1 = gender composition

X_2 = Experience Composition

X_3 = board size composition

X_4 = Covid-19

Cont_Var = Control variables (*Firm size, loan assets, inflation and GDP growth*)

β_1 to β_5 = Coefficients

ε_{it} = error term

As an extension of equation 1, the study evaluates the extent of board size composition and whether there is a certain range of board size by evaluating the non-linear relationship as shown below in equation 2.

$$ROA_{it} = \beta_0_{it} + \beta_1X1_{it} + \beta_2X2_{it} + \beta_3X3_{it} + \beta_4X4_{it}^2 + \beta_5X5_{it} + \beta_6Cont_Var_{it} + \varepsilon_{it} \dots\dots\dots (2)$$

Where: $\beta_4X4_{it}^2$ denotes the non-linear relationship of board size composition, other variables remain the same as indicated in equation 1. Moreover, to test the moderating effect of COVID-19, the period of study is divided into two parts: pre-COVID-19 (2015-2019) and post-COVID-19 (2020-2023).

3.8 Ethical Considerations

Ethical considerations are the rules which must be followed in acceptably doing a study or in a manner considered right. Before undertaking the study, the researcher sought clearance from Strathmore University Institutional Scientific and Ethical Review Committee (SU-ISERC).

3.9 Chapter Summary

The chapter analyses the research approach adopted by the study to accomplish the goal of the study. The chapter presents the research philosophy, the research design, an outline of the population and sampling technique used to obtain the sample, techniques used in gathering and analyzing data. This part also covers ethical issues and the quality of the research.



CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND DISCUSSION OF RESEARCH FINDINGS

4.1 Introduction

The chapter provides the analysis and conclusions of the study that looked at how board composition affected the financial performance of Deposit-Taking SACCOs (DT-SACCOs) in Kenya—with a particular emphasis on the moderating impact of the COVID-19 pandemic. The association between board composition factors (gender composition, board size, and board experience) and financial success as determined by Return on Assets (ROA) was examined using both descriptive and inferential statistics. The chapter was organized into four main sections: descriptive statistics, correlation analysis, diagnostic tests, and empirical analysis using a three-stage least squares regression model. To assess the pandemic's moderating effect, separate analyses were conducted for pre-COVID-19 (before 2020) and post-COVID-19 (after 2019) periods. The findings were interpreted and discussed within the context of existing literature and theoretical frameworks.

4.2 Descriptive statistics

The summary metrics of the variables utilized to examine the connection between the board composition and financial performance of DT-SACCOs in Kenya are provided in the descriptive statistics section. Data from 66 DT-SACCOs between 2018 and 2022 was analyzed, yielding 330 firm-year observations. Each variable's lowest and maximum values were included in the descriptive statistics, together with measurements of central tendency (mean) and dispersion (standard deviation). These figures shed light on the features of financial performance (ROA), control factors (SACCO size, loan-to-assets ratio, and macroeconomic indicators (inflation and GDP growth), and board composition variables (gender composition, board size, and experience).

Table 4.1 Descriptive Statistics

VARIABLES	(1) N	(2) Mean	(3) Std	(4) Min	(5) Max
ROA	330	2.423	1.068	0.114	7.381
Gender composition	330	28.980	11.150	0.000	66.670
Board Size	330	9.145	0.894	7.000	13.000
Years of Experience	330	15.840	3.525	6.626	22.300
COVID19 STATUS	330	0.264	0.441	0.000	1.000
Firm Size	330	21.900	1.198	18.850	24.830
Loan assets	330	74.460	13.300	13.140	137.700
GDP Growth	330	4.502	2.108	-0.250	7.517
Inflation	330	6.256	1.099	4.690	9.380

Table 4.1 shows that the mean Return on Assets (ROA) for DT-SACCOs during the study period was 2.423% with a standard deviation of 1.068%, ranging from a minimum of 0.114% to a maximum of 7.381%. Gender composition on boards averaged 28.98%, indicating that women held approximately one-third of board positions, though this varied considerably across SACCOs (SD = 11.15%) with some having no female representation (0%) and others reaching up to 66.67%. The average board size was approximately 9 members (mean = 9.145, SD = 0.894), with the smallest boards having 7 members and the largest having 13 members. Board members had substantial experience, averaging 15.84 years (SD = 3.525), with a range from 6.626 to 22.3 years. The COVID-19 status variable means of 0.264 indicates that approximately 26.4% of the observations were from the pandemic period. The control variables showed that the average SACCO size (in natural logarithm) was 21.90, while the loan-to-assets ratio averaged 74.46%. The macroeconomic indicators revealed an average GDP growth of 4.502% and inflation rate of 6.256% during the study period.

4.3 Correlation Analysis

The correlation analysis results are presented in this section, which also looks at the bivariate correlations between the financial performance of DT-SACCOs in Kenya and board composition characteristics. To ascertain the direction and strength of the correlations between the variables and to look for any possible multicollinearity problems, the study used Pearson correlation coefficients. The correlation analysis's findings are displayed in Table 4.2.

Table 4.2: Correlation Results

Variables	ROA	Gender Composition	Board Size	Years of Experience	Firm Size	Loan Assets	GDP Growth	Inflation	Covid-19 Status
ROA	1.000								
Gender Composition	-0.150**	1.000							
Board Size	-0.081	0.016	1.000						
Years of Experience	0.062	0.067	-0.035	1.000					
Firm Size	0.023	-0.175***	0.280***	-0.055	1.000				
Loan Assets	0.134**	-0.184***	0.203***	-0.009	-0.062	1.000			
GDP Growth	-0.001	0.001	-0.004	0.042	0.007	0.006	1.000		
Inflation	-0.084	-0.016	0.016	-0.020	0.005	0.001	0.074	1.000	
Covid-19 Status	0.011	-0.042	-0.020	-0.026	0.060	-0.038	-0.209*	-0.296*	1.000

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 4.2 reveals several significant correlations that align with previous literature. Gender composition showed a significant negative correlation with ROA ($r = -0.150$, $p < 0.05$), which contrasts with Arvanitis et al.'s (2022) findings of a positive relationship in Greek-listed firms but aligns with some aspects of Simionescu et al.'s (2021) study that found mixed results when using different analytical approaches. The board size exhibited a negative but insignificant correlation with ROA ($r = -0.081$), supporting Yan et al.'s (2021) findings of a negative relationship between board size and firm performance in US S&P 500 companies, though contrasting with Vaidya's (2019) results that suggested optimal performance with medium-sized boards.

Board experience showed a positive but insignificant correlation with ROA ($r = 0.062$), which partially aligns with Mary et al.'s (2019) findings of a significant positive relationship between board experience and performance in Indonesian firms. Among control variables, loan assets demonstrated a significant positive correlation with ROA ($r = 0.134$, $p < 0.05$). The COVID-19 status variable showed significant negative correlations with both GDP growth ($r = -0.209$, $p < 0.10$) and inflation ($r = -0.296$, $p < 0.10$), supporting Odhiambo's (2021) observations about the

pandemic's significant impact on DT-SACCOs through reduced income and increased operational costs. Further, firm size showed significant correlations with both gender composition ($r = -0.175$, $p < 0.01$) and board size ($r = 0.280$, $p < 0.01$), suggesting that larger SACCOs tend to have larger boards but lower gender diversity, a finding that adds to the complex relationship dynamics observed by Duppati et al. (2019) in their cross-country analysis of board diversity and firm performance.

4.4 Diagnostic Tests

The diagnostic tests carried out to guarantee the validity and dependability of the regression analysis are presented in this part. Tests for heteroskedasticity (Breusch-Pagan/Cook-Weisberg test), multicollinearity (Variance Inflation Factors), autocorrelation (Wooldridge test), and normality (Shapiro-Wilk test) were among the tests conducted to confirm the assumptions that underlie the regression model. To choose the best panel estimate technique amongst fixed and random effects, the Hausman test was also performed. These diagnostic tests are crucial as they help establish the robustness of the findings and inform the selection of appropriate estimation techniques to address any violations of classical regression assumptions.

4.4.1 Homoskedasticity Test

Table 4.3 presents the results of the Breusch-Pagan/Cook-Weisberg test for heteroskedasticity, which examines whether the variance of the residuals is constant across all observations. This test is crucial in determining the reliability of standard errors in regression analysis and subsequently influences the choice of estimation method.

Table 4.3: Breusch-Pagan/Cook-Weisberg Test for Heteroskedasticity

Characteristics	Results
Assumption	Normal error terms
Variable	Fitted values of ROA
Null Hypothesis (H0)	Constant variance
Chi-square (1)	37.53
Prob > chi2	0.000

The null hypothesis of constant variance is rejected because, as Table 4.3 demonstrates, the Breusch-Pagan/Cook-Weisberg test result ($\chi^2 = 37.53$) is statistically significant at the 1% level ($p < 0.01$). This suggests that the variance of the error terms fluctuates consistently with the expected values of ROA, indicating the presence of heteroskedasticity in the model. As suggested by White (1980) and frequently utilized in board composition research, the study used robust standard errors in the regression analysis to overcome this breach of the homoskedasticity assumption.

4.4.2 Testing for Multicollinearity

This section presents the results of the Variance Inflation Factor (VIF) test conducted to examine the presence of multicollinearity among the independent variables. Multicollinearity test is essential as it determines whether there are high correlations between independent variables that could affect the reliability of regression estimates.

Table 4.4: Multicollinearity Test

Variable	VIF	1/VIF
Board Size	1.16	0.859
Firm Size	1.16	0.860
COVID-19 Status	1.15	0.870
Loan Assets	1.12	0.896
Inflation	1.10	0.910
Gender Composition	1.10	0.913
GDP Growth	1.05	0.954
Years of Experience	1.01	0.990
Mean VIF	1.11	

With the highest VIF values of 1.16 noted for both board size and firm size, Table 4.4 demonstrates that all variables have VIF values much below the traditional cutoff of 5 or 10. Multicollinearity is not an issue in this study, as indicated by the mean VIF of 1.11. The trustworthiness of the regression coefficients is ensured by the low VIF values, which imply that

the independent variables are sufficiently different from one another. Further demonstrating that there are no significant multicollinearity problems among the predictor variables is the fact that all of the tolerance values ($1/VIF$) are over 0.85. These findings suggest that correlations between the independent variables had no negative impact on the regression estimations, enabling accurate interpretation of the distinct contributions of each variable to financial performance.

4.4.3 Testing for Autocorrelation

This section presents the Wooldridge test results for first-order autocorrelation in panel data, which examines whether the error terms are correlated across time periods. Table 4.5 present the results for the autocorrelation test.

Table 4.5: Autocorrelation Test

Characteristics	Results
Null Hypothesis (H0)	No first-order autocorrelation
F-statistic	2.386
Degrees of Freedom	(1, 41)
Prob > F	0.1301

The Wooldridge test statistic ($F = 2.386$) with degrees of freedom (1, 41) produces a p-value of 0.1301, which is higher than the standard significance limits ($p > 0.05$), as Table 4.5 demonstrates. The null hypothesis that there is no first-order autocorrelation is not rejected by this finding, suggesting that autocorrelation is not a major issue in the panel data. The use of conventional panel estimate techniques without the requirement for autocorrelation corrections is validated by the lack of autocorrelation, which implies that the data are independent across time periods.

4.4.4 Testing for Normality

In order to determine if the residuals adhere to a normal distribution—a crucial premise in regression analysis—the Shapiro-Wilk test for normality was performed. Because it aids in evaluating the dependability of regression estimates and the validity of statistical inference, this test is very significant.

Table 4.6: Shapiro-Wilk W Test for Normal Data

Variable	Observations	W	V	z	Prob > z
Residuals	330	0.98136	4.323	3.452	0.00028

The Shapiro-Wilk test results indicate that the residuals significantly deviate from normality ($W = 0.98136$, $z = 3.452$, $p < 0.01$). This rejection of the null hypothesis of normality suggests that the error terms are not normally distributed. However, given the large sample size (330 observations), the Central Limit Theorem suggests that the violation of normality assumption should not substantially affect the reliability of our regression estimates.

4.5 Empirical Analysis

The study employed a three-stage least squares (3SLS) regression model to examine the effect of board composition on financial performance of DT-SACCOs. As pioneered by Zellner and Theil (1962), 3SLS estimation combines system equation estimation with instrumental variable methods to achieve consistent and efficient estimates. This method was chosen to address the limitations of both fixed and random effects models. Fixed effects models cannot estimate time-invariant variables and may be inefficient when variations are minimal within groups (Baltagi, 2008), while random effects models assume strict exogeneity and may produce biased estimates when unobserved effects correlate with regressors (Wooldridge, 2010). The 3SLS approach addresses these limitations by allowing for endogenous regressors and contemporaneous correlation in the residuals while providing more efficient estimates (Greene, 2012; Kennedy, 2008). Table 4.8 presents the regression results with three model specifications, progressively incorporating additional control variables.

Table 4.8: Effect of board composition on financial performance

Variables	Model 1	Model 2	Model 3
Gender Composition	-0.013**	-0.015***	-0.015***
	-0.005	-0.005	-0.005
Board Size	0.140**	1.010**	1.010**
	-0.068	-0.503	-0.503
Board Size^2(squared)		-0.045*	-0.045*
		-0.026	-0.026
Years of Experience	0.022	0.019	0.019
	-0.016	-0.016	-0.016
Firm Size	0.040*	0.048*	0.048*
	-0.052	-0.052	-0.052
Loan Assets	0.011**	0.012***	0.012***
	-0.004	-0.004	-0.004
GDP Growth			1.375
			-1.286
Inflation			0.612
			-0.623
COVID-19 Status			-2.68
			-3.371
Constant	2.642	6.751**	-5.321
	-1.704	-2.9	-9.021
Year Effects	Yes	Yes	Yes
Observations	330	330	330
R-squared	0.08	0.088	0.088

Dependent variable: Return on Assets (ROA)

Table 4.8 reveals several significant relationships between board composition and financial performance. Gender composition shows a consistently negative and significant relationship with profitability across all specifications ($\beta = -0.015$, $p < 0.01$ in Model 3), aligning with Githii et al.'s (2019) findings of no positive impact of gender diversity on SACCO performance in Kenya. Board size exhibits a non-linear relationship with financial performance, as indicated by the positive coefficient of the linear term ($\beta = 1.010$, $p < 0.05$) and negative coefficient of the quadratic term ($\beta = -0.045$, $p < 0.10$). This finding supports Vaidya's (2019) conclusion that medium-sized boards perform better than extremely small or large boards and aligns with Orozco et al.'s (2018) findings of diminishing returns from larger boards. Board experience shows a positive but statistically insignificant relationship with performance ($\beta = 0.019$, $p > 0.10$), partially supporting Mary et al.'s (2019) findings of the importance of board experience in

organizational performance. The control variables reveal that SACCO size ($\beta = 0.048$, $p < 0.10$) and loan assets ($\beta = 0.012$, $p < 0.01$) positively influence performance, while the COVID-19 status variable, though negative, is not statistically significant ($\beta = -2.680$, $p > 0.10$). The R-squared values, though modest (ranging from 0.080 to 0.088), are consistent with similar studies in corporate governance, reflecting the complex nature of financial performance determinants in financial institutions. These results provide empirical support for the theoretical arguments regarding the importance of optimal board composition in enhancing organizational performance, while highlighting the context-specific nature of such relationships in the DT-SACCO sector.

4.6 Pre Covid-19 Sub-sample Analysis

To enhance the robustness of our findings and examine the temporal stability of board composition effects, we conducted a sub-sample analysis focusing on the pre-COVID-19 period (before 2020). This approach follows the methodological recommendations of Stock and Watson (2015) for handling structural breaks in panel data and aligns with Gujarati and Porter's (2009) emphasis on sub-period analysis for testing parameter stability. Sub-sample analysis is particularly crucial when examining governance effects across different economic contexts, as highlighted by Roberts and Whited (2013) in their comprehensive review of empirical corporate governance research methods. Following MacKinnon (2008), we maintain consistent model specifications across sub-samples to ensure comparability while allowing for period-specific effects. Table 4.9 below presents the pre-COVID-19 period analysis.

Table 4.9: Pre-COVID-19 Sub-sample Analysis (2015-2019)

Variables	Model 1	Model 2	Model 3
Gender Composition	-0.016**	-0.018**	-0.018**
	-0.007	-0.007	-0.007
Board Size	0.145	0.99	0.99
	-0.092	-0.676	-0.676
Board Size^2(squared)		-0.043	-0.043
		-0.034	-0.034
Years of Experience	0.031	0.028	0.028
	-0.021	-0.021	-0.021
Firm Size	0	0.006*	0.006*
	-0.071	-0.071	-0.071
Loan Assets	0.017***	0.017***	0.017***
	-0.006	-0.006	-0.006
GDP Growth			-0.656
			-0.595
Inflation			0.019
			-0.31
Constant	3.193	7.244*	10.080*
	-2.143	-3.857	-5.58
Year Effects	Yes	Yes	Yes
Observations	198	198	198
R-squared	0.106	0.114	0.114

Dependent variable: Return on Assets (ROA)

The pre-COVID-19 analysis reveals several noteworthy patterns in the relationship between board composition and financial performance. Gender composition demonstrates a stronger negative association with ROA in the pre-pandemic period ($\beta = -0.018$, $p < 0.05$) compared to the full sample, supporting Arvanitis et al.'s (2022) findings of temporal variation in gender diversity effects. The relationship between board size and performance becomes non-linear but statistically insignificant in this period, with a positive linear term ($\beta = 0.990$) and negative quadratic term ($\beta = -0.043$), aligning with Vaidya's (2019) observations about the complexity of optimal board size determination. The years of experience variable shows a stronger positive coefficient ($\beta = 0.028$) compared to the full sample, though remaining statistically insignificant, which resonates with the mixed findings reported in previous studies regarding the impact of board experience on financial performance.

Control variables exhibit distinct patterns in the pre-COVID period, with loan assets maintaining a strong positive relationship with performance ($\beta = 0.017$, $p < 0.01$). Firm size shows a marginally positive effect ($\beta = 0.006$, $p < 0.10$), while macroeconomic variables (GDP growth and inflation) demonstrate minimal impact. The higher R-squared values in the pre-COVID models (0.114 compared to 0.088 in the full sample) suggest that board composition variables had greater explanatory power for financial performance before the pandemic, supporting Simionescu et al.'s (2021) argument about the importance of considering temporal stability in governance-performance relationships. This finding is particularly relevant given Duppati et al.'s (2019) emphasis on the context-dependent nature of governance effects and the need to consider institutional and environmental factors in assessing board effectiveness.

4.7 Post Covid-19 Sub-sample Analysis

To examine how the COVID-19 pandemic potentially moderated the relationship between board composition and financial performance, we analyzed a sub-sample covering the post-COVID period (2020-2023). This approach follows established methodological practices for analyzing structural breaks in panel data during crisis periods (Wooldridge, 2016; Hansen, 2021). The pandemic represents a significant exogenous shock that may have fundamentally altered corporate governance dynamics, making this sub-period analysis particularly relevant for understanding the resilience and adaptability of board structures during crisis periods (Ramelli & Wagner, 2020). Table 4.10 present the post-COVID-19 period analysis to underscore the moderating effect of COVID-19.

Table 4.10: Post-COVID-19 Sub-sample Analysis (2020-2023)

Variables	Model 1	Model 2	Model 3
Gender Composition	-0.009*	-0.010*	-0.010*
	-0.008	-0.008	-0.008
Board Size	0.146*	1.065**	1.065**
	-0.1	-0.733	-0.733
Board Size^2(squared)		-0.047*	-0.047*
		-0.037	-0.037
Years of Experience	0.013	0.009	0.009
	-0.025	-0.025	-0.025
Firm Size	0.095	0.106	0.106
	-0.074	-0.074	-0.074
Loan Assets	0.006**	0.006**	0.006**
	-0.006	-0.006	-0.006
GDP Growth			1.481*
			-1.228
Inflation			-3.23
			-2.626
Constant	1.356*	5.565*	23.024*
	-1.799	-3.775	-14.732
Year Effects	Yes	Yes	Yes
Observations	132	132	132
R-squared	0.058	0.069	0.069

Dependent variable: Return on Assets (ROA)

The post-COVID analysis reveals notable shifts in the board composition-performance relationship compared to the pre-pandemic period. The negative effect of gender composition on ROA weakened considerably ($\beta = -0.010$, $p < 0.10$) compared to the pre-COVID period ($\beta = -0.018$, $p < 0.05$), suggesting that diverse boards may have become more valuable during crisis periods. This aligns with behavioral finance theory that suggests diverse perspectives become particularly valuable during periods of uncertainty (Baker & Wurgler, 2012). Board size demonstrates a stronger and more significant non-linear relationship with performance in the post-COVID period (linear term: $\beta = 1.065$, $p < 0.05$; quadratic term: $\beta = -0.047$, $p < 0.10$), indicating that optimal board size became more critical during the crisis period.

The influence of control variables also shifted notably in the post-COVID period. The impact of loan assets on performance, while remaining positive and significant, decreased in magnitude ($\beta = 0.006$, $p < 0.05$) compared to the pre-COVID period ($\beta = 0.017$, $p < 0.01$). GDP growth

emerged as a significant positive factor ($\beta = 1.481, p < 0.10$), while inflation showed a stronger negative effect, though not statistically significant ($\beta = -3.230$). The lower R-squared values in the post-COVID models (0.069 compared to 0.114 in the pre-COVID period) suggest that traditional governance mechanisms may have become less effective in explaining performance variations during the crisis period, supporting the argument by Beltratti and Stulz (2012) that crisis periods can fundamentally alter the effectiveness of corporate governance mechanisms.

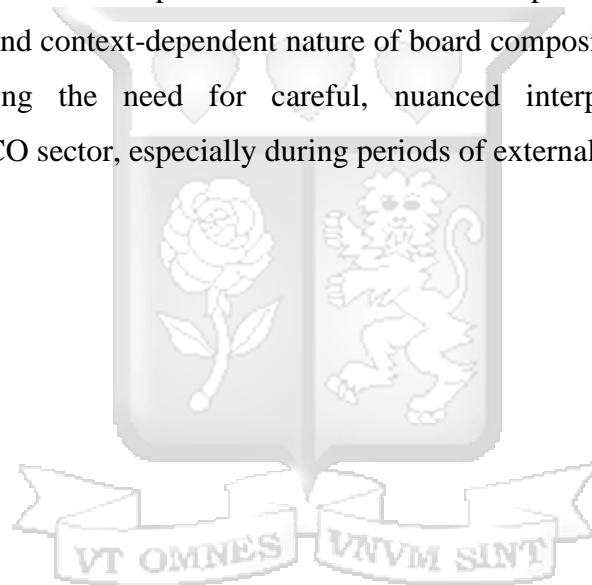
Overall, the moderating results underscore the dynamic influence of COVID-19 on governance-performance relationships. Gender composition exhibited a less negative impact during the pandemic, suggesting that gender-diverse boards might have enhanced resilience by fostering diverse perspectives critical during crises. This finding is consistent with behavioral finance theory, which posits that diversity can improve decision-making under uncertainty (Baker & Wurgler, 2012). Similarly, board size and COVID-19 highlight the heightened importance of optimal board size during the pandemic. This aligns with resource dependency theory, which emphasizes the role of boards in providing resources and expertise during external shocks. The non-linear effect of board size further reinforces the need for balanced governance structures to navigate crises effectively. Experience composition showed a positive but insignificant moderating effect during post-COVID-19 period, indicating that traditional experience alone may not suffice in addressing unprecedented challenges.

4.8 Chapter Summary

This chapter presented the empirical analysis examining the relationship between board composition and financial performance of DT-SACCOs in Kenya, with particular attention to the moderating effect of the COVID-19 pandemic. The descriptive statistics revealed that DT-SACCOs had an average ROA of 2.423%, with boards comprising approximately 28.98% female representation and an average of 9 members with 15.84 years of experience. The correlation analysis showed significant negative associations between gender composition and ROA ($r = -0.150, p < 0.01$), while loan assets demonstrated a positive correlation with ROA ($r = 0.134, p < 0.05$). Diagnostic tests confirmed the reliability of the analysis approach. The Breusch-Pagan/Cook-Weisberg test indicated the presence of heteroskedasticity ($\chi^2 = 37.53, p < 0.01$), while multicollinearity was not a concern as evidenced by VIF values ranging from 1.01 to 1.16. The Hausman test results ($\chi^2 = 3.07, p = 0.3804$) supported the use of random effects

estimation. To address various estimation challenges, a three-stage least squares regression model was employed.

The main regression analysis revealed complex relationships between board composition and financial performance among deposit-taking SACCOs in Kenya. Gender composition demonstrated a consistently negative effect on Return on Assets (ROA), with statistical significance across model specifications. The analysis of board size revealed nuanced dynamics that challenge simple linear interpretations. Sub-sample analysis highlighted temporal variations, with gender composition effects being more pronounced in the pre-COVID period and board size effects becoming more significant during the pandemic. Control variables, particularly loan assets and firm size, maintained positive associations with performance. These findings underscore the intricate and context-dependent nature of board composition's impact on financial performance, emphasizing the need for careful, nuanced interpretation of governance mechanisms in the SACCO sector, especially during periods of external economic disruption.



CHAPTER FIVE

DISCUSSION OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The findings, conclusions, and suggestions from the examination of the impact of board composition on the financial performance of DT-SACCOs in Kenya are discussed in this chapter. The discussion is organized thematically according to the study's specific objectives, focusing on gender composition, board size, and board experience, particularly considering the moderating effect of the COVID-19 pandemic. The chapter also presents recommendations for policy and practice, suggestions for further research, and acknowledges limitations encountered during the study.

5.2 Discussion of Findings

5.2.1 Gender Composition and Financial Performance

The descriptive statistics revealed that women representation on DT-SACCO boards averaged 28.98% (SD = 11.15), indicating relatively low gender diversity in board composition. The correlation analysis showed a significant negative relationship between gender composition and financial performance ($r = -0.150$, $p < 0.01$), suggesting that SACCOs with higher female board representation tended to have lower ROA. The regression results further confirmed this negative relationship ($\beta = -0.015$, $p < 0.01$), which persisted across different model specifications and remained robust when controlling for other board characteristics and macroeconomic factors.

The implications of these findings suggest that the relationship between gender diversity and financial performance in DT-SACCOs is more complex than initially theorized. Sub-sample analysis revealed that the negative effect was stronger in the pre-COVID period ($\beta = -0.018$, $p < 0.05$) compared to the post-COVID period ($\beta = -0.010$, $p < 0.10$), indicating that crisis periods might alter the dynamics of board gender diversity's impact on performance.

These findings align with several previous studies while contrasting with others. For instance, they support Githii et al.'s (2019) findings of no positive impact of gender diversity on SACCO performance in Kenya, but contrast with Arvanitis et al.'s (2022) results showing positive effects of gender diversity on firm performance in Greek-listed firms. The results also partially align with Simionescu et al.'s (2021) mixed findings regarding gender diversity's impact on company

performance in the S&P 500 IT sector. Duppati et al.'s (2019) study of Indian and Singapore firms found positive effects of gender diversity, suggesting that institutional and cultural contexts may play crucial roles in determining the effectiveness of board gender diversity.

5.2.2 Board Size and Financial Performance

The descriptive analysis revealed that DT-SACCOs maintained an average board size of 9.145 members ($SD = 0.894$), ranging from 7 to 13 members. The correlation analysis showed a negative but insignificant relationship between board size and ROA ($r = -0.081$), suggesting a weak linear association. However, the regression analysis uncovered a more nuanced non-linear relationship, with a positive linear term ($\beta = 1.010$, $p < 0.05$) and a negative quadratic term ($\beta = -0.045$, $p < 0.10$), indicating an inverted U-shaped relationship between board size and financial performance.

The sub-period analysis revealed interesting temporal variations in the board size effect. In the pre-COVID period, the relationship was weaker and less significant (linear term: $\beta = 0.990$, quadratic term: $\beta = -0.043$), while the post-COVID period showed stronger effects (linear term: $\beta = 1.065$, $p < 0.05$, quadratic term: $\beta = -0.047$, $p < 0.10$). These findings align with Vaidya's (2019) discovery that medium-sized boards (8-10 members) tend to perform better than extremely small or large boards. Similarly, Orozco et al.'s (2018) study of Colombian companies found that while larger boards enhanced corporate reputation, they were associated with inferior financial performance, supporting our finding of diminishing returns to board size.

The inverted U-shaped relationship suggests an optimal board size exists for DT-SACCOs, beyond which additional members may reduce effectiveness through increased coordination costs and communication challenges, as theorized by Yan et al. (2021). The strengthened relationship during the COVID-19 period indicates that board size became more critical during crisis periods, possibly due to the increased importance of diverse perspectives and expertise in navigating unprecedented challenges.

5.2.3 Board Experience and Financial Performance

The study found that board members had substantial experience, averaging 15.84 years ($SD = 3.525$), with a range from 6.626 to 22.30 years. The correlation analysis revealed a positive but modest relationship between board experience and financial performance ($r = 0.062$), though not

statistically significant. The regression results showed a consistent positive but insignificant effect of board experience on ROA across all model specifications ($\beta = 0.019$), suggesting that experience alone may not be a decisive factor in determining SACCO performance.

The temporal analysis revealed that board experience had a stronger positive effect in the pre-COVID period ($\beta = 0.028$) compared to the post-COVID period ($\beta = 0.009$), though remaining statistically insignificant in both periods. This finding resonates with Mary et al.'s (2019) study of Indonesian firms, which found significant positive effects of board experience on stock performance. However, our results also support the mixed evidence noted in previous studies, where some researchers found positive relationships between board experience and financial performance (Muthee & Theuri, 2021), while others found insignificant relationships (Ochieng & Ongore, 2019).

The findings suggest that the relationship between board experience and financial performance is complex and potentially moderated by other factors. This aligns with the recommendations of Roberts and Whited (2013), who emphasize the importance of considering multiple governance mechanisms simultaneously. The reduced effect of experience during the COVID-19 period might indicate that traditional experience became less valuable during unprecedented crisis situations, supporting arguments by Beltratti and Stulz (2012) that crisis periods can fundamentally alter the effectiveness of established governance mechanisms.

5.2.4 Moderating Effect of COVID-19 on Board Composition-Performance Relationship

The analysis revealed significant changes in the board composition-performance relationship during the COVID-19 pandemic. The descriptive statistics showed that approximately 26.4% of observations fell within the pandemic period, with notable shifts in the effectiveness of different board characteristics. The correlation analysis indicated that the COVID-19 status variable had significant negative correlations with both GDP growth ($r = -0.209$, $p < 0.10$) and inflation ($r = -0.296$, $p < 0.10$), highlighting the broader economic impact of the pandemic.

The regression results demonstrated that the pandemic moderated the relationship between board composition and financial performance in several ways. The gender diversity effect weakened (from $\beta = -0.018$, $p < 0.05$ pre-COVID to $\beta = -0.010$, $p < 0.10$ post-COVID), while board size effects strengthened (from $\beta = 0.990$ pre-COVID to $\beta = 1.065$, $p < 0.05$ post-COVID). These findings support Agutu and Okumu's (2022) observations about the need for crisis management

expertise during the pandemic and align with Odhiambo's (2021) findings regarding the importance of digital adaptation capabilities in board effectiveness during COVID-19.

The moderating effect of COVID-19 also manifested in the changing significance of control variables, with loan assets showing reduced impact (from $\beta = 0.017$, $p < 0.01$ to $\beta = 0.006$, $p < 0.05$) and GDP growth emerging as significant only in the post-COVID period ($\beta = 1.481$, $p < 0.10$). These shifts support Ramelli and Wagner's (2020) findings about the fundamental changes in corporate governance dynamics during crisis periods and align with Baker and Wurgler's (2012) behavioral finance perspective on the increased importance of diverse decision-making approaches during periods of heightened uncertainty.

5.3 Conclusion

The study concludes that gender composition on DT-SACCO boards has a significant negative effect on financial performance in Kenya. The findings suggest that higher female representation on boards is associated with lower ROA, particularly in the pre-COVID period. However, this relationship weakened during the pandemic, indicating that board diversity might become more valuable during crisis periods. These results validate the behavioral finance theory, which emphasizes the importance of diverse perspectives in decision-making, particularly under conditions of uncertainty. However, the findings challenge traditional agency theory, which often assumes that diversity consistently enhances board performance regardless of context. The study also reveals significant challenges in achieving gender balance on DT-SACCO boards, with female representation averaging only 28.98%, indicating persistent barriers to gender diversity in corporate leadership positions. The findings contribute to stakeholder theory by highlighting the importance of inclusive representation in governance, even though the immediate financial benefits may not always be evident.

The study further concludes that board size exhibits a non-linear relationship with financial performance, characterized by an inverted U-shaped pattern. This suggests an optimal board size exists, beyond which additional members may reduce effectiveness. The relationship became more pronounced during the COVID-19 period, with stronger coefficients in the post-pandemic analysis. These findings validate resource dependency theory, which posits that boards provide critical resources and expertise, but that excessive size may dilute these benefits due to coordination challenges. The study demonstrates that medium-sized boards (around 9 members)

tend to perform better than extremely small or large boards, suggesting that DT-SACCOs need to carefully balance the benefits of diverse perspectives against the costs of coordination and communication challenges. This finding provides practical insights into the governance structures necessary to optimize board effectiveness.

Board experience, while showing a positive relationship with financial performance, did not demonstrate statistical significance across the study period. However, the effect was stronger in the pre-COVID period compared to the post-COVID era, suggesting that traditional experience might become less relevant during unprecedented crisis situations. This finding challenges the static assumptions of upper echelons theory, emphasizing the importance of continuous learning and adaptation in board effectiveness, particularly when facing novel challenges. The study also reveals that the combination of board characteristics, rather than individual factors, plays a crucial role in determining financial performance, highlighting the need for a holistic approach to board composition. This aligns with contingency theory, which suggests that the effectiveness of governance structures depends on the alignment of multiple factors with organizational needs and external conditions.

The study concludes that the COVID-19 pandemic significantly moderated the relationship between board composition and financial performance. The findings indicate that the effectiveness of different board characteristics varied across the pre- and post-COVID periods, suggesting that crisis periods require different governance approaches. This is particularly evident in the weakening of gender composition effects and the strengthening of board size effects during the pandemic period. These results validate dynamic capabilities theory, emphasizing the importance of board adaptability and resilience in facing external shocks and maintaining organizational performance during crisis periods. Moreover, the study emphasizes the critical role of contextual factors in determining the effectiveness of board composition. The findings suggest that the relationship between board characteristics and financial performance is influenced by both internal organizational factors and external environmental conditions. The significance of control variables, particularly loan assets and firm size, indicates that board composition effects cannot be isolated from broader organizational and economic contexts. This highlights the need for DT-SACCOs to adopt flexible and context-sensitive approaches to board composition, considering both their specific organizational needs and the broader operating environment.

5.4 Recommendations

5.4.1 Recommendations for Practice

Based on the findings that gender composition has a significant negative effect on DT-SACCO performance, the study recommends that these institutions develop comprehensive board diversity strategies that focus on both representation and effectiveness. Mentorship programs and leadership development initiatives should be implemented to support and prepare female directors for effective board participation. Additionally, DT-SACCOs should establish clear succession planning mechanisms that promote gender diversity while ensuring that board members possess the requisite skills and expertise. Restructuring the nomination process to eliminate implicit biases and create equal opportunities for qualified female candidates aligns with the need to address barriers to gender diversity identified in the study.

Given the non-linear relationship between board size and financial performance, the study recommends that DT-SACCOs optimize their board size within the identified optimal range (8-10 members). Regular assessments of board composition and effectiveness should be conducted to ensure that changes in size align with organizational complexity and operational requirements. Clear policies should be established for determining appropriate board size based on objective criteria such as asset size, operational complexity, and regulatory requirements. To mitigate the challenges associated with larger boards, effective communication and coordination mechanisms should also be implemented.

Regarding board experience, the study recommends that DT-SACCOs develop comprehensive board renewal strategies that balance continuity with fresh perspectives. Evaluation criteria for board member experience should consider both industry-specific knowledge and crisis management capabilities, particularly in light of the reduced relevance of traditional experience during the COVID-19 pandemic. Continuous professional development programs should focus on emerging areas such as digital transformation and risk management, ensuring that board members are equipped to handle novel challenges. Special attention should be paid to developing crisis management capabilities, which were highlighted as critical during the pandemic period.

5.4.2 Recommendations for Policy

For policymakers, the study recommends the development of comprehensive regulatory frameworks that promote effective board composition while maintaining flexibility for individual DT-SACCO circumstances. Clear guidelines for gender diversity on boards should be established, possibly including phased targets rather than strict quotas, to encourage gradual progress while ensuring that merit remains a primary consideration. Incentives should be provided for DT-SACCOs that demonstrate best practices in board composition and governance, fostering an environment that rewards effective diversity strategies. Regarding board size optimization, policymakers should recognize the non-linear relationship between board size and performance by developing flexible guidelines that accommodate varying SACCO sizes and operational complexities. These guidelines should emphasize effective oversight and provide frameworks for periodic board effectiveness assessments. Recommendations should also include optimal board size ranges tailored to institutional characteristics.

Further, policymakers should strengthen requirements for board member experience and continuing professional development. Given the moderating effect of COVID-19 on board composition, regulators should ensure that boards possess diverse skill sets, including crisis management capabilities, to enhance resilience during external shocks. Guidelines for board renewal and succession planning should balance the value of experience with the need for fresh perspectives and emerging skills, reflecting the findings that traditional experience alone may not suffice in addressing unprecedented challenges. These policy recommendations aim to enhance the adaptability and effectiveness of DT-SACCO boards in navigating both routine operations and crisis periods.

5.5 Contribution to Knowledge

This study makes significant contributions to the existing body of knowledge on corporate governance in financial cooperatives. The findings, represented by R-squared values ranging from 0.058 to 0.114 across different model specifications, indicate that board composition explains a meaningful portion of variation in DT-SACCO financial performance. Particularly notable is the study's identification of non-linear relationships in board size effects and the temporal variation in these relationships during the COVID-19 crisis period. This contributes to our understanding of how governance mechanisms operate under different economic conditions.

The study's examination of the moderating effect of COVID-19 on board composition-performance relationships provides novel insights into how crisis periods affect governance effectiveness. The findings demonstrate that traditional governance mechanisms may require adaptation during crisis periods, with different board characteristics becoming more or less important. This contributes to both theoretical understanding and practical knowledge about crisis-period governance.

Moreover, the study's contextual focus on Kenyan DT-SACCOs provides valuable insights into corporate governance in emerging markets and cooperative financial institutions. The findings highlight the unique challenges and opportunities in promoting effective governance in these contexts, particularly regarding gender diversity and board experience. This knowledge is crucial for developing context-appropriate governance frameworks and practices.

5.6 Areas for Further Research

The study has shown that board composition variables (gender diversity, board size, and experience) along with the moderating effect of COVID-19 can explain between 5.8% and 11.4% of the variance in DT-SACCO financial performance. However, this suggests that a substantial portion of performance variation remains unexplained by these factors. Future research should explore additional governance mechanisms such as board committees, meeting frequency, and internal control systems that may influence DT-SACCO performance. Additionally, researchers should investigate other potential moderating variables such as organizational culture, regulatory environment, and technological adoption that could affect the board composition-performance relationship.

In addition, while this study focused on financial performance measured by ROA, future research should consider multiple performance metrics including non-financial measures such as member satisfaction, social impact, and sustainability outcomes. The study's findings regarding the moderating effect of COVID-19 also suggest the need for longer-term studies examining how board composition effects evolve through different economic cycles and crisis periods. Future studies could employ alternative methodological approaches, such as qualitative or mixed methods, to provide deeper insights into the mechanisms through which board composition influences performance.

The study's focus on DT-SACCOs in Kenya limits the generalizability of findings to other contexts. Future research should extend this investigation to other types of financial cooperatives, different geographical regions, and various regulatory environments. Comparative studies across different countries or regions could provide valuable insights into how institutional and cultural contexts influence the relationship between board composition and organizational performance. Additionally, longitudinal studies examining how changes in board composition over time affect performance trajectories would be valuable.

5.7 Limitations of the Study

One significant limitation of the study was the reliance on secondary data from audited financial statements and annual reports. While this provided reliable financial information, it may not have captured important qualitative aspects of board dynamics and decision-making processes. The study could not observe actual board interactions or measure board member qualities beyond basic demographic and experience metrics. Additionally, some DT-SACCOs had incomplete or inconsistent reporting of board information, which could affect the comprehensiveness of the analysis. To mitigate these limitations, the study employed robust statistical techniques and focused on verified, audited information to ensure data reliability.

The study period coincided with the COVID-19 pandemic, which introduced extraordinary market conditions that could affect the generalizability of findings to normal operating periods. While this provided valuable insights into crisis-period governance, it may not fully represent typical board composition effects. The pandemic's impact may have also varied across different regions and SACCO sizes, potentially introducing unobserved heterogeneity into the analysis. Furthermore, the study's focus on registered DT-SACCOs in Nairobi may not capture the full diversity of cooperative financial institutions in Kenya.

Another limitation was the potential endogeneity in board composition decisions. While the study employed appropriate econometric techniques to address this issue, including three-stage least squares estimation, it cannot completely rule out the possibility that some board composition choices were influenced by unobserved factors that also affect financial performance. Further, the study's quantitative approach may not have captured important contextual factors such as organizational culture, leadership style, and informal governance mechanisms that could influence the relationship between board composition and performance.

REFERENCES

- Ahmed, A. F., & Rugami, M. (2019). Corporate governance and performance of savings and credit cooperative societies in Kilifi County, Kenya. *International Academic Journal of Economics and Finance*, 3(3), 61–79.
- Aimable, N. G. (2022). Impact of Covid-19 on Saving and Credit Co-operatives in Rwanda and Readiness to Use Economic Recovery Fund (ERF). *International Journal of Economics, Commerce, and Management*, 10(1).
- Alqatan, A., Chbib, I., & Hussainey, K. (2019). How does board structure impact on firm performance in the UK? *Corporate Board Role Duties and Composition*, 15(2), 18–27. <https://doi.org/10.22495/cbv15i2art2>
- Astivia, O. L. O., & Zumbo, B. D. (2019). Heteroskedasticity in Multiple Regression Analysis: What it is, How to Detect it and How to Solve it with Applications in R and SPSS. *Practical Assessment, Research, and Evaluation*, 24(1).
- Baguma, J. M. K., Kamukama, N., & Nsambu, F. K. (2020). Credit Management Systems and Financial Performance of Savings and Credit Cooperatives (SACCOs) In Mid-Western Uganda. *American Journal of Finance*, 5(1), 43–53.
- Bainbridge, S. M. (2019). Rethinking the Board of Directors: Getting Outside the Box. *The Business Lawyer*, 74, 285–295.
- Baldwin, R., & di Mauro, B. W. (2020). Economics in the time of Covid-19. *Journal of Management*, 3(7), 155–167.
- Apochi, J. G., Mohammed, S. G., & Yahaya, O. A. (2022). Ownership structure, board of directors and financial performance: Evidence in Nigeria. *Global Review of Accounting and Finance*, 13(1), 77-98.
- Kamdem, E., & Asaah, G. N. (2020). The Effect of Board Composition on the Financial Performance of Commercial Banks in Cameroon.
- Abdirashid, I. (2021). *Influence of Board Composition on Financial Performance of Commercial Banks in Kenya* (Doctoral dissertation, University of Nairobi).
- Otwani, M. N. (2018). *Moderating Effect of Board Composition on the Determinants of Financial Performance of Companies Listed on the Nairobi Securities Exchange in Kenya* (Doctoral dissertation, JKUAT-COHRED).

- Ngulumbu, O., & Aduda, J. (2016). Relationship between board composition and financial performance of companies listed at the Nairobi Securities Exchange. *American Journal of Finance*, 1(2), 72-90.
- Edeti, A. G., & Garg, M. C. (2020). Impact of board composition on financial performance of commercial banks in Ethiopia. *Journal of Hospitality & Tourism*, 18(2), 54-69.
- Muchemwa, M. R., Padia, N., & Callaghan, C. W. (2016). Board composition, board size and financial performance of Johannesburg Stock Exchange companies. *South African Journal of Economic and Management Sciences*, 19(4), 497-513.
- Muiruri, S. M. (2018). *Effect of Board Composition on Financial Performance of Commercial Banks in Kenya* (Doctoral dissertation, M. Sc. Thesis, Master of business administration (Finance) of Kenyatta University, Kenya).
- Yasser, Q. R., Mamun, A. A., & Rodrigs, M. (2017). Impact of board structure on firm performance: evidence from an emerging economy. *Journal of Asia Business Studies*, 11(2), 210-228.
- Zia ur Rehman, D. M. (2020). The Board Size and Board Composition Impact on Financial Performance: An evidence from the Pakistani and Chinese Listed Banking Sector. MAJEED, MK, JUN, JC, Muhammad, ZUR, MOHSIN, M., & RAFIQ, MZ (2020). *The Board Size and Board Composition Impact on Financial Performance: An Evidence from the Pakistani and Chinese's Listed Banking Sector. The Journal of Asian Finance, Economics and Business (JAFEB)*, 7(4), 81-95.
- Bebeji, A., Mohammed, A., & Tanko, M. (2015). The effect of board size and composition on the financial performance of banks in Nigeria. *African Journal of Business Management*, 9(16), 590-598.
- Müller, V. O. (2014). The impact of board composition on the financial performance of FTSE100 constituents. *Procedia-Social and Behavioral Sciences*, 109, 969-975.
- Bell, A., & Jones, K. (2015). Explaining fixed effects: Random effects modeling of time-series cross-sectional and panel data. *Political Science Research and Methods*, 3(1), 133-153.
- Booth-Bell, D., & Jackson, P. (2021). Governance Theory and Board Diversity: Where do the Rationales for Diversity and Governance Theories Converge? *Global Journal of Accounting and Finance*, 5(2), 70–87.

- Brammer, S., Millington, A., & Pavelin, S. (2007). Gender and ethnic diversity among UK corporate boards. *Corporate Governance: An International Review*, 15(2), 393–403. <https://doi.org/10.1111/j.1467-8683.2007.00569.x>
- Breusch, T. S., & Pagan, A. R. (1979). A simple test for heteroskedasticity and random coefficient variation. *Econometrica: Journal of the Econometric Society*, 47(5), 1287–1294.
- Bridoux, F., & Stoelhorst, J. W. (2022). Stakeholder theory, strategy, and organization: Past, present, and future. *Strategic Organization*, 20(4), 797–809. <https://doi.org/10.1177/14761270221127628>
- Chambers, N., Harvey, G., Mannion, R., Bond, J., & Marshall, J. (2013). Towards a framework for enhancing the performance of NHS Boards: A synthesis of the evidence about board governance, board effectiveness and board development. *Health Services and Delivery Research*, 1(6), 1–138. <https://doi.org/10.3310/hsdr01060>
- Chaves, R., Soler, F., & Sajardo, A. (2008). Co-operative Governance: the case of Spanish Credit Co-operatives. *Journal of Co-Operative Studies*, 41(2), 30–37.
- Cherotich, D., & Obwogi, J. (2018). Effect of Board Composition on Financial Performance of Listed Firms in Nairobi Securities Exchange. *The Strategic Journal of Business and Change Management*, 5(4), 1239–1250.
- Clark, T. S., & Linzer, D. A. (2015). Should I use fixed or random effects? *Political Science Research and Methods*, 3(2), 399–408.
- Clarkson, M. B. (1995). A stakeholder framework for analysing and evaluating corporate social performance. *The Academy of Management Review*, 20(1), 92. <https://doi.org/10.2307/258888>
- Daoud, J. I. (2017). Multicollinearity and regression analysis. *Journal of Physics: Conference Series*, 949, 012009. <https://doi.org/10.1088/1742-6596/949/1/012009>
- Duppati, G., Rao, N. V., Matlani, N., Scrimgeour, F., & Patnaik, D. (2019). Gender diversity and firm performance: Evidence from India and Singapore. *Applied Economics*, 52(14), 1553–1565. <https://doi.org/10.1080/00036846.2019.1676872>

- Elad, F. L., Wong, M. N., & Bongbee, N. S. (2018). The role of board characteristics in effective corporate governance: The case of Airbus Group. *International Journal of Social Sciences Perspectives*, 2(1), 87–95. <https://doi.org/10.33094/7.2017.2018.21.87.95>
- EmadEldeen, R., Elbayoumi, A. F., Basuony, M. A., & Mohamed, E. K. (2021). The effect of the board diversity on firm performance: An empirical study on the UK. *Corporate Ownership and Control*, 18(3, special issue), 337–347. <https://doi.org/10.22495/cocv18i3siart8>
- Fatihudin, D., Jusni, & Mochklas, M. (2018). How Measuring Financial Performance. *International Journal of Civil Engineering and Technology (IJCIET)*, 9(6), 553–557.
- Fernandez, W. D., & Thams, Y. (2019). Board diversity and stakeholder management: The moderating impact of boards' learning environment. *The Learning Organization*, 26(2), 160–175. <https://doi.org/10.1108/tlo-12-2017-0126>
- Ferre, J. (2009). Regression diagnostics. *Comprehensive Chemometrics*, 33–89. <https://doi.org/10.1016/b978-044452701-1.00076-4>
- Garcia Martin, C. J., & Herrero, B. (2018). Boards of directors: Composition and effects on the performance of the firm. *Economic Research*, 31(1), 1015–1041. <https://doi.org/10.1080/1331677x.2018.1436454>
- Garcia-Torea, N., Fernandez-Feijoo, B., & de la Cuesta, M. (2016). Board of director's effectiveness and the stakeholder perspective of corporate governance: Do effective boards promote the interests of shareholders and stakeholders? *BRQ Business Research Quarterly*, 19(4), 246–260. <https://doi.org/10.1016/j.brq.2016.06.001>
- Gicheru, E., & Mtongolo, J. (2018). Comparative study on Gender Integration in Co-operatives: The Case of Women-Based SACCOs at the Kenya Union of Savings and Credit Co-operatives (KUSCCO) Ltd. *International Journal of Co-Operative Accounting and Management*, 1(1), 26–34.
- Githii, S.K. *et al.* (2019). Board Members' Characteristics, Dispersion, Managerial Cognition and Performance of Saving and Credit Co-operatives in Nairobi City County. *African Journal of Co-operative Development and Technology*, 4(1), pp. 10–23.
- Gitonga, E., & Miano, A. (2020). The effect of corporate governance practices on performance of deposit taking savings and credit cooperative societies in Kiambu County, Kenya.

- International Journal of Business Management, Entrepreneurship, and Innovation*, 2(2), 64–81. <https://doi.org/10.35942/jbmed.v2i2.118>
- Hakelius, K., & Nilsson, J. (2020). The logic behind the internal governance of Sweden's largest agricultural cooperatives. *Sustainability*, 12(21), 9073. <https://doi.org/10.3390/su12219073>
- Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica: Journal of the Econometric Society*, 46(6), 1251-1271.
- Hausman, J. A., & Taylor, W. E. (1981). Panel data and unobservable individual effects. *Econometrica*, 49(6), 1377-1398.
- Hindasah, L., & Harsono, M. (2021). Gender diversity on the Board of Director and firm performance: Agency theory perspective. *Journal Management Business*, 12(2). <https://doi.org/10.18196/mb.v12i2.10804>
- Ibrahim, M. (2015). The art of Data Analysis. *Journal of Allied Health Sciences Pakistan*, 1(1), 98–104.
- Jain, T., & Jamali, D. (2016). Looking inside the black box: The effect of corporate governance on Corporate Social Responsibility. *Corporate Governance: An International Review*, 24(3), 253–273. <https://doi.org/10.1111/corg.12154>
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure. *Journal of Financial Economics*, 3(4), 305–360.
- Jilcha Sileyew, K. (2020). Research design and methodology. *Cyberspace*. <https://doi.org/10.5772/intechopen.85731>
- Juma, M. L., & Maseko, F. E. (2022). Factors Affect Financial Performance of Savings and Credit Co-Operative Societies during Covid 19 Pandemic in Dodoma Region. *European Journal of Accounting, Auditing and Finance Research*, 10(11), 104–124.
- Kabaiku, P. M. (2018). Savings and Credit Cooperative Societies (SACCOs) in Kenya: A Theoretical justification. *Jumuga Journal of Education, Oral Studies, and Human Sciences (JJEOSHS)*, 1(1), 1–13.
- Kabara, A. S., Khatib, S. F., Bazhair, A. H., & Sulimany, H. G. (2022). The effect of the Board's Educational and gender diversity on the firms' performance: Evidence from non-financial

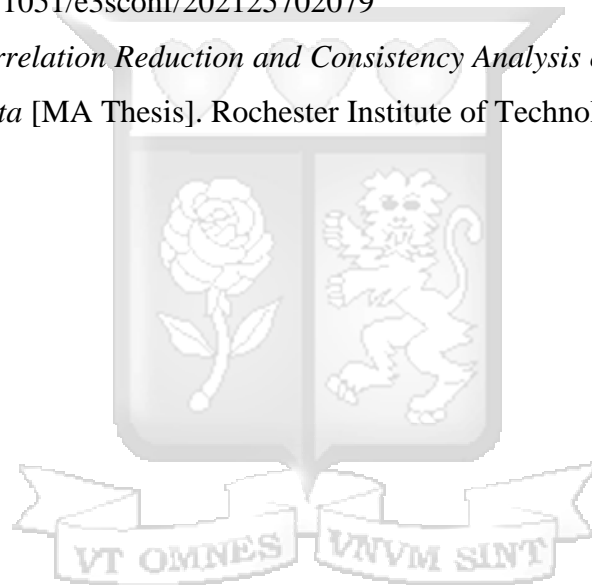
- firms in developing country. *Sustainability*, 14(17), 11058. <https://doi.org/10.3390/su141711058>
- Kenani, I. M., & Bett, S. (2018). Corporate governance and performance of savings and credit cooperative societies in Kisii County, Kenya. *International Academic Journal of Human Resource and Business Administration*, 3(4), 101–123.
- Khan, M. K., Zahid, R. M., Saleem, A., & Sagi, J. (2021). Board composition and Social & Environmental accountability: A dynamic model analysis of Chinese firms. *Sustainability*, 13(19), 10662. <https://doi.org/10.3390/su131910662>
- Kim, J. H. (2019). Multicollinearity and misleading statistical results. *Korean Journal of Anesthesiology*, 72(6), 558–569. <https://doi.org/10.4097/kja.19087>
- Kiptoo, B., Wasike, S., & Mote, P. (2022). Covid 19 Pandemic and Performance of Commercial Banks in Kenya. *International Academic Journal of Human Resource and Business Administration*, 4(1), 208–225.
- Kivunja, C. (2018). Distinguishing between theory, theoretical framework, and Conceptual Framework: A systematic review of lessons from the Field. *International Journal of Higher Education*, 7(6), 44. <https://doi.org/10.5430/ijhe.v7n6p44>
- Kothari, C. (2004). *Research Methodology: Methods & Techniques*. New Age International
- Kurzack, L., Schoenmaker, D., & Schramade, W. (2021). A model of long-term value creation. *Journal of Sustainable Finance & Investment*, 1–19. <https://doi.org/10.1080/20430795.2021.1920231>
- Kyazze, L.M., Nkote, I.N. and Wakaisuka-Isingoma, J. (2017). Cooperative governance and social performance of Cooperative Societies. *Cogent Business & Management*, 4(1). <https://doi.org/10.1080/23311975.2017.1284391>.
- Liu, Y., Lei, L., & Buttner, E. H. (2020). Establishing the boundary conditions for female board directors' influence on firm performance through CSR. *Journal of Business Research*, 121, 112–120. <https://doi.org/10.1016/j.jbusres.2020.08.026>
- Louangrath, P. I., & Sutanapong, C. X. (2018). Validity and Reliability of Survey Scales. *International Journal of Research & Methodology in Social Science*, 4(3), 99–114. [https://doi.org/ DOI: 10.5281/zenodo.2545038](https://doi.org/DOI:10.5281/zenodo.2545038)

- Magnanelli, B. S., Paolucci, G., & Pirolo, L. (2021). Diversity in boardrooms and firm performance: The role of tenure and educational level of board members. *Corporate Board Role Duties and Composition*, 17(3), 31–41. <https://doi.org/10.22495/cbv17i3art3>
- Majid, U. (2018). Research fundamentals: Study design, population, and sample size. *Undergraduate Research in Natural and Clinical Science and Technology (URN CST) Journal*, 2(1), 1–7. <https://doi.org/10.26685/urncst.16>
- Mary, H., Pratiwi, H., Loren, C., & Ilona, D. (2019). Ethnic, Skill, Qualification Diversity of Board of Commissioners and Stock Performance. *Advances in Economics, Business and Management Research*, 145.
- Mat Nawi, F. A., Abdul Malek A. Tambi, Muhammad Faizal Samat, & Wan Masnieza Wan Mustapha. (2020). A review on the internal consistency of a scale: The empirical example of the influence of human capital investment on Malcom Baldrige Quality Principles in TVET institutions. *Asian People Journal (APJ)*, 3(1), 19–29. <https://doi.org/10.37231/apj.2020.3.1.121>
- Messabia, N., Beauvoir, E., & Kooli, C. (2022). Governance and management of a savings and credit cooperative: The successful example of a Haitian SACCO. *Vision: The Journal of Business Perspective*, 097226292210741. <https://doi.org/10.1177/09722629221074130>
- Ministry of Industrialization and Enterprise Development. (2014). History and organization of cooperative development and marketing sub sector in Kenya.
- Mlay, L. S., Temu, S. S., & Mataba, L. (2022). Influence of Board Attributes on Board Roles Performance in Savings and Credit Co-operative Societies (SACCOS) in Tanzania. *Business Management Review*, 25(1), 90–110.
- Muchemwa, M. R., Padia, N., & Callaghan, C. W. (2016). Board Composition, Board Size and Financial Performance of Johannesburg Stock Exchange Companies. *South African Journal of Economic and Management Sciences (SAJEMS)*, 19(4), 497–513. <https://doi.org/10.17159/2222-3436/2016/v19n4a3>
- Muchiri, D. M., & Kimunguyi, S. (2018). Effect of Board Diversity on Financial Performance of Micro Finance Institutions Regulated by SASRA in Kenya. *International Journal of Social Sciences Management and Entrepreneurship*, 2(1), 39–51.

- Ntamwaga, E., Kamau, G. K., & Rusibana, C. (2020). Saving and Credit Cooperatives Services and Socioeconomic Empowerment of Teachers in Rwanda. *Journal of Education*, 3(4), 1–20.
- Nwanji, T. I., Howell, K. E., Faye, S., Ogbu, U., Egbide, B.- C., Eze, S. C., Otekunrin, A. O., Lawal, A. I., Awonusi, F. D., Oladipo, O. A., Eluyela, D. F., & Boluwatife, A. (2019). The effect of board composition and financial performance of financial services firms in the Nigerian Stock Exchange market. *The International Journal of Business & Management*, 7(8). <https://doi.org/10.24940/theijbm/2019/v7/i8/bm1907-021>
- Nyangau, V. M., & Oluoch, J. O. (2021). Influence of Board Characteristics on Financial Performance of Deposit Taking Savings and Credit Cooperative Societies in Western Kenya. *Global Journal of Management and Business Research*, 21(1), 1–17.
- Odero, D. J., & Egessa, P. R. (2021). Towards realization of board gender diversity in deposit taking Saccos in Kenya: A critical review and synthesis. *International Journal of Science and Management Studies (IJSMS)*, 172–182. <https://doi.org/10.51386/25815946/ijms-v4i5p114>
- Odhiambo, S. P. O. (2019). Determinants of Financial Performance of Savings and Credit Cooperative Societies in Nakuru Town, Kenya. *Reviewed Journal International of Business Management*, 1(1), 42–53.
- Ong'ure, E. O., & Ngaba, D. (2022). Gender Diversity and Financial Performance of Sacco's in Siaya County, Kenya. *International Journal of Research and Innovation in Social Science (IJRISS)*, 6(2), 267–272.
- Owalo, M. O., Ndede, F., & Atheru, G. (2021). Ethnic Diversity and Financial Performance of Deposit-Taking Savings and Credit Co-Operative Societies in Nairobi County, Kenya. *Journal of Accounting and Finance in Emerging Economies*, 7(4), 999–1001.
- Park, Y. S., Konge, L., & Artino, A. R. (2020). The positivism paradigm of research. *Academic Medicine*, 95(5), 690–694. <https://doi.org/10.1097/acm.0000000000003093>
- SASRA. (2022). *Draft governance guidelines on governance practices for DT-Saccos*. Sacco Societies Regulatory Authority (SASRA). Retrieved January 14, 2023, from <https://www.sasra.go.ke/download/governance-guidelines-on-governance-practices-for-dt-saccos/>

- SASRA. (2022). *Licensed DT – Saccos*. SACCO Societies Regulatory Authority (SASRA). Retrieved December 31, 2022, from <https://www.sasra.go.ke/licensed-dt-saccos/>
- SASRA. (2022). *Sacco supervision annual report, 2021*. SACCO Societies Regulatory Authority (SASRA). Retrieved December 31, 2022, from <https://www.sasra.go.ke/2022/08/03/sacco-supervision-annual-report-2021/>
- Shapiro, S. S., & Wilk, M. B. (1965). An analysis of variance test for normality (complete samples). *Biometrika*, 52(3-4), 591-611.
- Squires, B., & Elnahla, N. (2020). The roles played by Boards of Directors: An integration of the agency and stakeholder theories. *Transnational Corporations Review*, 12(2), 126–139. <https://doi.org/10.1080/19186444.2020.1757340>
- Ssekiziyivu, B., Mwesigwa, R., Bananuka, J., & Namusobya, Z. (2018). Corporate governance practices in microfinance institutions: Evidence from Uganda. *Cogent Business & Management*, 5(1), 1488508. <https://doi.org/10.1080/23311975.2018.1488508>
- Sugiyanto, & Rahayu, A. A. (2018). The Implementation of Risk Management and Its Effect on Good Cooperative Governance and Success. *Journal of Indonesian Economy and Business*, 33(3), 243–256.
- Supriyadi, T. (2021). Effect of Return on Assets (ROA), Return on Equity (ROE), and Net Profit Margin (NPM) on the Company's Value in Manufacturing Companies Listed on the Exchange Indonesia Securities Year 2016-2019. *International Journal of Economics, Business and Management Research*, 5(4), 219–228.
- Taherdoost, H. (2016). Sampling methods in research methodology; how to choose a sampling technique for research. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3205035>
- Tulung, J. E., & Ramdani, D. (2018). Independence, size and performance of the Board: An Emerging Market Research. *Corporate Ownership and Control*, 15(2-1), 201–208. <https://doi.org/10.22495/cocv15i2c1p6>
- UNCTAD. (2020). Post-COVID-19: Investment promotion agencies and the new normal. IPA (Investment Promotion Agency) Observer special issue No. 9.
- Wanjiru, P. N., & Jagongo, A. (2022). Liquidity Risk and Financial Performance of Deposit Taking Savings and Credit Cooperative Societies in Kenya. *International Journal of Finance and Accounting*, 7(1), 1–14.

- White, H. (1980). A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. *Econometrica: Journal of the Econometric Society*, 48(4), 817-838.
- Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data* (2nd ed.). MIT Press.
- World Council of Credit Unions (WOCCU). (2021). *Statistical Report 2021*. Retrieved January 10, 2023, from https://woccu.org/documents/2021_Statistical_Report
- Yan, C. C., Hui, Y. Z., & Xin, L. (2021). The relationship between board size and firm performance. *E3S Web of Conferences*, 257, 02079. <https://doi.org/10.1051/e3sconf/202125702079>
- Zhou, X. (2019). *Autocorrelation Reduction and Consistency Analysis of Correlation for Human Brain Activity Data* [MA Thesis]. Rochester Institute of Technology.



APPENDICES

Appendix 1: Data Collection Form

Year	No. of directors	No. of female members	No. of non-Kenyan Directors	Mean Age of the directors	Highest educational level in the board	ROA
2018						
2019						
2020						
2021						
2022						

Appendix 2: Covid-19 Data Collection Tool

Status	Yes (1)	No (0)
If the SACCO was operating before the COVID-19 pandemic		
If the SACCO was operating during the COVID-19 pandemic		
If the SACCO is operating post the COVID-19 pandemic		

Appendix 4: Ethical Review Approval



27th February 2024

Mr Ondwasi Kelvin,
Kelvin.Ondwasi@strathmore.edu

Dear Mr Ondwasi,

RE: Effect of Board Composition on Financial Performance of Deposit Taking Saving and Credit Cooperative Societies in Kenya

This is to inform you that SU-ISERC has reviewed and **approved** your above **SU-masters** research proposal. Your application reference number is **SU-ISERC1973/24**. The approval period is from **27th February 2024 to 26th February 2025**.

This approval is subject to compliance with the following requirements:

- i. Only approved documents including (informed consents, study instruments, MTA) will be used.
- ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-ISERC.
- iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SU-ISERC within 72 hours of notification.
- iv. Any changes anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-ISERC within 72 hours.
- v. Clearance for the export of biological specimens must be obtained from relevant institutions.
- vi. Submission of a request for renewal of approval at least 60 days prior to the expiry of the approval period. Attach a comprehensive progress report to support the renewal.
- vii. Submission of an executive summary report within 90 days of completion of the study to SU-ISERC.

Before commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology, and Innovation (NACOSTI) <https://research-portal.nacosti.go.ke/> and obtain other clearances needed.

Yours sincerely,

Mr Ambrose Rachier,
Chairperson; SU-ISERC

