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**INFLUENCE OF SIZE AND OUTREACH FACTORS ON AGENCY RELATED  
COSTS IN THE MANAGEMENT OF DEPOSIT TAKING SAVINGS AND CREDIT  
CO-OPERATIVES IN KENYA**

**PETER KAHUNYO NJUGUNA**

**ADMISSION NO. MDF/99133/2017**

**A DISSERTATION SUBMITTED TO STRATHMORE UNIVERSITY BUSINESS  
SCHOOL IN PARTIAL FULFILMENT FOR THE MASTER OF SCIENCE IN  
DEVELOPMENT FINANCE OF STRATHMORE UNIVERSITY**

**SEPTEMBER 2022**

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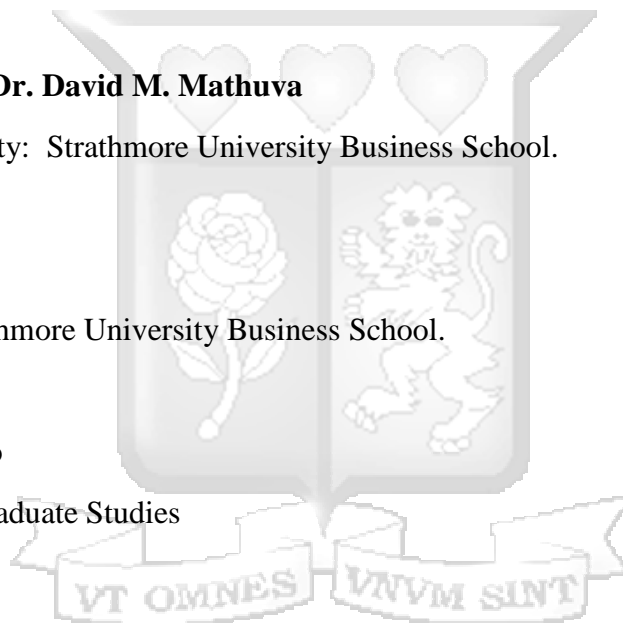
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## ABSTRACT

A growing strand of empirical studies on mutual financial institutions have found that growth in membership increases ownership dispersion and hence membership apathy, allowing the board and professional managers to wield more power and control over the SACCO at the expense of the best interests of members who own the business. This gives rise to the agent-principal problem, potentially undermining the democratic and economic balance in the SACCO. This study proposed to examine this problem by investigating the influence of the size and outreach factors on agency-related costs (ARC) in the management of deposit-taking SACCOs in Kenya. Specifically, the value of asset, membership and peer group defined the size-related factors while the number of branch offices was used as the outreach factor. ARCs were measured as the ratio of the sum of directors' expenses, staff emoluments and operating costs to the average assets. Data were obtained from 160 DT SACCOs in Kenya over the period 2014-2021 which represented 90.9 percent of licensed DT SACCOs. Both panel ordinary least squares and the 2-step generalized method of moments were utilized to address the objectives of the study. Descriptive as well as correlational analyses were also performed. The findings depict ARC levels within the global standard at 0.04 to 0.046 of the average assets. According to the results, smaller DT SACCOs seem to exhibit weaker expense efficiency compared to the larger ones. The results show a decline in expenditure by SACCOs post the COVID-19 period. In terms of peer grouping, the results reveal mixed influences in the case of large peer and small peer SACCOs in relation to ARCs, with some experiencing positive scale benefits and others experiencing scale disadvantages. However, the results show a consistent and significant inverse association between medium peer SACCOs and ARC. The results reveal that SACCOs with more members are associated with higher ARCs. In relation to outreach, the findings show that SACCOs with more branch offices have higher ARC. In relation to the control variables, it seems that the core capital ratio, asset quality and CEO gender are positively associated with ARC. The study calls for a cautious growth and expense management strategy by the DT SACCOs to assure solvency and self-sufficiency of the SACCOs in Kenya. Caution should also be exercised with branch expansion to avoid spiraling of SACCO expenses without commensurate returns, which might put the going concern status of the SACCO at risk. The study recommends that SACCOs need to improve their asset and expenditure management strategies as well as improve their member experience management which is important in reducing agency costs. Further, SACCOs should embrace technological and digital solutions to drive their outreach programs as an integral approach to reducing operational expenses. A critical issue for SACCOs is strategic cooperation to collectively invest in technology and other business infrastructure to leverage on economies of scale and scope as opposed to each SACCO invests individually thus driving the ARCs even higher.

*Keywords: Savings and Credit Cooperatives (SACCOs), Outreach Factors, Size Factors, Agency Related Costs, External Borrowing, Core Capital Ratio, Non-Performing Loans.*

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## ABBREVIATIONS AND ACRONYMS

AGM	Annual General Meeting
ARC	Agency Related Costs
BOSA	Back Office Service Activity
CCA	Core Capital Ratio
CEO	Chief Executive Officer
CPI	Consumer Price Index
DT	Deposit-Taking
FOSA	Front Office Service Activity
GDP	Gross Domestic Product
GMM	Generalised Method of Moments
GMM	Generalised Method of Moments
MFI	Microfinance Institutions
NPL	Non-Performing Loans
OLS	Ordinary Least Squares
SACCOs	Savings and Credit Cooperative Societies
SASRA	Sacco Societies Regulatory Authority
USD	United States Dollar
VIFs	Variance Inflation Factors
WOCCU	World Council of Credit Unions

## DEFINITION OF TERMS

**Agency problem:** Refers to the problem that arises whenever one party (the principal) employs another (an agent) to create value, but the two parties have different interests and asymmetric information (the agent having more information) such that the principal cannot directly ensure that the agent is always acting in their (the principal's) best interests leading to costs and inefficiencies which are then borne by the principal and the society at large (Jensen and Meckling, 1976; Leggett et al., 2002; van Rijn et al., 2022).

**Agency Related Costs:** Refers to the costs incurred by the principal on the agent because of the separation of ownership and control. These costs arise from the combination of incentives (salaries and benefits, directors' fees and allowances, bonuses), punishment or disincentives, bonding and other control mechanisms to monitor and control the actions of the agents (Jensen and Meckling, 1976; Leggett et al., 2002).

**Agent:** Refers to the owners' elected representatives (i.e., directors) in the board of directors to advance and protect members' best interests in the SACCO business, and the management hired by the directors to oversee the day-to-day operations of the business (Jensen and Meckling, 1976).

**Cooperative balance:** Refers to a situation where both democratic balance and economic balance exists in a SACCO (Leggett and Strand, 2002).

**Democratic balance:** Refers to a situation in a SACCO when the democratic pattern of decision-making is respected and deliberately facilitated through the provision of timely and sufficient information to members (Government of Kenya, 2008).

**Democratic decision-making model:** This means the decisions that emanate directly from the general meeting of members of the SACCO and indirectly through the members' representatives (elected board of directors) (SASRA, 2022).

**Economic balance:** Refers to a state where a SACCO is both financially profitable and serves the (social and economic) interests of the members (Leggett and Strand, 2002).

**Outreach factors:** Refers to the salient features that are generally accepted as defining the geographical spread of a business and includes population segments served, physical locations whether established directly or indirectly, branch offices etc. In this study, outreach factors are

defined as the number of authorized branch offices a SACCO has to serve members (i.e., customers) (Hirtle, 2007).

**Principal:** Refers to the owners of the business, and in the case of a SACCO, which is a cooperative, the members (Jensen and Meckling, 1976).

**Size factors:** Refers to the salient features that are generally accepted as defining how large or small a business entity is and may include a number of customers, sales volume, deposit or loan portfolio, asset value, market share etc. In this study, size factors refer to the number of members in a SACCO or the monetary value of SACCO assets (Ondoro, 2015; Samad et al., 2006; Karanja, 2013).



## CHAPTER ONE: INTRODUCTION

### 1.1 Background to the Study

This study examined the influence of size and outreach factors on the agency related costs in deposit-taking savings and credit cooperatives (SACCOs) in Kenya. SACCOs (also referred to as credit unions in other jurisdictions) being mutual financial institutions are guided by the principles of self-help and democracy to collectively serve the common needs of the members (Hannan, 2014; Chaves, Soler, & Sajardo, 2008). Odera (2012) avers that growth in SACCO membership and hence assets have been aided by a variety of factors, including the evolution of SACCOs into full-service deposit-taking financial institutions and availability of specialized service providers to the SACCO industry. Mathuva (2016) finds that expansion in operations and products range in Kenya SACCOs has attracted more members and hence the growth in deposits and assets.

According to Fama and Jensen (1983), as the organizational size grows and becomes more complex, specialized knowledge and skills are required to make a range of specific business decisions. In the case of credit unions, the individual members lack the required managerial competence and technical know-how hence the need to hire a team of professionals to assist in the management and business decisions. While hiring professional expertise improves the SACCO's ability to operate in a business-like manner as opposed to social orientation associated with Cooperatives, the separation of ownership and decision-making authority inevitably results in principal-agent problems. This portends agency costs as the principals (members in a SACCO) apply a mix of incentives, sanctions, contracts and bureaucratic procedures to monitor the decisions and actions of the agents (hired professionals); so as to make sure that the best interests of members are served (Chrisman, Chua, & Litz, 2004). {Citation} Jensen (2000) describes agency costs as costs incurred by an organization due to the self-serving behavior on the part of management, which is focused on empire-building objectives, excessive perquisite consumption, non-optimal investment decisions or acts of accounting mismanagement (Jensen, 2000).

In a firm, the agency costs are manifested in such costs as staff salaries plus benefits, directors' fees and training costs as well as other operating costs (Legget & Strand, 2002; Njenga, 2012; Gorton & Schmid, 1999). The negative implications of the utility-maximizing behavior of

managers have then felt in the form of destruction of owner's wealth and welfare as well as other broader effects on organizational stakeholders, including lenders and the society in general.

Numerous published studies have empirically documented how the regulatory and technological changes experienced in the Kenya SACCO industry continue to influence governance, growth, financial performance, liquidity and efficiency, (Mathuva, 2015; Barus, Muturi, Kibati, & Koima, 2017; Ochingo & Muturi, 2018; Kahuthu, 2015). Specifically, Kahuthu (2015) avers that membership growth positively influences financial income. But a study in the United States credit unions by Leggett & Strand (2002) suggests that growth in membership does lead to increased agency costs, thus transferring more benefits arising from business growth to the agents (professional management) as opposed to members (Legget & Strand, 2002).

An unpublished study by Njenga (2012) concluded that agent's costs associated with close monitoring of the hired professionals in SACCOs might outweigh the corresponding benefits, thus not improving financial income to the owners (Njenga, 2012) if appropriate technology is not adopted. Oyugi (2014) avers that adoption of innovation technologies in SACCOs is critical to enhance customer outreach and overall service experience. Thus, while there is consensus that membership growth is necessary to expand the source of deposits and hence loan portfolio, it is not definite that the resulting rise in earnings benefits the owners unless innovative strategies are also deployed. This study proposes to investigate the relationship between the growth in membership and assets as well as branch network to the costs incurred by members in the management of the SACCO business. The study focussed on the entire population of the deposit-taking SACCOs in Kenya.

### **1.1.1 Shift Towards Professional Management**

The shift towards professional management is explicitly stipulated in the regulations with the establishment of the office of a chief executive officer with clear duties and responsibilities; an audit committee of the Board supported by an auditor who must be a professional accountant. The regulations further provide that the directors in the Board are non-executive. This portends a higher likelihood for increased agency conflicts and hence related costs as the hired professionals and the elected directors may not put as much effort and diligence in managing the business to the owners' expectations, but instead, they may be less keen, negligent and luxurious in spending (Fama &

Jensen, 1983; Legget & Strand, 2002). According to the Annual supervision report (SASRA, 2018) report, the industry five-year average for growth in assets is 11.9 percent, growth in membership 8.9 percent, the cost to income ratio 64.5 percent, and operating costs to assets 4.9 per cent. The research issue is to investigate the relationship between costs associated with oversight and control (staff emoluments, board expenses and operating costs) and recorded growth in members, assets and branch network over the period 2014 to 2021.

### **1.1.2 Outreach and Size Factors in SACCOs**

Zerai and Rani (2012) defined the outreach of SACCO services as the systematic process of improving the provision of financial services to low-income people who are generally excluded from the formal financial systems. The goal of outreach within the SACCO institution is to enhance the availability of high-quality financial services to low-income households such as loan services, social benefits and improvement of welfare within the community (Babandi, 2011). Mori, Golesorkhi, Randøy and Hermes (2015) classified financial outreach of SACCO into the depth and the breadth of the outreach programs. The breadth of SACCO services can be measured using the level of deposits and number of members being served by the institution. This helps in assessing the popularity of the SACCO and is a key measure of the institution growth (Bwana & Mwakujonga, 2013). The breadth of outreach is essential in improving the deposits level, higher interest income, financial sustainability and improved savings culture (Johnson & Nino-Zarazua, 2011). On the other hand, depth outreach focuses on the level of accessibility of the SACCO financial services by the low-income households within the country (Barus, Muturi, Kibati, & Koima, 2017).

Sammy, Philemon and Juma (2014) in study of financial factors affecting Saccos established that the membership size of the SACCO was a key determinant of their financial performance as it affected their capacity to mobilize deposits, improve membership numbers and enhance their loan provision. Bwana and Mwakujonga (2013) noted that the membership size in SACCO was important as it implied that larger SACCOs will have more members which improves their chances of accumulating more capital and issue more loans. In addition, improved size of the SACCO ensures there is a guaranteed stream of revenue and a predictor of better financial performance (Kazumine, 2017).

### **1.1.3 Agency Related Costs**

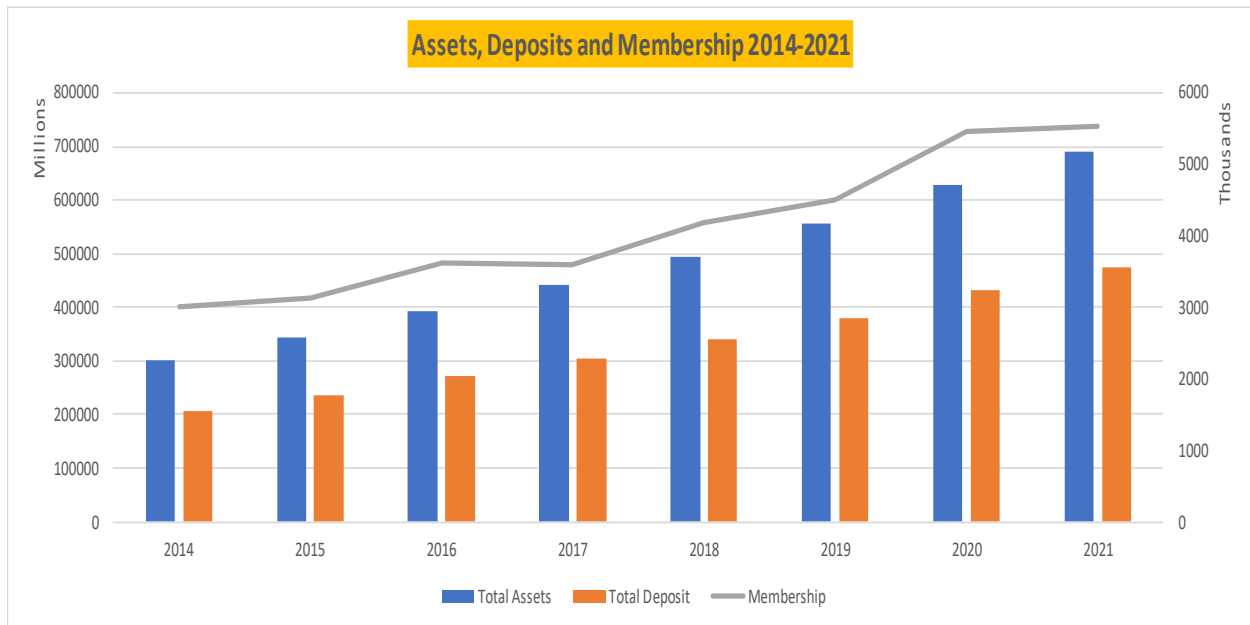
Agency costs arise from the separation of ownership and control. Due to this separation, the principal applies a combination of incentives (salaries and benefits such as allowance and bonuses), punishment or disincentives, bonding and other control mechanisms to monitor and control the actions of the agents. In so doing, the principal aims to minimize the likelihood that the agent will pursue their welfare at the expense of the principals who own the business (Chrisman, Chua, & Litz, 2004). It is also observable that agency costs include costs of structuring, monitoring, metering and bonding a set of contracts among agents with conflicting interests plus residual loss incurred because the cost of full enforcement of contracts exceeds the benefits (Fama & Jensen, 1983; Jensen & Meckling, 1976).

### **1.1.4 The Kenya SACCO Subsector**

The Kenya Government's development blueprint, the Vision 2030, aims to create a stable, diversified, vibrant and globally competitive financial sector. The SACCO subsector is an integral part of the deposit-taking market in Kenya, with a penetration of 29.2 percent of the adult working population and holding USD.13.6billion in assets according to 2020 WOCCU statistics. In Kenya, there exist two types of SACCOs, the non-deposit taking, referred to as Back Office Service Activities, BOSA in common parlance and the deposit-taking, also known as Front Office Services Activities, FOSA. BOSA SACCOs serve restricted membership drawn from a defined organization, geographical area, social or professional group (Mathuva, Muthuma, & Kiweu, 2016). They receive deposits for the sole purpose of lending to members, with the deposits forming collateral for loans. The deposits so accumulated are only withdrawn when a member leaves the SACCO. These SACCOs have been regulated under the Cooperative Societies Act, which is administered by the Commissioner for Cooperative Development, an office in the public service of Kenya. However, effective 2021 all BOSA SACCOs with deposits above Ksh.100million are prudentially regulated under the SACCO Societies Act, and hence by SASRA.

The FOSA SACCOs, besides doing the BOSA Sacco business, also receive demand deposits daily and offer payment services (debit cards, mobile payments, cheques, electronic funds transfers) to their members in a manner similar to banking business. For this reason, they are prudentially regulated under the SACCO Societies Act of 2008 by the SACCO Societies Regulatory Authority,

SASRA. The ability to offer banking-like services has enabled the deposit-taking SACCOs to attract members from multiple organizations as well as members of the general public without geographical restriction (Mathuva, 2015). This implies the opening of the common bond and hence access to diversified sources of deposits, including corporate organizations to fund asset growth through loan portfolios and other asset classes. Table I shows the performance of the deposit-taking SACCOs in respect of assets, deposits and members.



**Figure 1.1 Sacco Assets, Deposits and Membership, 2014 to 2021**

The 176 DT SACCOs under supervision of SASRA as at close of 2021 served 5.5million citizens with assets amounting to Ksh691.1 billion (the equivalent of USD.6.3billion at an average exchange rate of Ksh.109.7 to USD in 2021); the equivalent of 11.5 percent of the Ksh.6 trillion in assets held by the commercial banks and 934.4 percent of the KSh.73.9 in assets held by the microfinance banks in Kenya. Collectively, the 176 deposit-taking SACCOs regulated by SASRA had between them 559 branches across forty-four (44) counties. The increased complexity of SACCO business as manifested by a range of products and services, branch network and technology advances have led to the engagement of professionals who are responsible for the daily running of deposit-taking Sacco business.

## **1.2 Statement of the Problem**

There is consensus that with changing financial customer demands and growing competition in the deposit-taking and credit markets in Kenya, SACCOs cannot afford to remain in the traditional BOSA model of business (Adeyemi, 2020). The growth and developments observed in Kenya's SACCO industry is an entrepreneurial response to member needs and increasing competition in the financial services sector. There is a thus greater focus on growth, financial performance and transparency in the governance of the SACCO business (Bwana & Mwakujonga, 2013). Notably, the growth in credit unions entails multiple changes, including membership with a higher degree of heterogeneity and increased risk of membership apathy. This situation is compounded by the free-rider phenomena in cooperatives (Kahuthu, Muturi, & Kiweu, 2015). The increased professionalism in the management of SACCOs further increases the power distance between the members and the management (Kahuthu, 2015).

This has tended to undermine the ability of the members to exercise their ownership rights and responsibilities in monitoring the hired managers and the elected directors. This creates a principal-agent problem in the management of the credit union business with excessive costs and inefficiencies by the agents (Barus, Muturi, Kibati, & Koima, 2017). However, despite the apparent shift in democratic balance with the growth of SACCOs, there are limited studies on the existence of agency-related costs in SACCOs from the perspective of a developing world. This study, therefore, seeks to contribute to this gap in knowledge by examining the existence of agency problems in SACCOs through a focus on the influence of SACCO size and outreach factors on the agency related costs (i.e., personnel expenses, board expenses and operating expenses) in the management of the deposit-taking SACCOs in Kenya. A better understanding of the influence of increased growth in deposit-taking SACCOs on the principal-agent problem is important in informing policies and other interventions that promote governance systems which then encourage democratic and economic balance in the management of SACCOs.

## **1.3 Research Objectives**

### **1.3.1 General Objective**

The main objective of this study was to examine the influence of size and outreach factors on agency-related costs in the management of the deposit-taking SACCOs in Kenya.

### **1.3.2 Specific Objectives**

This study seeks to achieve the following specific objectives:

- i. To analyze the extent and nature of agency related costs for DT SACCOs in Kenya over the period 2014-2021.
- ii. To examine the influence of size factors on the agency related costs in the management of DT SACCOs in Kenya.
- iii. To examine the influence of outreach factors on the agency related costs in the management of DT SACCOs in Kenya.

### **1.4 Research Questions**

Arising from the general and specific objectives, the following are the questions that this research sought to answer:

- i. What is the extent and nature of agency related costs for DT SACCOs in Kenya over the period 2014-2021?
- ii. How do size factors influence agency related costs in the management of DT SACCOs in Kenya?
- iii. What is the influence of outreach factors on the agency related costs in the management of DT SACCOs in Kenya?

### **1.5 Scope of the Study**

The study focused on the 176 SACCOs undertaking deposit-taking business in Kenya. These SACCOs submit financial performance reports, including audited financial statements, to SASRA, the prudential regulator making data available for academic research and policy purpose upon formal request. The study utilized financial performance data from the audited financial statements and license applications from 2014 to 2021. The variables were personnel expenses and board of directors' expenses relative to assets as well as operating costs, summed up and expressed as a ratio of average assets. The ultimate question being, Do the agency-related costs become more pronounced with growth in assets, membership and branch network of a SACCO or not?

## **1.6 Significance of the Study**

This research is expected to be beneficial to multiple actors as discussed here below.

### **1.6.1 Policy Makers and Regulators**

The findings of this study will provide insights to policymakers and regulators on the impact of growth in assets, membership and outreach on the primary objective of SACCOs, which is to advance and protect member interests and welfare. Such insights can then influence policies on the development and regulation of SACCOs while preserving the ownership control. For instance, the study provides useful insights on what needs to be done with regard to expansion of SACCOs and the adoption of multiple, open common bond. These are useful considerations for policy makers and regulators in the SACCO sub sector.

### **1.6.2 SACCO Boards and Leadership**

For the SACCO boards of directors and management, who are the agents contracted by the owners, this study will assist in the choice of a governance system that best suits their SACCO in order to ensure member welfare is advanced at all times. The findings from this study will potentially assist other stakeholders to better appreciate the impact of growth in membership, assets and branches on member oversight and control of the SACCO business. An example is with regard to growth in membership, where this needs to be approached with caution by the SACCO leadership and ensure that any additional member is associated with some benefit to the SACCO. SACCO leaders are made aware of the need to exercise caution when growing the SACCOs since the outreach has a bearing on agency related costs which could be detrimental to the SACCO in case they surpass manageable thresholds. It is important for SACCO managers and leaders to observe that all the size and outreach factors considered in this study come with a cost, and a careful analysis is required before committing to the expenditure.

### **1.6.3 Researchers and Academicians**

The findings of this study will also contribute to the available academic literature on the impact of the growth of SACCOs on the governance by its owners and also provide insights for further research on the governance of SACCOs. The study will potentially influence development

organizations that value the owner-customer nature of SACCOs when considering financial and technical support to mutual institutions. As highlighted in the further areas of research, studies on cooperating cost efficiency and growth are growing and there are numerous avenues for future investigation and inquiry. The findings in this study should also inform any capacity building initiatives on factors affecting ARCs and key considerations around SACCO size and outreach factors.



## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

This chapter focused on the available literature relevant to the questions under study as presented by various researchers and scholars across the world. The review drew from multiple sources related to the theme and objective of this study. The first section presents the theoretical review, followed by the empirical review.

### **2.2 Theoretical Review**

This study examined how the size of a credit union as measured by assets, membership, peer grouping and branch network influence agency-related costs within the context of a developing country. This implies that a consideration of theoretical explanations for SACCO expenditure, size and scale was necessary. Consequently, three theories were considered, namely agency theory, expense preference behaviour theory and economies of scale theory. The agency theory, from its origins in seminal works of Jensen and Meckling (1978) argues that there exists some “tension” between the principals and the owners due to their diverse characteristic. This therefore calls for some expenditure to be incurred to help minimize the gap between the principal-owners and the agents. The expenditure preference theory is also important in this study since it helps explain why SACCOs incur certain specific expenses, with some being higher than others. Finally, the economies of scale theory is important in understanding the influences of increased scale of operations on operational efficiency and expenditure management (Koot, 1978). It is on this basis that a multi-theoretical approach was chosen to guide the study.

#### **2.2.1 The Agency Theory**

This theory explains the relationship between the owners of a business (the principals) and the persons engaged (agents) to run and manage the business on behalf of the owners. The relationship entails delegating some decision-making authority to the agent. If both the principal and the agent are utility maximizers, it is reasonable to believe that the agent will not always act in the best interests of the principal (Jensen & Meckling, 1976). According to Jensen et al. (1976), agency costs exist in all firms, and they are positively correlated to the size and complexity of the organization.

Fama & Jensen, 1983 asserts that as the organizational size grows and becomes more complex, specialized knowledge and skills are required to make a range of specific business decisions. In the case of SACCOs, the individual members lack the required managerial competence and technical know-how hence the need to hire a team of professionals to assist in the management and business decisions. While hiring professional expertise improves the SACCO's ability to operate in a business-like manner as opposed to social orientation associated with Cooperatives, the separation of ownership and decision-making authority inevitably results in principal-agent problems.

The principal-agent problem in credit unions is particularly complex due to the fact the owners double up as the customers. Further, these customers comprise of net savers and net borrowers, who have different interests in the SACCO. For the owners and hence shareholders, regardless of the amount invested in the SACCO, each member gets one vote in electing a director to the board, and each director gets one vote in deciding any issue before the Board (Branch & Baker, 1998). The fact that the members comprise largely of low-income individuals with little business experience or financial acumen adds to the agency problem as they have limited ability to monitor the financial performance of their SACCO business.

In applying agency costs theory to test for agency problems within the USA savings and loan industry, Blair and Placone did not find any evidence of the occurrence of agency problems (Blair & Placone, 1988). Specifically, the study found no evidence that firm size (market power) drives firm costs and neither does the mutual form of a firm increase the observed agency costs. This research found that large and complex firms tend to be more aggressive and competitive as they enter into new and non-traditional products and service lines, thus increasing staff emolument costs as well as other operating costs.

However, Leggett and Strand (2002), in evaluating the principal-agency problems within the USA credit unions industry following policy changes to allow multiple membership groups found that membership growth diluted membership oversight and control over the credit union business, potentially creating agency control problems (Legget & Strand, 2002). This theory is relevant to the current study for two reasons. First, the agency problems may allow the management to behave in ways inconsistent with cost-minimization (Gropper & Beard, 1995 (Legget & Strand, 2002).

While there are inconclusive research findings on the agency costs in mutual institutions, these studies are confined to advanced economies where the credit union industries are considered mature. A study of Kenya's SACCO industry would thus contribute to knowledge and literature from the perspective of a developing economy whose credit union industry accounts for an estimated 85 per cent of the USD.16.1 billion in total assets held by SACCOs in Africa (World Council of Credit Unions, Statistical Report, 2020).

Secondly, agency costs are important to the SACCO members who, of necessity, have to delegate decision-making authority to elected directors and management (agents) as the business grows and becomes operationally complex. Yet as owners, they are expected to oversee the Board and management, a costly affair and one in which members lack the competencies and knowledge to effectively undertake oversight and control responsibilities. This situation increases the risk of excessive agency related costs, thereby undermining the best interests of the owner-members. Thirdly, unlike the stock financial intermediaries, the SACCO shares are not traded in the secondary market, denying the owners an opportunity to incorporate into the prices their assessment of the quality of management (Desrochers & Fischer, 2003).

### **2.2.2 Expense Preference Behavior Theory**

The expense preference behavior theory was first developed by Williamson (1963) and later refined by Rees (1974). The theory suggests that the firm's managers have a natural tendency to maximize utility rather than profit. This is exhibited by the manager's positive preference for expenditures that elevate their social status and power. Hence uncontrolled appetite for expenditures on such items as staff size, staff emoluments, office furnishings, and the splendor of the organization's premises. The study identifies the common circumstances, which are associated with such behaviour as the separation of ownership from control, industry regulation and imperfections in goods and capital markets.

Under these conditions, the cost to stockholders of perceiving and taking actions against nonprofit-maximizing behaviour by managers may significantly limit the likelihood of their doing so in all but the most serious of cases of managerial misbehavior. Empirical studies by Hannan and Mavinga (1980) on banking entities did not contradict the implications of expense-preference behaviour; that competitiveness of the industry influenced managerial behaviour as manager-

controlled banks operating in noncompetitive markets were found to spend more on inputs likely to be preferred by managers than do owner-controlled banking institution in the similar situation.

The focus of the study was limited to the competitiveness of the industry as a control mechanism on management but did not consider the effectiveness of institutional control mechanisms in the two scenarios. This is considered relevant to this study as mutual financial intermediaries like SACCOs being cooperatives, no one shareholder or member can have control given the one-member-one-vote principle. This principle bars the possibility that a single shareholder may take dominating positions that will encourage monitoring (Desrochers & Fischer, 2003). This characterization makes governance in financial cooperatives less efficient and more susceptible to the expense preference behaviour of managers.

### **2.2.3 Economies of Scale Theory**

Economies of scale arise when a firm experience cost advantages as a result of increases in scale of operation. This is measured by the output produced per unit (Koot, 1978). Decreases in cost per unit helps enable increases in scale (Chandler Jr. and Alfred, 1993). In many cases, economies of scale are achieved out of growth, whether organic (funded by internal resources) or inorganic (funded by external borrowed funds). According to Marchio (2009), credit unions can attain economies of scale regardless of their challenging structural features. This arises from the formality of the sector, the level of prudential regulation, competition and the rate of information technology adoption. In this case, financial cooperatives can utilize technologies to screen loans and assess borrower risk and manage their information for decision making.

Sibbald and McAlevey (2003) observed that whereas efficiency improvements were evidence from small to medium-sized credit unions, economies of scale were evident in larger credit unions. Larger financial cooperatives have the resources to deploy in collection efforts and this helps build stronger loan repayment (Marchio, 2009). However, this comes with agency related costs to monitor and ensure that proper cooperative governance mechanisms are put in place to control excessive and risky lending, whether using technological platforms or in the traditional approach. As financial cooperatives grow in size and scale of operations (outreach) agency-related costs are likely to increase to take care of the growth (Marchio, 2009). However, the benefits that arise from growth may not be available to relatively smaller financial cooperatives. The economies of scale

theory is useful in this study since it helps explain the choice of the two independent test variables for the study – size and outreach factors. It is expected that larger SACCOs are associated with lower agency related costs relative to the smaller SACCOs that may be expense inefficient. This is because of the scale disadvantages the smaller SACCOs may be exposed to.

## **2.3 Empirical Review**

Numerous studies have investigated agency-related problems in mutual institutions from different perspectives, namely membership growth and agency control; ownership dispersion and efficiency; agency costs and financial performance, etc. The following subsection covers an empirical review of the factors that this study focused on in establishing how they influence agency-related costs in the management of deposit-taking SACCOs.

### **2.3.1 SACCO-Size Factors and Agency Related Costs**

Firm characteristics are those individual variables of the firm which have a significant influence on the firm's performance. These characteristics influence every executive decision made by the firm as much as management decisions influence these variables in return. They include but are not limited to capital structure, deposits, loan portfolio and diversification, financing cost strategy and firm size (Muhindi & Ngaba, 2018). The size-related factors of SACCOs include the value of assets, deposits, number of members and turnover (Okwach, 2017).

The SACCO Societies deposit Taking Sacco Business) Regulations (2010) notes that among SACCOs, major assets include cash and cash equivalents; prepayments and accounts receivables; loan portfolio, financial investments; and property and equipment. Deposits constitute the member's contribution, and they are key to measuring the ability of the firm to meet its financial obligations (loans to members and deposit withdrawals). Membership of deposit taking SACCOs is an indication of the organisation's efficacy in different geographical regions and is measured by analyzing the number of active members per each SACCO. Various studies have found a link between size-related factors and financial performance (Okwach, 2017). This study assessed size-related factors in terms of asset quantity, size of deposits and membership numbers across SACCO branches since these factors have been recommended by prudential regulatory frameworks as the most influential measures of SACCO performance.

Mayende (2013) found a strong correlation between the revenues generated and large firms suggesting that larger firms have more qualified employees who are goal-oriented and also have access to technical trainings, which is key for innovation and necessary for growth and attainment of competitive advantage. Muturi, Barus, Kibati and Koima (2017) found a statistically significant relationship between asset quality and SACCO's financial outcomes. Mwangi (2014) suggests that firm characteristics such as size and asset quality significantly impact profitability ratios among micro-finance firms in Nakuru, Kenya. Current study focus on asset size and outreach on cost management in a SACCO.

Wijesiri, Yaron and Meoli (2017) reported that larger micro-finance institutions (MFIs) have larger economies of scale than smaller MFIs. This is reflected in their tendency to have much higher financial and social efficiency, resulting in the realization of organizational goals. The study adopted a two-stage data envelopment analysis (DEA) bootstrapped meta frontier approach to investigate the effects of firm size and age on financial and social efficiency. The first stage used a meta frontier model that was combined with a DEA bootstrapped procedure to obtain statistically robust and comparable factors that determine MFI performance across various geographic areas. The second stage employed a bootstrapped method to account for the impact of exogenous factors on both dimensions of efficiency. The study determined that all MFIs were failing to attain their financial and social outreach objectives. However, the study determined that younger MFIs boast a higher rate of achieving outreach objectives. The study also noted the lack of adequate theoretical and empirical evidence on the impact of firm size on MFI financial performance. The study assessed the impact of age factors, while the current study assessed size and outreach factors.

Aladwan and Saaydah (2015) examined the impact of bank size on profitability among Jordanian listed commercial banks. The study collected data from the Amman stock exchange annual reports of banks operating in the region between 2007 and 2012. The 15 banks were classified into three categories according to asset size, while the Return on Equity (ROE) was adopted as the measure of profitability. The study used a two-sample t-test on the means of ROE for the selected groups, with results showing that smaller banks in Jordan realized more profitability than larger banks. The study determined that smaller banks have a smaller budget, hence employ cost-effective strategies to enhance financial productivity.

Domestically, Karanja (2013), in investigating the relationship between size and cost efficiency of deposit-taking SACCOs, found that SACCOs with large assets are more efficient than smaller ones. The researcher regressed efficiency ratio against total assets, capital adequacy ratio, return on assets and liquidity ratio as the independent variables for each of the SACCOs under study. A study by Njenga (2012) on agency costs and financial performance of SACCOs utilized directors' fees, honoraria and other payments to board members as representing agency costs considering the heavy involvement of directors in the day-to-day management of the SACCO business. This study found a negative relationship between agency costs and the financial performance of SACCOs when size and marketing expenses are controlled. However, Njenga's study was limited to SACCOs in one county in Kenya and focused on oversight costs by directors as agency costs. The costs incurred on the hired professional in terms of salaries and other incentives were not considered as agency costs, yet they could be a significant portion of operating costs in a SACCO.

Tsuma, Musiega, Albert and Douglas (2015) adopted the transaction cost theory to investigate the impact of financial innovation capability on profitability among Kenyan SACCOs. The study specifically sought to investigate how process innovation impacts SACCO's financial returns. Data was collected through questionnaires, and the study adopted a descriptive research design. After analysis, it was determined that most of the SACCOs had partially adopted financial innovation. Correlation analysis revealed that there exists a strong positive relationship between a process innovation and firm profitability. Further, it was ascertained that financial innovation, in terms of adoption of internet banking and connectivity, ICT, and computer technologies, has resulted in better service delivery, increased competence, enhanced strategy execution and reduced operational costs among the largest firms in the country. The study assessed the impact of financial innovation, while the current study examined the size factors and their effects on agency costs.

Kiaritha, Gekara and Mung'atu (2014) sought to determine the impact of operational costs on financial outcomes among Kenyan SACCOs. This study adopted a descriptive survey design with a target population of all the SACCOs registered and located in Nairobi. The study adopted stratified sampling, and simple random sampling was used to contact respondents who comprised of employees and members of the respective SACCOs. The study utilized correlation and regression analyses in determining the relationship between financial performance and operating costs. Findings revealed that the SACCOs have formulated and employed policies aimed at

managing operational costs, which include salaries, rent and interest on member deposits. The study determined that the SACCOs consider committee allowance, annual general meeting and training as necessary costs to ensure high performance and improve sustainability. The study found a significant correlation between operational cost management and SACCO performance. Recommendations were made for SACCO management to ensure that they have effective strategic plans and policies designed to govern organizational learning to help in the reduction of operating costs. In a SACCO, organizational learning includes training the owner-members to supportive business strategies pursued by the board and management and this has implications on agency costs. Thus while this study assessed operational costs and performance, the current study examined SACCO size in terms of assets and membership on the performance outcomes.

These studies are relevant to the current study as they provide empirical evidence that size-factors, namely assets and membership, influence operating costs and hence residual earnings to owner-members in a SACCO. Further, while most empirical studies on deposit-taking SACCOs focused on the influence of SACCO size on cost efficiency, the current study is broadly on the cooperative governance by testing the influence of size and outreach factors of a SACCO on the agency related costs.

### **2.3.2 SACCO Outreach Factors and Agency Related Costs**

Outreach factors include county distribution of head-office locations, cross-country branch networks, ATM linkages, agency banking activities (SASRA, 2018). Quayes (2015) holds that smaller short-term loans have a low default rate, stipulating that increasing outreach is expected to result in improved financial performance. Further, the study notes that there is adequate statistical evidence pointing to improved profitability with a decrease in the average loan balance per borrower. Using a panel of 764 MFIs over a period of four years, extending from 2003 to 2006, the research sought to determine the influence of outreach factors on financial performance. The study aimed to collect data from as many MFIs as possible within the four consecutive years. The sample includes data from 87 countries in Africa, East Asia and the Pacific, Eastern Europe and Central Asia, Latin America and the Caribbean, the Middle East and North Africa, and South Asia.

The study used the average loan balance per borrower divided by the gross national income per capita (ALBG) of the respective country to normalize for the variation in income across countries.

Assumptions were that the level of an MFI's outreach is determined by the policy and that the outreach may have a causal effect on its financial performance, but the level of performance has no impact on outreach. Any increases in the total expense ratio (TER) were also assumed to negatively impact profitability. Loan loss reserve ratio (LLRR) was used as the indicator of anticipated loss from defaults. The study determined that there is a strong and statistically significant positive relationship between outreach and performance. The outreach factors were found to significantly impact firm performance levels. The study determined that outreach efforts promote improved financial sustainability, especially among firms with a high level of accountability indicated by their level of disclosure including on agency related costs.

Regehr and Sengupta (2016) analyzed how bank profitability is influenced by changes in bank asset size. The study developed a simple model where a bank's profitability is a function of its size and characteristics as well as the characteristics of the markets in which it operates. The study sample consisted of an unbalanced panel of annual observations for 8,315 community and regional banks with assets less than \$100 billion (valued at 2014 U.S. dollars) from 2001 to 2014. This was to study the determinants of performance outcomes before and after the 2008 financial crisis. The study used simple regression techniques on bank-level data to estimate a size-profitability model that controls for bank-specific and market-specific factors, with results indicating that banks with a large outreach are more profitable, albeit at a diminishing rate. More branches increase bank profitability by enabling the institutions to realize economies of scale in terms of spreading fixed costs over a greater asset base, reducing risk through diversification initiatives across product lines, sectors, and regions. However, the report noted that bank performance was significantly impacted by the environment in which it operates, with favourable market outcomes increasing profitability regardless of the size of the firm. Changes in bank-specific and market-specific factors were noted to be as influential as large changes in size, showing that physical expansion is not necessary for objective realization. The study involved a multi-national analysis while the currently focussed on Kenyan SACCOs' performance.

Kazumine (2017) carried out an empirical investigation into the impact of branch network expansion strategies by Japanese regional banks on management performance and profitability. The study empirically examined the impact of regional branches' concentration on their credit businesses and profits. Findings showed that banks that had more branches could increase their

loans and bills discounted as well as their small and mid-sized enterprises (SME) loans and bills discounted. This shows that an increase in the number of customers contacted increases the total sum of loans and bills discounted by each bank. However, regional banks that had more branches reported negative financial returns, indicating that increasing the size and number of branches negatively impacts return on assets (ROA) and return on equity (ROE) among regional banks. The study above is an empirical review, while the current study adopted a descriptive correlational research design.

Shu and Oney (2014) sought to compare the performance and outreach aspect of Cameroonian MFIs against the African benchmark and to investigate whether there is a trade-off between performance and outreach. The study involved six MFIs and their branches all over Cameroon, and in addition to outreach factors, the researcher adopted an extension from the Pankaj and Sinha model where they analyzed companies on six categories of financial performance; financial structure, revenue, expenses, efficiency, productivity and risk management. Using the difference of mean test, the findings of the study revealed that generally, the MFIs in Cameroon implemented a low-cost strategy and are heavily exposed to default risk. Additionally, the study noted a trade-off between performance and outreach factors. In Cameroon, MFIs were more focused on profit generation initiatives instead of increasing outreach to the poorest members of the society meaning that they incurred lower expenses. However, this lack of growth resulted in a reduced capacity to manage risk, leaving the firms susceptible to default risk. The firms have a minimal footprint in rural communities, and they are heavily centralized in urban centres. The study used a Mix Market database to assess outreach factors of MFIs in Cameroon, while the current focus on Kenyan SACCOs.

Olajide and Anthony (2016) sought to assess the impact of branch expansion on the performance of financial institutions. All banks in Nigeria that were in operation between 1981 and 2013 were included in using a pooled data analysis on ordinary least square (OLS). The study assessed branch operations in rural areas, urban areas and those located abroad (foreign branches). The study used the cause-effect relationship to test the relationships and correlations between the variables and utilized a regression analysis. The study showed a positive relationship between branch growth and asset growth. This was attributed to larger economies of scale translating to the occupation of large geographic areas, access to new markets, access to emerging technologies to enhance product

and service offering and better customer marketing and segmentation. The study, however, noted that an increase in branch network results in an increase in day-to-day operational costs. The study assessed the impact of branch growth among Nigerian banks, while the current study focussed on Kenyan SACCOs.

Oyugi (2014) noted that the transformation of SACCOs from traditional manual systems to a more open, effective, and competitive system that offers a wide range of products and services had seen the adoption of innovative technologies meant to enhance customer outreach. The study sought to determine the effect of automated service on the financial performance of SACCOs licensed by SASRA in Kenya and adopted a descriptive- survey research design. The study assessed a sample of 45 SACCOs operating in Nairobi and Kiambu Counties. The study determined that to reduce costs related to reliance on the branch network as a core delivery mechanism, the firms introduced services including internet banking services, mobile banking and ATM services. The analysis determined that taking into consideration the expenditure in internet banking, automation, mobile banking, number of ATM cards issued and the size of the Sacco, the firms still realized positive returns. Conclusions were that automation is key to enhancing the outreach of SACCOs and result in improved productivity. Recommendations were for financial institutions to incorporate emerging technologies into their operations to complement existing outreach strategies such as branches. The study focuses on automation impacts while the current study investigates the impact of branch expansion on financial performance.

A study by Mathuva (2015) on revenue diversification and financial performance in Kenya SACCOs showed that the size of the branch network had a positive influence on financial performance as measured by return on assets (Mathuva, 2015). These findings indicate that branch network size can make a suitable measure of the outreach of a SACCO. This is more so for the study at hand where the agents are likely to favour more branches given the opportunities it accords them to employ more staff and invest in capital assets, which are associated with expense preference of managers (Akella & Greenbaum, 1988). Thus it is expected that the branch network will potentially have an inverse relationship with agency-related costs.

## 2.4 Summary of Literature Review and Gaps

There are numerous studies on principal-agent problems in mutual financial institutions in both developed and developing countries. The studies have especially focused on testing the agency theory in credit unions, given the unique governance structure in Cooperatives where the owner is also the customer. The empirical studies have investigated agency costs in mutual institutions from different perspectives, namely membership growth and agency control; ownership dispersion and efficiency; agency costs and financial performance; agency costs and good corporate governance mechanisms (Legget & Strand, 2002; Njenga, 2012; Gorton & Schmid, 1999; Ndeto, 2010). The literature provides evidence that size-factors, namely assets and membership, influence staff emoluments, overhead costs and hence residual earnings allocation to owner-members in a SACCO. However, there is very scanty literature on the relationship between size factors of a SACCO to the agency costs from the context of a developing country.

The current study applies multiple theories to investigate the influence of size and outreach-related factors on agency-related costs in deposit-taking SACCOs in Kenya, a developing country with a vibrant credit union industry that has persistently ranked among the top ten according to WOCCU Credit union statistical reports, 2015 to 2020). In addition, Kenya's credit union industry has been classified as being the transition stage of development (Mckillop & Ferguson, 2000), further underscoring its significance in the global credit union industry. The study borrows heavily from the existing empirical studies, especially that of Leggett et al. (2002) on membership growth and agency control. Kenya's SACCO industry is the largest in Africa, accounting for 85 percent of the USD 16.1 billion (World Council of Credit Unions, Statistical Report, 2020). The deposit-taking SACCOs have been under prudential regulation since 2010, making available data to undertake this study. Table 2.1 summarizes the literature and the identified gaps in prior literature.

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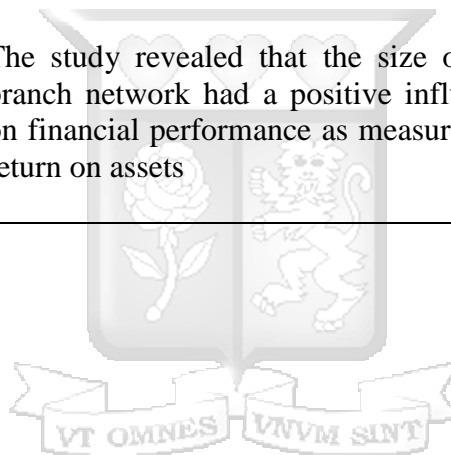
**Table 2.1: Summary of Literature and Gaps**

<b>Author</b>	<b>Purpose of the study</b>	<b>Findings</b>	<b>Gaps</b>	<b>How the current study fills the gaps</b>
Wijesiri, Yaron and Meoli (2017)	The study examined the differences in scale benefits in smaller and larger MFIs	The study found that larger micro-finance institutions (MFIs) have larger economies of scale than smaller MFIs.	The study failed to examine the implications of agency related costs and what drives them.	The current study's focus is on agency related costs and what drives them.
Gorton and Schmid (1999)	The study examined the linkages between governance, ownership, dispersion and cost efficiency.	The study provides evidence on agency costs and control in financial cooperatives.	The focus was on relatively developed economies.	The present study examines SACCOs in a developing economy.
Leggett and Strand (2002)	The study examined growth in membership, multiple membership and agency control in credit unions.	The study provides evidence on agency costs and control in financial cooperatives. As credit unions grow, agency problems increase as well as costs.	The study failed to disaggregate agency costs, and the focus was more on membership.	The present study examines size – assets, membership and peer grouping as well as outreach effects on agency related costs
Gomez-Biscarri et al. (2019)	The study examined whether to pay or not to pay board remuneration and its links with insolvency risk in financial cooperatives.	The study notes that members act as a disciplining mechanism by withdrawing deposits for risky-lending credit unions.	The study focused on one aspect of agency costs: board pay.	The present study examines three types of agency related costs – board pay, personnel and other operating costs with an agency bearing.
Van Rijn et al. (2022)	The study examined whether financial cooperatives have	Drawing on agency theory, the study notes that salaries and benefits paid to managers of cooperatives are lower than those paid	The study focused on one aspect of	The present study examines three types of agency related costs –

<b>Author</b>	<b>Purpose of the study</b>	<b>Findings</b>	<b>Gaps</b>	<b>How the current study fills the gaps</b>
	distinct objectives based on an analysis of executive compensation.	by other financial institutions and this leads to lower risk taking than in banks.	agency costs: executive pay.	board pay, personnel and other operating costs with an agency bearing.
Wheelock and Wilson (2013)	The study examines the origins and efficiency of US financial cooperatives.	Cost productivity in credit unions fell on average especially the smaller ones. The larger credit unions became less efficient too.	The study fails to highlight the agency costs fully.	The present study examined the complete array of agency costs and how they related with size and outreach.
Karanja (2013)	The study examined the relationship between size and cost efficiency of deposit-taking SACCOs	The study found that SACCOs with large assets are more efficient than smaller ones.	The study fails to highlight the agency costs fully.	The present study examined the complete array of agency costs and how they related with size and outreach.
Njenga (2012)	The study focused on on agency costs and financial performance of SACCOs utilized directors' fees, honoraria and other payments to board members	The study found a negative relationship between agency costs and the financial performance of SACCOs when size and marketing expenses are controlled.	Njenga's study was limited to SACCOs in one county in Kenya and focused on oversight costs by directors as agency costs	The present study covers DTSACCOs in Kenya.
Lamberte et al (2003)	The study examined gender perspectives in the efficiency of cooperative financial institutions.	The study finds that empowering women helps enhance their access to credit as well as shaping policies to promote the cooperative efficiency. Credit unions managed by women pursue greater cost efficiency options than profit.	The study fails to highlight the agency costs fully.	The present study examined the complete array of agency costs and how they related with size and outreach.

<b>Author</b>	<b>Purpose of the study</b>	<b>Findings</b>	<b>Gaps</b>	<b>How the current study fills the gaps</b>
Lamberte et al. (2009)	The study examines the impact of women members and employees on the seriousness of agency conflicts in cooperatives in the Philippines	The study finds that credit unions with more women staff members are more cost and profit efficient. However, there might be higher monitoring costs.	The study fails to highlight the agency costs fully.	The present study examined the complete array of agency costs and how they related with size and outreach.
Frame, Karels, and McClatchey, (2003).	The study examined whether credit unions use their tax advantage to benefit members	Members largely benefit from the tax advantages financial cooperatives have.	The study fails to highlight the agency costs fully.	The present study examined the complete array of agency costs and how they related with size and outreach.
McKillop et al (2020)	The study examines credit union evolution	The study argues that the negative implications on credit union profitability can be mitigated through cost cutting and the diversification of income. In the longer run, capitalisation is useful to encourage mergers as credit unions pursue scale benefits.	The study fails to highlight the agency costs fully.	The present study examined the complete array of agency costs and how they related with size and outreach.
Kiaritha, Gekara and Mung'atu (2014)	The study examined the impact of operational costs on financial outcomes among Kenyan SACCOs.	The study found that SACCOs have formulated and employed policies aimed at managing operational costs, which include salaries, rent and interest on member deposits.	The study fails to highlight the agency costs fully.	The present study examined the complete array of agency costs and how they related with size and outreach.
Kazumine (2017)	The study examined the impact of branch network expansion strategies by Japanese regional banks on management	The findings showed that banks that had more branches could increase their loans and bills discounted as well as their small and mid-sized enterprises (SME) loans and bills discounted.	The study fails to highlight the agency costs fully.	The present study examined the complete array of agency costs and how they related with size and outreach.

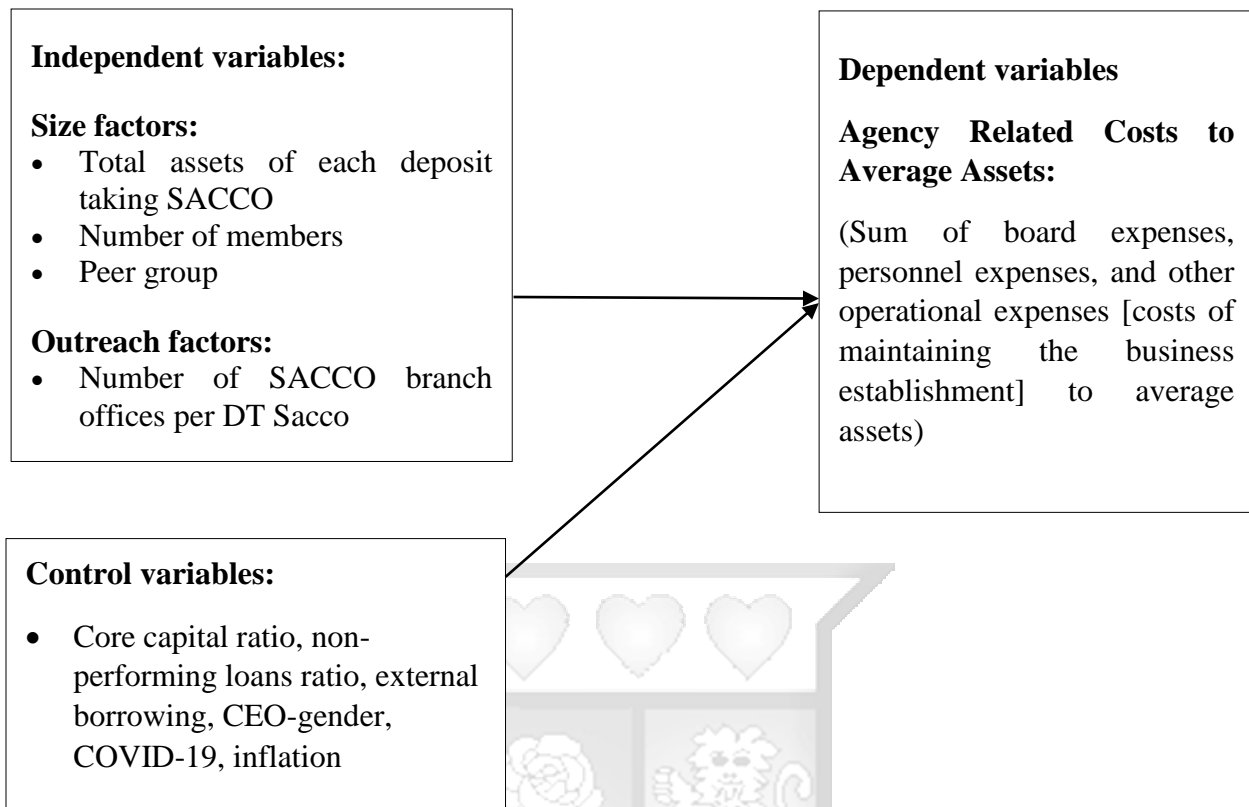
Author	Purpose of the study	Findings	Gaps	How the current study fills the gaps
Olajide and Anthony (2016)	performance and profitability The study examined the impact of branch expansion on the performance of financial institutions.	The study showed a positive relationship between branch growth and asset growth due to larger economies of scale	The study fails to highlight the agency costs fully.	The present study examined the complete array of agency costs and how they related with size and outreach.
Mathuva (2015)	The study was on revenue diversification and financial performance in Kenya	The study revealed that the size of the branch network had a positive influence on financial performance as measured by return on assets	The study fails to highlight the agency costs fully.	The present study examined the complete array of agency costs and how they related with size and outreach.



## 2.5 Conceptual Framework

Based on the reviewed literature and own rationalization of the study, the conceptual framework developed reflects the envisaged dependent variable among a set of independent (test) and control variables. The dependent variable selected for the study is agency-related costs, ARCs. These costs include board expenses, personnel expenses, and other operational expenses (costs of maintaining the business establishment). It is anticipated that SACCOs have to incur these costs to ensure that the interests of the SACCO and that of the member-owners are aligned. The study examines how SACCO size and outreach influences these ARCs. In this study, SACCO size was measured using three proxies: assets, number of members and the peer group classification for the SACCO. The choice of size was motivated by the economies of scale theory which posits that as organizations grow, they tend to enjoy scale benefits hence spend less compared to relatively smaller organizations. Such organizations are likely to be more cost efficient, compared to their smaller counterparts (Lamberte et al., 2003).

The outreach factor examined in the study was number of SACCO offices per SACCO. These two variables comprised the independent test variables. Finally, a number of control variables were included which were core capital ratio, non-performing loans ratio, external borrowing, CEO-gender, COVID-19 and inflation. The first four control variables are at the institutional level while the last two control variables are at the macro level. It is anticipated that the expenditures of a SACCO are influenced by the inflationary pressures, with SACCOs budgeting an increment in spending year after year. In addition, the COVID-19 pandemic had an influence on SACCO spending and has therefore been incorporated as a control variable too. Figure 2.1 presents the conceptual depiction for the study.



**Figure 2.1: Conceptual Framework**

### 2.5.1 Operationalization of the Variables

Table 2.2. presents a summary of how the variables presented in the conceptual framework were derived and the supporting literature for each.

**Table 2.2: Variable operationalization**

Variable	Abbreviation	Description	Measurement	Source	Supporting Theory
<b>Dependent variable</b>					
Agency Related Costs	ARC_AA	Sum of board expenses, personnel expenses, and other operational expenses [costs of maintaining the business establishment]	Agency Related Costs to Average Assets	Gorton and Schmid (1999), Gomez-Biscarri et al. (2019), van Rijn et al. (2022), Njenga (2012), Leggett et al (2002)	Agency, expense preference

Variable	Abbreviation	Description	Measurement	Source	Supporting Theory
		to average assets			
<b>Size factors</b>					
Total assets	<i>lnTA</i>	The value of assets SACCO has	=natural logarithm of total assets at the year end	Ondoro (2015), Samad et al. (2006), Karanja (2013)	Economies of scale
Number of members	<i>lnMembers</i>	The number of members SACCO has	=natural logarithm of total members at the year end	Wijesiri, Yaron and Meoli (2017), Leggett and Strand (2002), Gorton et al (1999)	Economies of scale
Peer group	<i>Large_Peer</i> <i>Medium_Peer</i> <i>Small_Peer</i>	The peer grouping of the SACCOS as per SASRA categorization	=1 if it is large peer SACCO, 0 otherwise =1 if it is medium peer SACCO, 0 otherwise =1 if it is small peer SACCO, 0 otherwise	SASRA (2021)	Economies of Scale, Agency
<b>Outreach factors</b>					
Number of SACCO branch offices	<i>No Branches</i>	The number of branch offices the SACCO has	Number of Branches in a SACCO	Olajide and Anthony (2016), Mathuva (2015), Hirtle (2007)	Economies of scale
<b>Control variables</b>					
Core capital ratio	<i>CCA</i>	Capital strength of the SACCO	Core capital to total assets	van Rijn et al. (2022), Kahuthu, Muturi and Kiweu (2015)	Agency
Non-performing loans ratio	<i>NPLs</i>	The quality of the loan portfolio	Ratio of non-performing to gross loans	van Rijn et al. (2022), Nzoka (2015)	Agency
External borrowing	<i>Ext_Borrow</i>	The amount of external borrowing the SACCO has	The ratio of total debt to assets	Nzoka (2015)	Agency

Variable	Abbreviation	Description	Measurement	Source	Supporting Theory
CEO-gender	<i>CEO_Gender</i>	The gender of the top manager in the SACCO	=1 if the CEO is female, 0 if otherwise	Lamberte et al (2003), Lamberte et al. (2009)	Agency
Covid-19	<i>Covid</i>	The Covid-19 pandemic	=1 during the pandemic period (post 2020) and 0 the earlier periods	Own derivation, Ndirangu (2020)	Expense preference
Inflation	<i>Inflation</i>	The inflationary nature of expenses	The CPI inflation rate at the end of the year	Own derivation	Expense preference

The detailed discussion of the variables is presented as follows.

#### (a) Independent Variables

**Total assets of each deposit-taking SACCO (TA):** This is used as the primary measure of the size of the SACCO. The larger the SACCO, the more operationally complex it gets and hence requiring the engagement of professionals to manage the business operations. In addition, close monitoring by a well-trained board of directors is expected for the growing business. While size should give benefits of economies of scale and scope to members, empirical studies have shown contrary results (Legget & Strand, 2002; Njenga, 2012) with large credit unions being relatively less efficient with higher personnel costs, board expenses and operating costs. Thus, the study examined the behaviour of these costs relative to the asset size of the SACCO.

**The member number in each SACCO, (InMembers):** Increase in membership in a SACCO has been found to diffuse ownership control, giving board and management greater authority and control over the credit union financial expenditure. While increased and broader membership should bring benefits of economies of scale and scope to members, studies discussed above have suggested it can increase agency-related costs reducing residual benefits to the owners (Gorton & Schmid, 1999; Legget & Strand, 2002).

**The number of branches per DTS (NoBranches):** This is an outreach factor that enables the SACCO to recruit and serve members conveniently and, like size factors; adds to the complexity

of the SACCO business. Like the other two independent variables on asset size and membership, the board and managers cite growth and efficiency benefits of additional offices to serve current and potential members. While past studies on agency control and related costs have not used this as a variable, physical business premises influence operational costs as the offices create opportunities for additional staff hence salaries and benefits in addition to occupational costs in terms of rent, security, insurance and other building services. The research, therefore, proposes to use this variable as an outreach related factor to investigate its influence on agency-related costs discussed above.

### **(b) Dependent Variables**

Based on the literature review, the study defines the following as the agency related costs, which is the dependent variable as comprising of the costs discussed below.

**Board Expenses, BE:** This is the total of all expenses incurred on directors' fees and allowances in attending credit union business activities and includes training costs. The total costs therein are then expressed as a ratio of average assets at year-end. The ratio has been used in a similar study by Njenga (2012), and it is expected to have a negative relationship with the size of the SACCO; otherwise, agency problem exists.

**Personnel Expenses, PE:** This is a ratio of the total of the staff salaries and all benefits to the average assets at year-end. It has been used in similar studies by Leggett (2002) and Gorton (1999), and it is expected to have a negative relationship with the independent variables; otherwise, agency problems exist in the SACCO.

**Operating expenses, OPEX:** This variable was measured as a ratio of the assets and has been used in similar studies, including Leggett et al. (2002) and Gorton et al. (1999). It is expected to have an inverse relationship with the independent variables unless there exist agency problems.

### **(c) Control Variables**

These are introduced for several reasons. First is get an understanding of the effects of prudential standards (i.e., core capital to assets; non-performing loans to gross loans ratio, and external borrowing to assets) on the agency-related costs. Being regulatory requirements, compliance with

these prudential standards constrains the discretion of the agents (board and management) in financial and operational decision making; hence influences the agency-related costs in the management of the SACCO.

Secondly is to understand the effect of inflation, a macro-economic factor on the agency related costs in a SACCO. In addition, the COVID-19 pandemic affected cost decision in businesses and economy at large. Thus it is worthy to understand how this impact on agency costs given the study period covers the 2020 and 2021 when the pandemic was at its peak. Thirdly is the question of gender of the CEO as women CEO are found to be more frugal in business costs.

The following is a discussion of the three control variables and how they affect the agency related costs.

**Core capital to assets, CCA:** This is measured as the core capital divided by the assets. Studies argue that retention of earnings to build capital is beneficial to the members, especially depositors, as it promotes the financial stability of the SACCO, ensuring the safety of deposits held. This is more so where there exists no deposit insurance for member deposits (Legget & Strand, 2002). Further, retention of earnings means free-floating cash for operational and capital expenditures in a SACCO. Thus the ratio of capital may encourage excessive spending and thus increased agency costs in a SACCO.

**Non-performing loans, NPL ratio:** This is a measure of asset quality considering that loans comprise a significant portion of the total assets in SACCOs. It is measured as the loan balances at year-end with arrears exceeding 30 days divided by the gross loans. The ratio indicates management efficiency in the SACCO business, hence the importance of assessing if there is any influence with the agency related costs.

**External borrowing to asset ratio:** This is yet another control variable, measured by dividing the outstanding borrowings by a SACCO with the total assets at year-end. Studies have argued that lenders can provide external monitoring to reduce agency costs (Ang, Cole, & Lin, 2000). Thus, this variable is expected to have an inverse relationship with the agency costs.

Other variables included in the conceptualization owing to their envisaged association with ARCs include the CEO gender (Lamberte et al., 2003; Lamberte et al., 2009), inflation and the effects of the Covid Pandemic (Ndirangu, 2020).



## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

This chapter outlines the research methodology that was adopted in this study and includes matters related to research design, philosophy, data and data source, analysis techniques and procedures.

### **3.2 Research Philosophy**

Research philosophy is the underlying belief held by a researcher on the way data for a study should be collected, analyzed and applied (Creswell, 2009). The study utilized an ontological approach to measure the reality under focus which exists in the objective world as explained by Crotty (1998). The main research construct of interest relates to cooperative expenditure, which is an objectively measured variable. The primary variable of interest exists independent of individual consciousness (realism) and is a product of three specific constructs which are also objectively measurable: board, personnel and other operating expenses (Burrell and Morgan, 1979; Crotty, 1998).

As a result, the phenomenon being examined exists in the objective reality and thus a positivist research paradigm vide ontological lens was adopted. A positivist research philosophy was applied in this study as it aims to employ quantitative analysis to logically and objectively explain the research questions. Further, secondary data were applied in investigating the relationship between variables discussed in the conceptual framework. Thus, the study is based on quantifiable observations that lend themselves to statistical analysis, thus enhancing objectivity (Saunders, Lewis, & Thornbil, 2009).

Following the research questions and conceptual framework proposed, the study lends itself to a deductive strategy. The approach adopted enhances the independence of the researcher in examining the phenomenon under inquiry. A deductive inquiry was adopted in this study since the general perspective of things (i.e., the theories on agency related expenditure, size and outreach) already exist and that hypotheses were developed and data gathered to test the hypotheses and then infer as to whether the findings are in support of the theories or not. To achieve this, a quantitative approach was adopted using a mono-method data collection approach from primarily secondary sources.

### **3.3 Research Design**

The proposed study entails examining agency-related costs of multiple entities over several periods; thus, a descriptive research design using panel data of a target of 176 DT SACCOs over the period 2014-2021 over the period was adopted. Gujarati (2003, pp. 638-640) argued that the combination of time series with cross-section can enhance the quality and quantity of data in ways that would not be achieved with the use of time series or cross-section research designs only. Panel data design was particularly chosen, since it is more efficient, and given its ability to deal with individual and observable heterogeneity, which is present across the different DT SACCOs in the study. A descriptive research design with inferential approach ensures that the results are examined from various facets, and conclusions based on a variety of approaches. This ensures that the findings are robust and comprehensively investigated.

### **3.4 Population and Sample**

The target population is all the 176 DT SACCOs licensed and regulated by SASRA over the period 2014 to 2021. The choice of the 176 SACCOs regulated by SASRA as of 2020 is informed by the following considerations: The year 2014 marked the end of the transition period; hence the 174 SACCOs provided complete data from a standard regulatory reporting form, especially for the dependent variables of interest in this study. Further post-2014, the SACCOs were required to obtain approval for the opening of new premises of business such as branches, providing data on the number of branches, a measure of outreach as well size of a SACCO, which is used as an independent variable in this study. This presents a unique setting to examine whether size and outreach influence ARCs in DT SACCOs in Kenya.

The 176 SACCOs are relatively large in terms of assets, membership and even branch network underscoring the operational complexity, which demands that professional managers are hired to work under the oversight of the board for business decisions. This is because they control approximately 80 percent of the sector in terms of assets (SASRA, 2021). This potentially increases the agent-principal problems, the subject of study in this research. The use of all the licensed SACCOs allows the research to examine the behaviour of the entire deposit-taking Sacco market and across different asset sizes of SACCOs.

### 3.5 Data Collection Methods

The researcher used secondary data from the audited financial statements and license application forms. Both documents are mandatory requirements in sections 24 and 41 of the Sacco Societies Act of 2008 (Government of Kenya, 2008). The annual renewal of licenses as provided for in regulation 5 of the Sacco Societies (deposit-taking business) Regulations of 2010 (Government of Kenya, 2010). These being statutory returns, this means that they are available from SASRA for academic research upon formal request. Similar studies have relied on the data from regulatory returns filed with regulators (Njenga, 2012; Legget & Strand, 2002). The use of data from the regulatory returns filed with the regulator enhances efficiency, given the number of entities and limited time available for the study. It also yields a rich data set for robust analyses, interpretation and inferences.

### 3.6 Data Analysis and Presentation

#### 3.6.1 Empirical Model

This is the entire process that entails organizing, processing raw data and interpreting the raw data using statistical applications. To examine the influence of SACCO size and outreach related factors on the agency related costs in DT SACCOs in Kenya, panel data analysis and regression analysis was employed. Two types of multiple regressions were run with the dependent variables measuring the agency related costs (Legget & Strand, 2002; Njenga, 2012). The two included the panel ordinary least squares (PLS) and the generalized method of moments (GMM). The two were selected to confirm the consistency and significance of the coefficients of the variables under investigation. The 2-step GMM model, developed by Holtz-Eakin, Newey, and Rosen (1988) was utilized since it works well with small samples with large panels. It also takes care of the potential endogeneity that might be present in the variables. In this study, the ARC could be correlated with SACCO size and vice versa. To take care of this possibility, the GMM was utilized, and this is consistent with studies such as van Rijn et al. (2022). The overall model utilized was as follows:

$$ARC_{it} = \beta_0 + \beta_1 \ln TA_{it} + \beta_2 Large\_Peer_i + \beta_3 Medium\_Peer_i + \beta_4 Small\_Peer_i + \beta_5 \ln Members_{it} + \beta_6 No\_Offices_i + \beta_7 CCA_{it} + \beta_8 NPLs_{it} + \beta_9 Ext\_Borrow_{it} + \beta_{10} CEO\_Gender_{it} + \beta_{11} Covid_t + \beta_{12} Inflation_t + \mu_i + \lambda_t + \varepsilon_i$$

Where:

- $ARC_{AA}$  = are agency-related costs of Sacco  $i$  in time  $t$ , and is measured by the ratio:  $(BE+PE+OpEx)/Average\ assets$
- Where;
  - $BE$  is Board Expenses = Board members' emoluments plus training costs
  - $PE$  is Personnel Expenses = Staff salaries and other benefits
  - $OpEx$  is Operating Expenses = Operating expenses
- Average assets =  $(Asset\ value\ at\ the\ end\ of\ previous\ year + Asset\ value\ at\ end\ of\ succeeding\ year)/2$
- $lnTA$  = natural logarithm of total assets of SACCO  $i$  in time  $t$ .
- $Large\_Peer$  = 1 if the SACCO asset base exceeds Kshs. 5 billion, and 0 if otherwise.
- $Medium\_Peer$  = 1 if the SACCO asset base is between Kshs. 1 and 5 billion, and 0 if otherwise.
- $Small\_Peer$  = 1 if the SACCO asset base is less than Kshs. 1 billion, and 0 if otherwise.
- $lnMembers$  = natural logarithm of members of SACCO  $i$  in time  $t$ .
- $No\_Offices$  = number of branch offices the SACCO has at the end of the year.
- $CCA$  = Core Capital to Assets of SACCO  $i$  in time  $t$  = Core capital at year end/Total Assets at year end.
- $NPLs$  Asset quality as measured by non-performing loans ratio in SACCO  $i$  in time  $t$  = Loan balances at year end with arrears exceeding 30 days/Gross Loans.
- $Ext\_Borrow$  = External Borrowings to assets ratio in SACCO  $i$  in time  $t$  = Balance of external loans at year/ Total Assets at year end.
- $CEO\_Gender$  = 1 if the CEO is female and 0 if male/otherwise.
- $Covid$  = 1 during the Covid-19 period (2020-onwards), and 0 for periods before 2020
- $Inflation$  = the CPI inflation rate at the end of the year.

$\mu_i$ ,  $\lambda_t$  and  $\varepsilon_i$  represent cross section, Sacco year controls and the error term, respectively.

In testing the influence of the independent variables on the agency related costs, regressions were run with and without the control variables to establish if there are any differences in the explanatory power of the model. Table 2.2 provided the variable definition and measurements thereto including where possible comparable studies that have applied such variables.

### **3.6.2 Model Diagnostic Tests**

Cooper and Schindler (2011) suggest that a good measurement tool is one that passes tests on validity, reliability and practicability. The discussion below is on various tests to ensure the quality of the regression model to be used in this study.

#### **(a) Multi-Collinearity**

In multiple regression, multi-collinearity exists where two or more of the explanatory variables in a model are highly correlated (linearly related). Presence of multi-collinearity means that the statistical inferences about the data may not be reliable (Gujarati & Porter, 2010). In this regard, it is desirable that the independent variables and the control variables are not correlated so as to maintain the explanatory capability of the model proposed. The study applied the variance inflation factor in assessing the tolerance levels of multi-collinearity in the model. The variance inflation factors were used to check for multicollinearity, with the threshold applied being any VIFs between 5-10 (Hair et al., 2006).

#### **(b) Heteroscedasticity**

An important assumption in the linear analysis is that the disturbances or error terms have constant variance, i.e, homoscedastic. Where the variance varies from one observation to another, then this situation is said to have non-constant variance, i.e, condition of heteroscedasticity exists. However, researchers observe that heteroscedasticity is to be found in cross-sectional data and not time series data due, for instance, to scale effects (White, 1980; Gujarati, 2010, pp. 275-277). The Breusch-Pagan test and the residuals plot were used to check for heteroscedasticity.

#### **(c) Autocorrelation**

This is also known as serial correlation and exists when a set of data is correlated with itself. While autocorrelation is associated with time series data, it can also occur in cross-sectional data in which case it is referred to as spatial correlation (and not serial correlation). Autocorrelation implies a degree of similarity between a given time series and its lag over a given period of time, a common feature in economic time series. Variables are said to be independent of each other if they have an autocorrelation value of zero. The researcher intends to use the Spearman Test in testing for

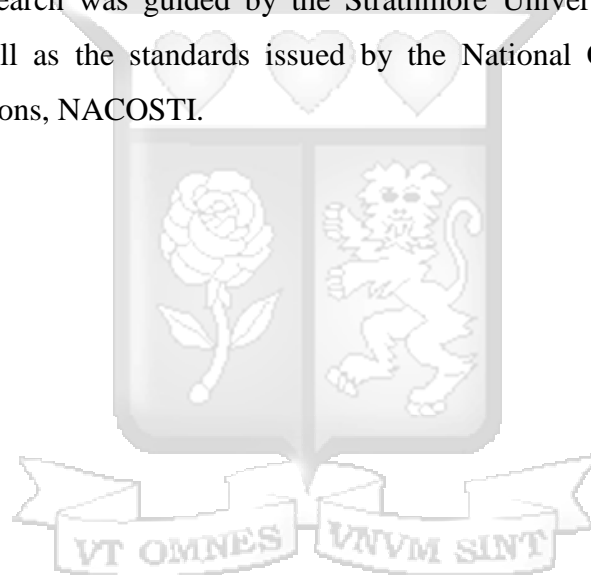
autocorrelation in the regression model because of inclusion of ordinal variables. The researcher used the Durbin-Watson Test in testing for autocorrelation in the regression model.

#### **(d) Normality**

The assumption of a normal distribution of the data set under study is central to statistical inferences. Thus, performing normality tests become critical, and in this study, several tests are proposed, namely the Kurtosis test to assess for flatness and the Skewness tests to measure symmetry about the mean.

### **3.7 Ethical Issues in Research**

The conduct of this research was guided by the Strathmore University ethical standards for graduate students as well as the standards issued by the National Commission for Science, Technology and Innovations, NACOSTI.



## CHAPTER FOUR: DATA ANALYSIS AND FINDINGS

### 4.1 Introduction

The purpose of the study was to examine the influence of size and outreach factors on agency related costs in the management of the deposit taking SACCOs in Kenya. This chapter presents the findings of the analyses done on data derived from annual financial reports of deposit taking SACCOs over the period 2014 to 2021. The chapter begins with a description of the sample utilized and its characteristics. A univariate analysis of the dependent variable of interest, ARCs is performed, over the period under study as well as across the SACCO categories from large to small peer group SACCOs. Next, a set of diagnostic tests are performed to check on the analytical methods to employ in the analyses. Bivariate analyses are also performed using the spearman's correlation coefficients. Finally, multivariate analyses are performed using both the panel Ordinary Least Square, OLS and generalized method of moments, GMM approaches to ensure robustness of the findings.

### 4.2 Sample Representation

The study targeted a census of 176 DT SACCOs licensed and regulated by SASRA over the study period 2014 to 2021 (SASRA, 2021). The final sample comprises of 160 DT SACCOs over the period 2014-2021. This constitutes 90.9 percent of the overall sample. The total number of SACCO-year observations were 1,280, and this constitutes a balanced panel with each DT SACCO having an eight-year dataset. All the DT SACCOs were spread across Kenya and are appended at the end of this dissertation. This final sample accounts for total asset value of Kshs. 653,878.38 million and total members of 4,979,342.00. This represents 94.6 percent of the total value of assets held by all DT SACCOs as of 2021 and 89.9 percent of all DT SACCO members as of 2021, respectively as per the SASRA 2021 annual SACCO supervision report. Table 4.1 presents a summary of the final sample size, broken into the three peer groupings as per SASRA's classification.

**Table 4.1: Sample Representation**

Peer group	Criteria	No. of Saccos*	No. of firm-year observations
	Total DT Saccos represented	160	1,280
1	Total > or equal to Kshs. 5 billion	36	188
2	Total assets > Kshs. 1 billion but < 5 billion	74	434
3	Total assets < or equal to Kshs. 1 billion	96	658
	<b>Total</b>	<b>206</b>	<b>1,280</b>

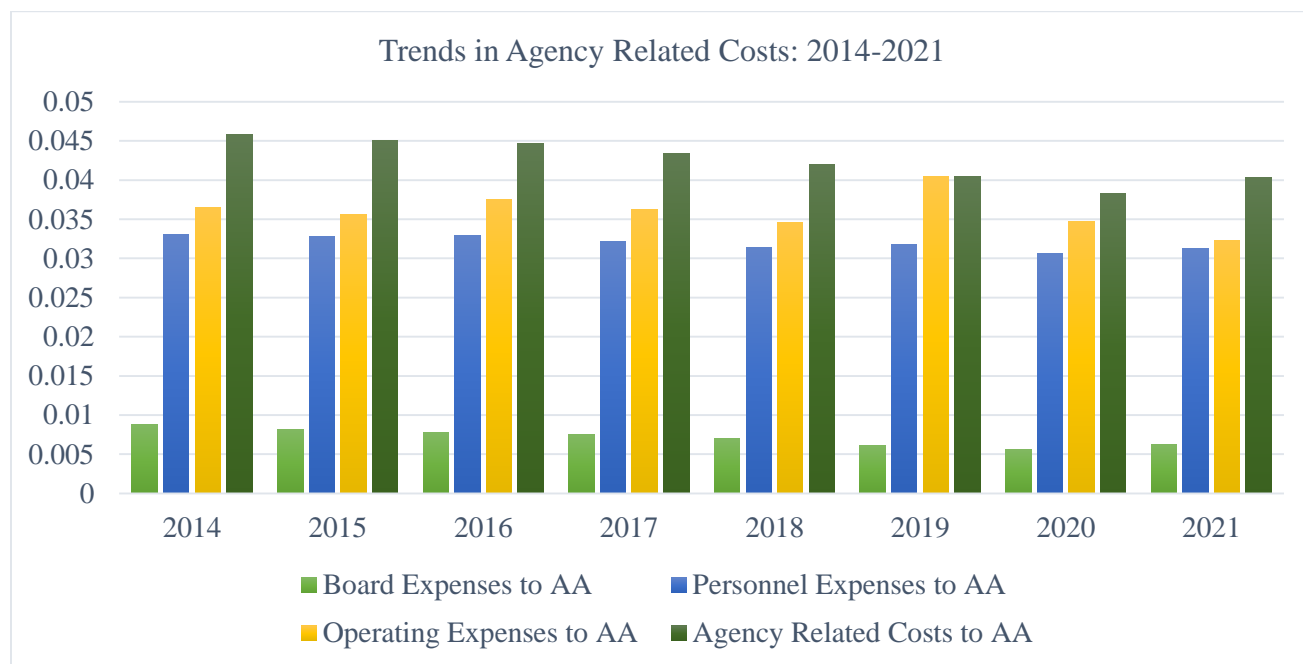
\*The total number of Saccos is 160. The variance between the Saccos in this table (206) and the total Saccos in the final sample (160) is due to Saccos shifting their asset base across the 3 peer groups over the 2014-2021 period.

### 4.3 Trend Analysis

To address the first objective of the study, this section reports trends in the dependent variable of interest, the *ARC\_AA* over the period 2014 to 2021. Figure 4.1 presents the trends in the various components of the ARC as categorised under board (governance), personnel and other operating costs. In all cases, the expenses are scaled by the average assets. Thus, the ratios depict the operating efficiency and the operating strategy of the DT SACCOs in the sample over the period 2014-2021. Since expense management is critical to ensure the SACCO's self-sufficiency, competitiveness and provide value for its members, the expense efficiency ratios are useful in assessing this aspect in SACCOs. Ordinarily, a larger balance sheet (in terms of asset value) should be a result of large operations (largely scale of operations) and this requires greater resources. Normally, the expense ratio scaled by average assets ranges between 2 to 5 percent of the average assets (Callahan & Associates, 2022).

According to the results, the board expenses seem to be the lowest of the three categories of expenses (range: 0.0056 to 0.0088 of average assets) with other operating expenses being the highest (range: 0.0323 to 0.0405 of average assets). This is expected since the DT SACCOs need to deploy resource to run their daily affairs. Board expenses are incurred especially when boards meet, whether in the general meetings or committee meetings and when some honorarium is declared and approved by the members at the annual general meeting, AGM. Interestingly, the personnel expenses also seem higher at the range of 0.0306 and 0.0330 of the average assets. Overall, the ARC ranges 0.0458 and 0.0383 of the average assets, and this is well within the safer

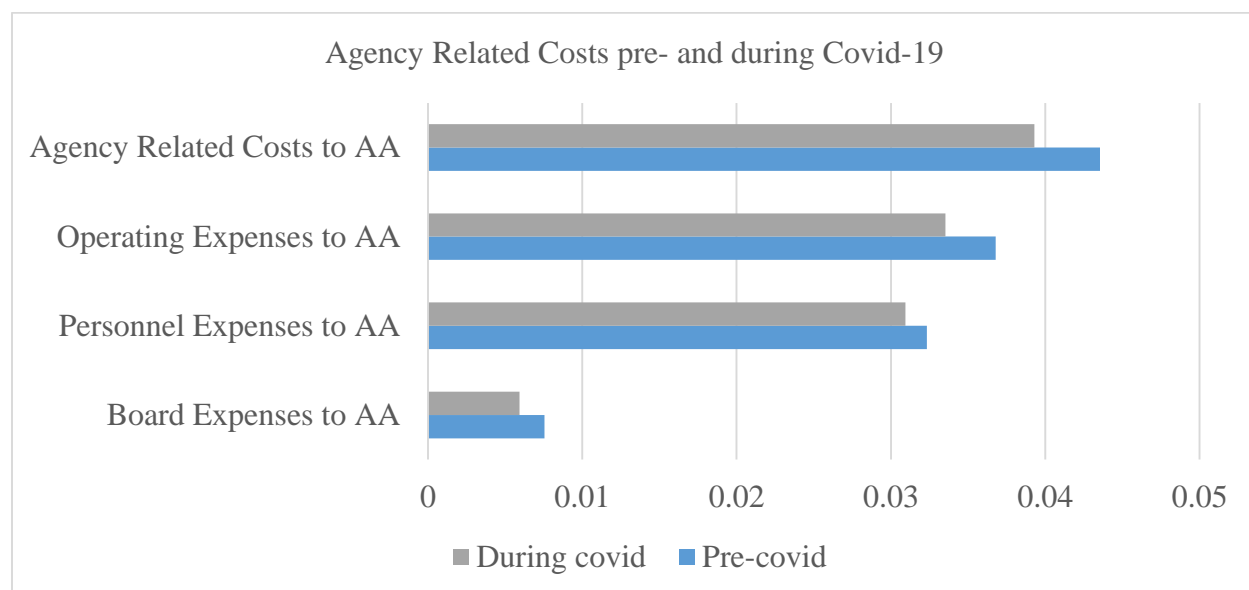
range of 0.02 to 0.05 of the average assets. It is also interesting to note that the expenses, both board, personnel and other operating expenses depict a downward trend from 2014 to 2021. This might be due to two reasons: either as a demonstration of improving expense efficiency over time as the DT SACCOs grow their asset base (the economies of scale hypothesis) or it is as a result of the global COVID-19 pandemic which led to SACCOs cutting on their expenditure among other macro-economic pressures. This could include the exit of some members following reduced earnings occasioned by the difficult macro-economic environment among other reasons.



**Figure 4.1: Trends in agency costs over 2014-2021 period**

In Figure 4.2, the trend in ARC is further depicted, considering the global Covid-19 pandemic. Since the onset of the Covid pandemic, SACCOs have had to engage in extensive expenditure management strategies to preserve cashflow as much as possible. This led to a reduction in board expenses, since board members could meet remotely compared to before when they would meet face to face. Further, employees could also work remotely, hence saving on some expenses incurred by employees at their workstations. Further, some operating costs might have been saved following the onset of the pandemic (Ndirangu, 2020). According to the results in Figure 4.2, all the three expenses were relatively higher in the pre-covid period (2014-2019) compared to the period during the pandemic (2020-2021). It seems that the largest drop was with regard to the other operating expenses, as expected, followed by board expenses. Overall, the results show that the

average ARC dropped from 0.044 in the pre-Covid period to 0.039 in the period during the pandemic. This might have been a deliberate strategy by the SACCO management to prioritise expenditure management and preserve cashflow to take care of any eventuality occasioned by the pandemic.



**Figure 4.2: Expenditure Pre and During Covid-19**

Table 4.2 shows the t-test for differences in the means of the expense type in the pre and during the pandemic. Except for the personnel expenses, it appears that the differences in the other categories of expenses was statistically different in the pre- and during the pandemic. This implies that the pandemic has had a significant impact on the expenditure behaviour of DT SACCOs. This means that SACCOs should continually manage their expenses until such a time when the risk posed by the Covid-19 pandemic subsides. With the reduced cases of Covid-19, SACCOs should continue with a cautious strategy in expense management to help deal with any unforeseen future shocks in the operating environment.

**Table 4.2 Difference in Means between Pre- and During Covid-19**

Variable	Period	N	Mean	StDev	t-statistic	p-value
<i>Board_AA</i>	Pre-Covid	960	0.0076	0.0126	3.37	0.001
	During-Covid	320	0.0059	0.0047		
<i>Personnel_AA</i>	Pre-Covid	960	0.0323	0.0216	1.10	0.271
	During-Covid	320	0.0309	0.0189		
<i>Opex_AA</i>	Pre-Covid	960	0.0368	0.0299	1.77	0.076

Variable	Period	N	Mean	StDev	t-statistic	p-value
ARC_AA	During-Covid	320	0.0335	0.0279	2.82	0.005
	Pre-Covid	960	0.0436	0.0289		
	During-Covid	320	0.0393	0.0213		

#### 4.4 Descriptive Analysis

In this section, the descriptive (univariate) findings on the variables of interest are presented. The first part of the analyses focuses on a segmented analysis of the expenditure efficiency of the DT SACCOs as measured by the board, personnel and other operating expenses to average assets.

According to the results in Table 4.3, and consistent with earlier analyses, the mean (median) operating expenses to average assets is the highest at 0.023(0.19) for the large peer SACCOs. The maximum board expense to average asset ratio in the large peer SACCO category is 0.53 which is beyond the upper prescribed limit of 0.05. Interestingly, the thresholds for operating expenses reported by large peer SACCOs is way lower than those reported by the medium and small peer DT SACCOs. This points to a possible economies of scale theorem where, it appears that the larger DT SACCOs are enjoying scale advantages in their expense management. For instance, the small peer DT SACCOs report an average (median) operating cost to average asset ratio of 0.043(0.037) with the maximum ratio being 0.375.

In the case of ARC, the average (median) ARC to average assets ratio for large peer DT SACCOs is 0.025(0.022) with the maximum value being 0.47. In the case of small peer DT SACCOs, the mean (median) ARC to average assets is 0.052(0.047) with the maximum ratio being 0.258. Again, this is beyond the prescribed maximum of 0.05. Interestingly, the maximum ratio of ARC to average assets for small peer DT SACCOs is lower than that of larger DT SACCOs. This might imply that despite the scale advantages larger peer DT SACCOs seem to be enjoying, their overall expense management and strategies need to be put to check and scrutiny. Overall, the results seem to depict that whereas larger DT SACCOs seem to be more expenditure efficient, smaller DT SACCOs seem to be experiences inefficiencies in their expenditure management. These results reveal some heterogeneity in expenditure management and highlight that there are some DT SACCOs that are expense-inefficient and need to contain their costs so as not to put the SACCO under with solvency or self-sufficiency risk.

**Table 4.3: Descriptive Statistics Per Peer Group**

<b>Category</b>	<b>Count</b>	<b>Mean</b>	<b>Median</b>	<b>St. Dev</b>	<b>Min.</b>	<b>Max.</b>
<i>Large_Peer SACCOs</i>						
<i>Board_Exp_AA</i>	188	0.004	0.003	0.007	0.000	0.092
<i>Personnel_AA</i>	188	0.019	0.015	0.024	0.005	0.337
<i>Opex_AA</i>	188	0.023	0.019	0.039	0.003	0.530
<i>ARC_AA</i>	188	0.025	0.022	0.034	0.010	0.470
<i>Medium_Peer SACCOs</i>						
<i>Board_Exp_AA</i>	434	0.005	0.004	0.003	0.000	0.026
<i>Personnel_AA</i>	434	0.027	0.024	0.015	0.001	0.093
<i>Opex_AA</i>	434	0.031	0.026	0.020	0.002	0.141
<i>ARC_AA</i>	434	0.035	0.032	0.017	0.005	0.100
<i>Small_Peer SACCOs</i>						
<i>Board_Exp_AA</i>	658	0.009	0.007	0.015	0.000	0.197
<i>Personnel_AA</i>	658	0.039	0.035	0.020	0.002	0.118
<i>Opex_AA</i>	658	0.043	0.037	0.030	0.001	0.375
<i>ARC_AA</i>	658	0.052	0.047	0.027	0.003	0.258

In Table 4.4 the results of the descriptive analyses of all the variables in the study is presented. According to the results, and consistent with earlier analyses, the mean (median) ARC to average assets ratio is 0.042(0.037) with the maximum value being 0.47. This is beyond the prescribed maximum of 0.05 (Cahan and Associates, 2022). These results highlight that there are some DT SACCOs that are expense-inefficient and need to contain their costs so as not to put the SACCO under with solvency or self-sufficiency risk. In the case of the other variables, the mean(median) total assets of the SACCOs in the sample is Kshs. 2,868.32 million (Kshs. 942.33 million) with a typical DT SACCO having 30,000 members on average. This demonstrates the relatively large scope of operation DT SACCOs in Kenya have since, the largest SACCO in the sample has a maximum of 215,781 members. In such SACCOs, the delegate system of governance is inherent, and this could come with some potential cost savings compared to inviting all the 215,781 members in one annual general meeting. The larger SACCOs have also embraced information systems which help bring in some efficiencies in operations and save some costs, and advantage which may not be with the smaller SACCOs.

The results reveal that 14.7 percent of the sampled SACCOs are in the large peer group, 33.9 percent in the medium peer group and 51.4 percent (the majority) in the small peer group. A typical DT SACCO in the sample seems to have 2 branch offices with the maximum being 18 office locations. The average (median) core capital to assets ratio for the sampled SACCOs is 0.18(0.164) which is above the regulatory minimum of 10 percent (Government of Kenya, 2008; 2010). It appears that the average asset quality (0.091) of the DT SACCOs is above the acceptable threshold of 5 percent. This indicate the higher levels of defaults that are evident in DT SACCOs, given the diversity in large membership and the opening of the common bond (multiple common bond) as argued earlier. The descriptive statistics show that the level of external borrowing by SACCOs is relatively lower (0.056) in an environment with the average inflation rate at 6.2 percent. The maximum external borrowing ratio is 0.595 which depicts a high appetite for debt within some of the SACCOs in Kenya. The maximum allowed by the regulations is 25 percent of the assets (Government of Kenya, 2010). Finally, it is interesting and encouraging to note that 21.3 percent of the sampled SACCOs are headed by a woman CEO, which is a positive step towards having more women representation in SACCO management and leadership.

**Table 4.4: Descriptive statistics**

<b>Variable</b>	<b>N</b>	<b>Mean</b>	<b>Median</b>	<b>St. Dev.</b>	<b>Min.</b>	<b>Max.</b>
<i>Dependent variable</i>						
ARC_AA	1,280	0.042	0.037	0.027	0.003	0.470
<i>Independent variables (test)</i>						
<i>a. Size variables</i>						
lnTA	1,280	20.657	20.664	1.521	17.159	24.828
Large_Peer	1,280	0.147	0.000	0.354	0.000	1.000
Medium_Peer	1,280	0.339	0.000	0.474	0.000	1.000
Small_Peer	1,280	0.514	1.000	0.500	0.000	1.000
lnMembers	1,280	9.176	9.121	1.370	5.844	12.282
<i>b. Outreach variable</i>						
No_Offices	1,280	2.801	1.000	3.772	0.000	18.000
<i>Control variables</i>						
CCA	1,280	0.180	0.164	0.085	0.003	0.608
NPLs	1,280	0.091	0.039	0.149	0.000	0.981
Ext_Borrow	1,280	0.056	0.017	0.083	0.000	0.595
CEO_Gender	1,280	0.213	0.000	0.409	0.000	1.000
Covid	1,280	0.250	0.000	0.433	0.000	1.000
Inflation	1,280	0.062	0.062	0.010	0.047	0.080
<i>Other variables</i>						
Total assets (Kshs. 'm)	1,280	2,868.32	942.33	5,872.48	28.32	60,603.14

Variable	N	Mean	Median	St. Dev.	Min.	Max.
Total members	1,280	22,999.95	9,147.00	33,666.32	345.00	215,781.00
Total expenses (Kshs. 'm)	1,280	139.31	59.97	238.28	0.34	2,512.14

#### 4.5 Correlation Analysis

Correlation analysis was performed to establish the associations among the variables of interest in the study. Given the combination of both discrete binary (e.g., CEO gender and COVID-19 dummies) and continuous variables, the Spearman correlation coefficients were utilized since they are applicable to both data types. Table 4.5 reports the results of the Spearman correlation coefficients and their significance. According to the results, the ARC is negatively and significantly associated with the size variables, *lnTA* (-0.521), *Large\_Peer* (-0.393) and *Medium\_Peer* (-0.200) at the 1 percent level. This association could point to potential scale advantages that arise in relatively larger DT SACCOs compared to the smaller peer SACCOs. It is interesting to note that the coefficient on the *Large\_Peer* variable is a larger negative compared to *Medium\_Peer*. In confirmation of this proposition, the coefficient (0.468) on the *Small\_Peer* is positive and highly significant at the 1 percent level. These preliminary findings point to potential differential size influences on ARCs.

In relation to the outreach variable, the results show that the coefficient on *No\_Offices* (0.098) is positive and highly significant at the 1 percent level. This suggests that DT SACCOs with more offices tend to be associated with higher ARCs. This holds true given that the more offices the SACCOs has, the higher the operating costs to keep these offices running. But it is also expected that the larger number of branch offices provide a better outreach to recruit more members and hence grow deposits to fund assets. This result suggest that SACCOs should always exercise caution to avoid uncontrolled expansion since this leads to increase in operating costs which might put a strain on the SACCO's cashflows.

The results further show a positive and significant coefficient between ARC and *Ext\_Borrow* (0.099). this implies that SACCOs with higher ARCs tend to engage in more borrowing, possibly to cover some of their operational needs. Next, the results show that the coefficient (0.078) on CEO gender is significant and positively associated with ARCs at the 1 percent level. This might imply that higher ARCs for SACCOs managed by female CEOs and those that are not, which is an interesting finding. Finally, it appears that the COVID-pandemic might have compelled DT

SACCOs to manage their costs given the negative and significant coefficient (-0.063) with ARC at the 5 percent level. Overall, the correlation coefficients point to possible associations between ARC and the selected variables, and a further multivariate analysis is performed to establish the nature of the association. The variance inflation factors (VIFs) and tolerance (1/VIF) are also reported beneath the correlation coefficients. According to the VIFs, the highest VIF is 6.48, which is below 10 as per Hair et al. (2006). This implies that multicollinearity was not a problem among the independent variables.



Table 4.5: Spearman's Correlations

Variable	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
1. ARC	1.000												
2. lnTA	<b>-0.521</b>	1.000											
<i>p-value</i>	0.00												
3. Large_Peer	<b>-0.393</b>	<b>0.613</b>	1.000										
<i>p-value</i>	0.00	0.00											
4. Medium_Peer	<b>-0.200</b>	<b>0.456</b>	<b>-0.297</b>	1.000									
<i>p-value</i>	0.00	0.00	0.00										
5. Small_Peer	<b>0.468</b>	<b>-0.866</b>	<b>-0.427</b>	<b>-0.737</b>	1.000								
<i>p-value</i>	0.00	0.00	0.00	0.00									
6. lnMembers	0.045	<b>0.651</b>	<b>0.399</b>	<b>0.292</b>	<b>-0.559</b>	1.000							
<i>p-value</i>	0.11	0.00	0.00	0.00	0.00								
7. No_Offices	<b>0.098</b>	<b>0.430</b>	<b>0.280</b>	<b>0.163</b>	<b>-0.352</b>	<b>0.675</b>	1.000						
<i>p-value</i>	0.00	0.00	0.00	0.00	0.00	0.00							
8. CCA	<b>0.273</b>	<b>-0.250</b>	<b>-0.094</b>	<b>-0.151</b>	<b>0.210</b>	0.049	-0.019	1.000					
<i>p-value</i>	0.00	0.00	0.00	0.00	0.00	0.08	0.50						
9. NPLs	<b>0.105</b>	0.023	0.031	-0.035	0.011	<b>0.205</b>	0.065	<b>0.198</b>	1.000				
<i>p-value</i>	0.00	0.40	0.26	0.21	0.69	0.00	0.02	0.00					
10. Ext_Borrow	<b>0.099</b>	<b>-0.099</b>	-0.055	<b>-0.090</b>	<b>0.125</b>	-0.048	<b>0.070</b>	<b>-0.238</b>	<b>-0.074</b>	1.000			
<i>p-value</i>	0.00	0.00	0.05	0.00	0.00	0.09	0.01	0.00	0.01				
11. CEO_Gender	<b>0.078</b>	<b>-0.112</b>	<b>-0.081</b>	-0.045	<b>0.100</b>	-0.024	<b>0.085</b>	0.042	0.007	<b>-0.105</b>	1.000		
<i>p-value</i>	0.01	0.00	0.00	0.11	0.00	0.39	0.00	0.14	0.80	0.00			
12. Covid	-0.063	<b>0.105</b>	<b>0.107</b>	-0.025	-0.052	<b>0.110</b>	0.007	<b>0.186</b>	<b>0.284</b>	<b>-0.133</b>	0.004	1.000	
<i>p-value</i>	0.02	0.00	0.00	0.38	0.06	0.00	0.80	0.00	0.00	0.00	0.87		
13. Inflation	0.041	<b>-0.097</b>	<b>-0.096</b>	0.010	0.059	<b>-0.100</b>	0.000	<b>-0.171</b>	<b>-0.379</b>	<b>0.111</b>	-0.003	<b>-0.252</b>	1.000
<i>p-value</i>	0.15	0.00	0.00	0.72	0.04	0.00	0.99	0.00	0.00	0.00	0.91	0.00	
<i>Collinearity statistics</i>													
VIF	na	6.48	4.78	3.26	3.63	2.55	1.66	1.31	1.12	1.12	1.04	1.13	1.10
1/VIF	na	0.15	0.21	0.31	0.28	0.39	0.60	0.76	0.89	0.89	0.96	0.89	0.91

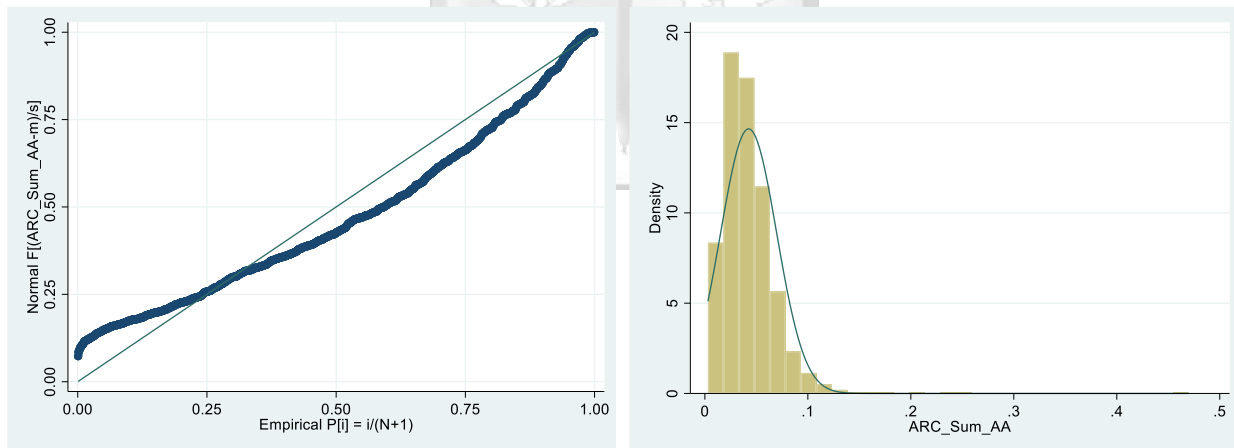
Note: The coefficients in bold are significant at the 1 percent level.

## 4.6 Diagnostic Analysis

This section contains diagnostic tests conducted before running the multivariate regression analyses. The diagnostic tests which were performed include normality tests, multicollinearity, heteroscedasticity, and instrumental variable over-identification tests

### 4.6.1 Test for Normality

Figure 4.3 shows the normal probability plot and histogram for the dependent variable *ARC\_AA*. According to the probability plot, the pattern on the *ARC\_AA* variable seems relatively aligned to the vertical line, although not perfectly in line with it. This means that the variable *ARC\_AA* was relatively normal, although not very perfect. The histogram shows similar result, although it appears as though the *ARC\_AA* is skewed to the left and relatively mesokurtic. Overall, it appears that the *ARC\_AA* variable was relatively normally distributed, since obtaining a perfectly normally distributed dependent variable is often difficult. The reported skewness was 4.5 with a kurtosis of 13.191 which is consistent with the earlier explanation as to the normality of the dependent variable, *ARC\_AA*.



**Figure 4.3: Probability plot and histogram for dependent variable**

### 4.6.2 Multicollinearity test

In this section, a test as to whether the independent variables were perfectly collinear is performed. To formally test this phenomenon, multicollinearity, the variance inflation factors (VIFs) were utilised. A VIF measures the variance of estimated regression coefficients owing to increased collinearity (Hair et al., 2006). According to the results in Table 4.6, the highest VIF was on *lnTA*

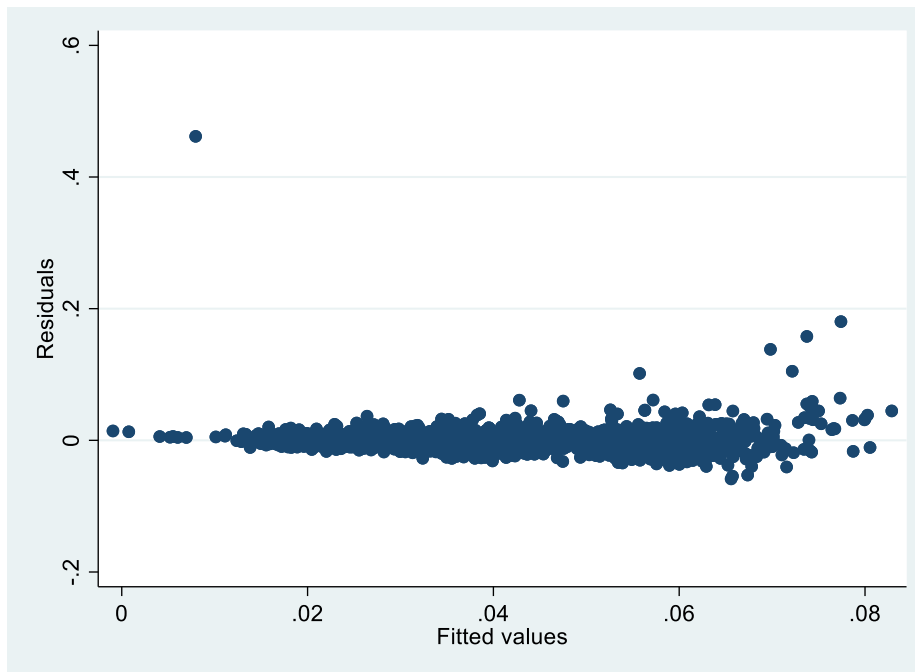
(6.48) with a tolerance (1/VIF) of 0.15 which is less than 10 and greater than 0.2 respectively. This implies that multicollinearity was not a major problem among the identified independent variables.

**Table 4.6: Variance Inflation Factors**

<b>Variable</b>	<b>VIF</b>	<b>1/VIF</b>
<i>lnTA</i>	6.48	0.15
<i>Large_Peer</i>	4.78	0.21
<i>Small_Peer</i>	3.63	0.28
<i>Medium_Peer</i>	3.26	0.31
<i>lnMembers</i>	2.55	0.39
<i>No_Offices</i>	1.66	0.60
<i>CCA</i>	1.31	0.76
<i>Covid</i>	1.13	0.89
<i>ExtBorrow</i>	1.12	0.89
<i>NPLs</i>	1.12	0.89
<i>Inflation</i>	1.10	0.91
<i>CEO_Gender</i>	1.04	0.96
Mean VIF	2.32	

### **4.6.3 Heteroscedasticity test**

Next, a test was performed for heteroskedasticity. Heteroscedasticity arises when the variance of the residuals is not equal over a range of values (White, 1980). Ordinarily, a regression analysis should produce residuals in an unequal nature on the scatterplot. In this study, heteroscedasticity was measured using the residuals plot and the Breusch-Pagan test. The residuals plot depicted on Figure 4.4 shows that the residuals are scattered unevenly on the scatter plot, denoting heteroscedasticity in the regression models.



**Figure 4.4: Residuals Plot**

Further, the Breusch-Pagan test in Table 4.7 returned a highly significant  $\chi^2$  coefficient for all the models utilised ( $p$ -value < 0.01). This implies that the null hypothesis of homoscedasticity was rejected and the residuals are treated as heteroscedastic.

**Table 4.7: Breusch-Pagan Test for Heteroskedasticity**

Dependent variable	ARC_AA		
Regression Type	Model No.	Breusch-Pagan Test	Probability (Breusch-Pagan $\chi^2$ )
OLS - Size	[1]	26.25	0.00
OLS - Size	[3]	11.05	0.00
OLS - Size	[5]	63.64	0.00
OLS - Size	[7]	26.91	0.00
OLS - Size	[9]	25.56	0.00
OLS-Outreach	[1]	18.92	0.00

#### 4.6.4 Test for Over-identification of Instrumental Variables

Since a 2-step generalized method of moments (GMM) with instrumental variables was utilised, a test was performed to check whether the instrumental variables were over-identified. To achieve this, the Sargan-Hansen's J test was performed, which is used to test for over-identification

restrictions in an instrumental variables' regression such as the GMM (Sargan, 1958). The test was based on the null hypothesis that the over-identification restrictions were valid and the Sargan-Hansens Chi<sup>2</sup> statistic is asymptotically distributed. According to the results on table 4.8, the Sargan-Hansen's J statistic is not significant at the 5 percent levels across the various 2-step GMM models with instrumental variables. This implies that the models are not mis specified since the instruments are not over-identified. In this case, the null hypothesis is rejected in favour of the alternate hypothesis.

**Table 4.8: Sargan-Hansens J Test**

Dependent variable Regression Type	ARC_AA		
	Model No.	Hansen's J Chi <sup>2</sup>	Probability (Hansen's J)
2-step GMM - Size	[2]	4.82	0.09
2-step GMM - Size	[4]	6.13	0.05
2-step GMM - Size	[6]	0.83	0.66
2-step GMM - Size	[8]	1.94	0.38
2-step GMM - Size	[10]	2.26	0.32
GMM-Outreach	[2]	1.10	0.58

#### 4.7 Multiple regression results

Following the inferential, correlational, and diagnostic tests performed earlier, multivariate analyses were also performed to establish how the dependent variable, *ARC\_AA* associated with the set of independent variables highlighted in previous sections. This was necessary to confirm whether the preliminary observations made in the earlier analyses are robust and hold when more than one variable is considered. The multiple regression analyses are reported using two models, the panel OLS and the 2-step GMM models. This is informed by the need to check the robustness of the results in terms of consistency and significance.

The 2-step GMM is also useful since it controls for the endogeneity, correlation, fixed effects, heteroscedasticity and autocorrelation within the individual observations (Blundell and Bond, 1998). According to Blundell and Bond, the GMM estimator holds if there is absence of serial correlation and the instruments are sufficient and correctly identified (Blundell and Bond, 2000). This is the reason the Sargan-Hansen's J test was performed earlier, and it was found that the instruments are valid and not over-identified. This approach is consistent with van Rijn et al.

(2022) when examining whether credit unions have dissimilar objectives from an executive compensation perspective. Consistent with van Rijn et al. (2022), the robustness of the results is assured since the models contain potentially endogenous independent and control variables such as size and include a variable measuring post-COVID-19 period and caters for the linearity or non-linearity among the variables.

#### 4.7.1 Agency Related Costs and SACCO Size Factors

To address the second objective of the study, multivariate analyses using both panel OLS and 2-step GMM models were performed to establish the influence of size factors on ARCs in the management of DT SACCOs in Kenya. Table 4.9 reports the results of the multiple regressions on the influence of SACCO size on ARCs. The OLS results report a highly significant and negative coefficient on the *lnTA* variable at the 1 percent level (coefficient = -0.006, t-value = -10.35). However, the coefficient on the GMM model is not significant. This provides limited evidence that larger DT SACCOs are associated with economies of scale, and therefore reduced ARCs. Next, the results show mixed findings with regard to the *Large\_Peer* DT SACCOs. Whereas the coefficient on the OLS model is negative and highly significant at the 1 percent level, the GMM coefficient is positive and significant at the 5 per cent level. This points to possible heterogeneity in larger DT SACCOs expenditure management, with some benefitting from the scale advantages they possess, and others experiencing scale disadvantages.

In the case of Medium-Peer DT SACCOs, the coefficients for both OLS and GMM results are consistent, negative and highly significant at the 1 percent level ([coefficient = -0.010, t-value = -6.36], [coefficient = -0.037, z-value = -3.06], respectively). This provides convincing evidence that medium peer DT SACCOs seem to benefit from scale advantages and therefore incur relatively lower ARCs compared to the larger and smaller DT SACCOs. This finding is in support of the economies of scale theory and the fact that relatively larger DT SACCOs are likely to benefit in terms of expenditure management. With a cautious expense management strategy, larger SACCOs are likely to fully realize the scale benefits that comes with growth. Consistent with the findings on the large peer group (but in the inverse), the results reveal mixed findings on small peer DT SACCOs. Whereas the OLS results reveal a negative and highly significant coefficient at the 1 percent level, the GMM results show a significant and positive coefficient at the 10 percent level.

This points to differential scale effects on small peer SACCOs with some benefiting while others experience scale disadvantages.

Next the results reveal a positive and highly significant coefficient on *lnMembers* and ARCs ([coefficient = 0.002, t-value = 3.44 for OLS] and [coefficient = 0.013, z-value = 2.89 for GMM]). This means that DT SACCOs with more members incur more agency-related costs. As SACCOs increase membership, agency related costs are likely to increase. This is because additional members require more attention from a customer experience perspective and are likely to take out loans that require close monitoring. When SACCO membership increases, this calls for increased governance costs, in bid to ensure that appropriate dialogue is held with, and all the members are reached out. This is an important finding for DT SACCOs since increases in SACCO membership call for a thorough scrutiny of the return per member, that is, the individual value (or contribution) of the member to the financial cooperative. This could be in terms of the value of deposits held, the loans taken (and the resultant interest income) and what the member gets out of the cooperative. Overall, these results help respond to the first objective of the study, with mixed findings on the various size factors.

In terms of the control variables, the coefficient on the *CCA* variable is positive and highly significant in 9 of the 10 models. This implies that DT SACCOs with higher *CCA* ratios are associated with higher ARCs. This is usually the case especially where the increased capital is member funded and the need to ensure that the SACCO is managed prudently. Next the coefficient on the *NPLs* variable is also positive and significant in 8 out of the 10 models. This means that DT SACCOs with deteriorating asset quality (as evidenced by increased *NPLs*) experience increases in ARCs. This could be in the form of greater provisioning that comes with higher *NPLs* and the need for manpower to monitor and track the loans. Finally, the coefficients on *CEO\_Gender* are positive and significant in 9 out of the 10 regression models depicting that DT SACCOs whose CEO is female are associated with relatively higher ARCs compared to others led by male CEOs. This might point to possible dominance by the male-dominated board which influences decisions on ARCs. As a result, the female CEO might be over-ruled in many decisions regarding SACCO spending, especially where the board is male dominated. An observation is made for the few, albeit sporadic negative coefficient on the COVID-19 pandemic variable and ARC, possibly pointing to potential reductions in expenditure following the onset of the pandemic. Overall, the models run

are relatively reliable with the adjusted  $R^2$  ranging 15.1 percent and 21 percent, implying that the selected variables explain some fairly good level of ARCs. The F-statistics are all highly significant, illustrating that the models utilized are appropriate. Finally, the Breusch Pagan  $\chi^2$  statistic reveals heteroscedasticity in the residuals and Sargan-Hansens J test shows that the instrumental variables utilized in the GMM models were valid and not overidentified.



**Table 4.9: Regression Results for Agency Related Costs and SACCO Size**

Dependent variable	Agency Related Costs to Average Assets (ARC_AA)										
	OLS		GMM		OLS		GMM		OLS		GMM
Regression type	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	
Model number	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	
Constant	2.090*		3.467***		3.909***		2.984***		4.389***		
	(1.88)		(3.03)		(3.47)		(2.68)		(3.85)		
<i>lnTA</i>	-0.006***	0.009									
	(-10.35)	(1.41)									
<i>Large_Peer</i>			-0.010***	0.110**							
			(-4.17)	(2.30)							
<i>Medium_Peer</i>					-0.010***	-0.037***					
					(-6.36)	(-3.06)					
<i>Small_Peer</i>							0.014***	-0.045*			
							(9.29)	(-1.67)			
<i>lnMembers</i>									0.002***	0.013***	
									(3.44)	(2.89)	
<i>CCA</i>	0.062***	0.129***	0.088***	0.128***	0.083***	0.037	0.072***	0.138***	0.093***	0.077**	
	(7.01)	(3.87)	(10.11)	(4.24)	(9.56)	(1.01)	(8.28)	(3.01)	(10.74)	(2.79)	
<i>NPLs</i>	0.011**	0.028**	0.016***	0.040**	0.017***	0.014	0.014***	0.032	0.018***	0.014	
	(2.19)	(2.37)	(3.21)	(2.41)	(3.48)	(0.83)	(2.75)	(1.51)	(3.63)	(0.92)	
<i>Ext_Borrow</i>	0.015*	0.007	0.024***	-0.009	0.018**	-0.089*	0.012	-0.019	0.027***	-0.031	
	(1.71)	(0.36)	(2.74)	(-0.33)	(1.99)	(-1.67)	(1.34)	(-0.48)	(3.10)	(-0.81)	
<i>CEO_Gender</i>	0.002	0.019**	0.005***	0.030***	0.005***	0.023***	0.003**	0.035**	0.006***	0.025***	
	(1.36)	(2.36)	(2.62)	(2.67)	(3.02)	(2.46)	(1.95)	(2.23)	(3.51)	(2.68)	
<i>Covid</i>	0.001	-0.010**	0.001	-0.016**	0.001	-0.007	0.001	-0.011	0.001	-0.010*	
	(-0.11)	(-2.18)	(0.17)	(-2.40)	(0.08)	(-1.07)	(-0.04)	(-1.34)	(0.24)	(-1.70)	
<i>Inflation</i>	0.051	0.266	0.049	0.479*	0.057	0.203	0.050	0.346	0.055	0.285	
	(0.62)	(1.54)	(0.58)	(1.87)	(0.68)	(0.72)	(0.61)	(1.01)	(0.65)	(1.13)	
SACCO years?	Yes										
Cross-sections?	Yes										
R <sup>2</sup>	0.216		0.161		0.176		0.204		0.157		
Adjusted R <sup>2</sup>	0.210		0.155		0.170		0.198		0.151		
F-statistic	38.76		27.06		30.06		36.04		26.33		

Dependent variable	Agency Related Costs to Average Assets (ARC_AA)									
	OLS	GMM	OLS	GMM	OLS	GMM	OLS	GMM	OLS	GMM
Regression type	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
Model number	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
Prob. (F-stat.)			0.00		0.00		0.00		0.00	
Breusch-Pagan Chi <sup>2</sup>	26.25		11.05		63.64		26.91		25.56	
Prob. (B. Pagan Chi <sup>2</sup> )	0.00		0.00		0.00		0.00		0.00	
Hansen's J Chi <sup>2</sup>		4.82		6.13		0.83		1.94		2.26
Prob. (Hansen's J)		0.09		0.05		0.66		0.38		0.32
Observations	1,280	1,280	1,280	1,280	1,280	1,280	1,280	1,280	1,280	1,280

Note: \*, \*\* and \*\*\* denote significance at the 10, 5 and 1 percent levels, respectively. T-values for OLS regression models and z-values for 2-step GMM models are shown in parentheses.



## 4.7.2 Agency Related Costs and Outreach

To address the third objective of the study on the influence of outreach factor on the agency related costs in the management of DT SACCOs in Kenya, both panel OLS and 2-step GMM regression analyses were performed on *No\_Offices* as the test variable and *ARC* as the dependent variable. The results are reported in Table 4.10. According to the results, and consistent with earlier prediction, the coefficient on the *No\_Offices* is positive and highly significant at the 1 percent level. This means that DT SACCOs with more branch offices are associated with higher ARCs. This could be explained by the higher operating and personnel costs that come with additional branch offices. The results imply that whereas having an expansionist strategy means more outreach and taps onto more members and hence more deposits, this is often accompanied by a rise in agency related costs. This means that SACCO managers must carefully evaluate the need for opening an additional SACCO branch, and a thorough cost-benefit analysis performed to ensure that the new branch generates some reasonable return for the SACCO.

The results on the control variables are consistent with the earlier reported results in Table 4.9. In terms of the robustness of the models, the adjusted  $R^2$  is 15 percent which implies that the independent variables utilized explain some proportion of the dependent variable, *ARC\_AA*. The Breusch Pagan test reveals that the residuals are heteroscedastic while the Sargan-Hansen test shows that the instrumented variables are valid.

**Table 4.10: Regression Results for Agency Costs and Outreach**

Dependent variable	Agency Related Costs to Average Assets (ARC_AA)	
	OLS	2-step GMM
Regression type		
Model number	[1]	[2]
Constant	4.089*** (3.59)	
<i>No_Offices</i>	0.001*** (3.12)	0.005*** (2.90)
<i>CCA</i>	0.093*** (10.82)	0.082*** (2.56)
<i>NPLs</i>	0.019*** (3.73)	0.020 (1.15)
<i>ExtBorrow</i>	0.026*** (2.93)	-0.058 (-1.21)
<i>CEO_Gender</i>	0.006*** (3.44)	0.027*** (2.58)

Dependent variable	Agency Related Costs to Average Assets (ARC_AA)	
	OLS	2-step GMM
Regression type		
Model number	[1]	[2]
<i>Covid</i>	0.001 (0.16)	-0.008 (-1.20)
<i>Inflation</i>	0.055 (0.65)	0.223 (0.77)
SACCO years included?	Yes	Yes
Cross-sectional included?	Yes	Yes
R-squared	0.156	
Adjusted R-squared	0.150	
F-statistic	26.06	
Probability (F-stat.)	0.00	
Breusch-Pagan Test	18.92	
Probability (Breusch-Pagan Chi <sup>2</sup> )	0.00	
Hansen's J Chi <sup>2</sup>		1.10
Probability (Hansen's J)		0.58
Observations	1,280	1,280

Note: \*, \*\* and \*\*\* denote significance at the 10, 5 and 1 percent levels, respectively. T-values for OLS regression model and z-values for 2-step GMM model are shown in parentheses.

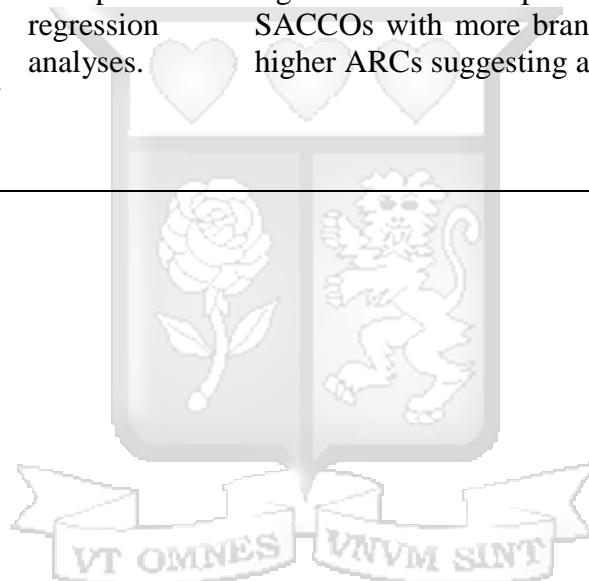
#### 4.8 Summary Findings

Based on the earlier analyses, the Table 4.11 summarises the results in line with the research objectives formulated in Chapter 1 of this dissertation.

**Table 4.11: Summary Findings**

Research objective	Type of analyses performed	Findings
i. To analyze the extent and nature of agency related costs for DT SACCOs in Kenya over the period 2014-2021.	Univariate and bi-variate analyses, Descriptive statistics: means, median and t-tests pre and during the Covid-19 pandemic	The board expenses were the lowest of the three categories of expenses. The findings showed that the ARC ranged between 0.04 and 0.046 of the average assets, and this was well within the safer range of 0.02 to 0.05 of the average assets. Overall, the three expense types, both board, personnel and other operating expenses depict a downward trend from 2014 to 2021. Finally, the results showed that the average ARC dropped from 0.044 in the pre-Covid period to 0.039 in the period during the pandemic.

Research objective	Type of analyses performed	Findings
ii. To examine the influence of size factors on the agency related costs in the management of DT SACCOs in Kenya.	Panel OLS and 2-step GMM multiple regression analyses.	The results show mixed findings with regard to SACCO size as measured by <i>lnTA</i> , <i>Large_Peer</i> and <i>Small_Peer</i> DT SACCOs. The findings provide overwhelming evidence that <i>medium peer</i> DT SACCOs seem to benefit from scale advantages and therefore incur relatively lower ARCs compared to the larger and smaller DT SACCOs. Finally, the results reveal a positive and highly significant coefficient on <i>lnMembers</i> and ARCs.
iii. To examine the influence of outreach factors on the agency related costs in the management of DT SACCOs in Kenya.	Panel OLS and 2-step GMM multiple regression analyses.	The results provide overwhelming evidence that the coefficient on the <i>No_Offices</i> is positive and highly significant at the 1 percent level. This means that DT SACCOs with more branch offices are associated with higher ARCs suggesting absence of scale disadvantages.



## **CHAPTER FIVE: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Introduction**

The last chapter of this dissertation was integral in the discussion of the findings of this research in relation to previous empirical studies. The chapter also presented the conclusions drawn from the study as well as the various policy and practical implications that the study advances.

### **5.2 Discussion of Findings**

In this section, a summary of the study's findings is presented, and how it relates with prior research in the same area. Whereas some of the study's findings are consistent with prior literature, there are areas of departure, and these are discussed as appropriate.

#### **5.2.1 The Extent and Nature of Agency Related Costs for DT SACCOs**

The first objective of the study was to analyze the extent and nature of agency related costs for DT SACCOs in Kenya over the period 2014-2021. ARCs were measured using the sum of board, personnel and other operating expenses scaled by average assets at the year end. To achieve this objective, both the univariate and bi-variate analyses were performed alongside descriptive statistics using means, median and t-tests in the pre- and during the COVID-19 pandemic showing trends in the ARCs and its three components: board, personnel and other operating expenses. The results show that the ARC ranged between 0.04 and 0.046 of the average assets, and this was well within the safer range of 0.02 to 0.05 of the average assets. Further, the board expenses were the lowest of the three categories of expenses. The findings showed that of the three ARC expense categories, board, personnel and other operating expenses depict a downward trend from 2014 to 2021. A finding that is consistent with the economies of scale theory given the upward trend in assets, membership and branches. These findings are consistent with prior studies such as Legget and Strand (2002) and Gorton and Schmid (1999).

#### **5.2.2 Size Factors and Agency-Related Costs**

The second objective of the study was to determine the effect of size factors on the agency related costs in the management of deposit taking SACCOs. The study measured the size factors using three composite metrics: the total assets, the number of members within each DTS and peer grouping. The multivariate panel OLS and 2-step GMM regression results revealed mixed findings

with regard to SACCO size as measured by  $\ln TA$ , *Large\_Peer* and *Small\_Peer* DT SACCOs. The findings provide overwhelming evidence that *medium peer* DT SACCOs seem to benefit from scale advantages and therefore incur relatively lower ARCs compared to the larger and smaller DT SACCOs. Whereas the results of scale advantages are in support of prior studies such as Wijesiri, Yaron and Meoli (2017) who indicated that large number of members led to increased management efficiency and operating costs, other findings reveal that scale advantages do not hold in all DT SACCOs in Kenya. There are still inherent scale disadvantages with some SACCOs incurring more agency related costs in their desire to gain competitive and dominance in the market. Thus supporting the prior findings that agency costs associated with close monitoring of the hired professionals in SACCOs might outweigh the corresponding benefits unless innovative strategies are adopted particularly to enhance customer outreach and experience as well as efficiency in savings and loans management. (Njenga (2012), Regehr and Sengupta (2016), Oyugi (2014)).

Finally, the results reveal a positive and highly significant coefficient on  $\ln Members$  and ARCs. This means that an increase in members may lead to an increase in the lending by the SACCO which may result in larger default rates which are detrimental to the organisation's efficiency and performance. Karanja (2013) also showed there exists a positive link between size and cost-efficiency within Saccos in Kenya.

Consistent with our results, Tsuma, Musiega, Albert and Douglas (2015) suggested that improving financial innovation within SACCOs will improve outreach drastically and this has a knock-off effect on reducing the operational costs and improving efficiency within the internal processes. Kariri and Kavinda (2019) were of a similar conclusion that improving members' access to a SACCO services will be an effective strategy of reducing costs and improving customer management which is critical to better financial outcomes within the SACCO. The overall regression findings indicated there exists a significant influence of size factors on the agency related costs of deposit taking SACCOs.

### **5.2.3 Outreach Factors and Agency-Related Costs**

The study also sought to establish the influence of outreach factors on the agency related costs within deposit taking SACCOs. The study utilized the number of SACCO branches as the proxy for measuring outreach factors. Both the panel OLS and 2-step GMM regression findings showed

that the number of SACCO offices had a significant and positive influence on the ARCs. This finding is consistent with studies such as Kazumine (2017), Shu and Oney (2014), Olajide and Anthony (2016) and Mathuva (2015) whose findings conclude that an increase in SACCO branch network leads to an increase in operational costs. Whereas an increase in the size of the branch network leads to improved financial performance (Kazumine (2017), this often comes with additional expenditure, be it board, personnel or other operational expenditure. This finding calls for a careful and cautious decision on branch expansion as a strategy for growth. In Nigeria, financial institutions were able to achieve greater assets growth and better economies of scale as results of adopting conservative expansion strategies in their branch networks according to a study by Olajide and Anthony (2016).

### **5.3 Conclusions**

#### **5.3.1 Extent and Nature of Agency Related Costs (ARCs)**

The study defined ARCs to include board, personnel and other operating expenses being the costs incurred because of the separation of ownership and control. The study established that the ARCS were well within the safer range of 0.02 to 0.05 of the average assets and showed a decreasing trend over the period 2014 to 2021. The study observed that the degree of disclosure of these costs differed across SACCOs and offer time for the same SACCOs pointing to the need for guidance in the financial reporting by SACCOs of these costs given their importance as agency costs. An accurate and consistent disclosure of these costs is important in enhancing trust and confidence in the board and management of SACCOs considering the structural nature of the SACCOs being Cooperatives and the attendant challenge of separation of ownership and control.

#### **5.3.2 Size Related Factors**

Size factors have significant influence on the agency related costs, albeit mixed findings with regard to various size measures and peer groups. SACCO members as rational beings have legitimate expectations that growth in loan portfolio, deposits and membership will bring operational scale advantages bringing down costs to their benefit as owners. But the study findings indicate that some of the large deposit taking SACCOs are could be growing themselves to inefficiencies with high agency related costs to the detriment of the Cooperative owners. This implies that the decision by the boards and management to grow the SACCO and increase

membership needs to be informed by critical and objective assessment so as to realize efficiency gains from large size of assets. According to the SACCO Supervision reports published by SASRA, the loan asset account on average for three quarters of the SACCO assets underscoring the high premium that SACCOs should attach on the quality of assets even as they focus on growth in membership and hence loan portfolio. SACCO membership growth has meant a shift from a homogenous to heterogenous membership that may imply increase in credit risks hence growth in ARCs for a SACCO as they enhance monitoring of loans to the wider membership.

The large peer group of DT SACCOs account for two thirds of the industry assets implying the need for an investigation on the determinants of agency related costs associated with this group of SACCOs and relative to the medium size SACCOs who from this study are evidently having scale advantages in ARCs.

### **5.3.3 Outreach Related Factors**

Outreach factors namely branch offices have a significant and positive association with the agency related costs. The research thus indicated that increase in the number of offices will lead to increase in agency related costs such as director expenses, staff salaries and benefits as well as Sacco operational expenses. This does not advance the interests of the members whose expectations positive contribution to the returns prior to the expansion. It is thus imperative that SACCO management adopts a careful and cautious expansionist strategy to ensure that costs are contained and the residue benefits preserved and sustained. But this underscores the need for further study to investigate the interplay between the branch offices and level of scale of financial technology affects the agency related costs in the management of a DT SACCO.

## **5.4 Recommendations**

The study investigated the influence of size and outreach factors on the ARCs in the management of DT SACCOs in Kenya with the findings showing significant but varied association which can be mitigated through a combination of policy and business recommendations as discussed below.

### 5.4.1 Policy Recommendations

The deposit taking market in Kenya is experiencing intense competition from multiple players, both traditional (banks, SACCOs) and non-traditional (digital lenders, mobile financial providers). Growth in size and outreach is one strategy that DT SACCOs have adopted to face-off this competition. But as established from this study, this strategy has the potential to magnify agency-problem due to the apparent shift in the cooperative balance. The study thus discusses several possible recommendations.

There should be adequate and simplified disclosures in the financial statements of the SACCOs to aid members and other stakeholders in adequately assessing the financial and operational performance of the SACCO business. The disclosure should include the relative impact of the agency related costs as the SACCO grows in assets to enable members make informed decision on the benefits or otherwise of proposed growth strategies. In this regard and building on the findings of this study, the regulator, institute of certified public accountants of Kenya and other stakeholders should revise the financial reporting template for SACCOs for relevance, adequacy and simplicity keeping in mind the primary users, SACCO members.

There is need for review of the policy guidelines to SACCOs on digital products and services to encourage the use of the technology in outreach as opposed to current practice on physical branches, which may be costly to open and maintain. This will significantly improve the outreach of the SACCOs and in a cost-efficient manner.

The regulator should design policies to incentivize SACCOs to venture into shared business services and infrastructure. The policy objective is to encourage SACCOs being cooperatives embrace cooperation and strategic partnership through sharing of critical business infrastructure such as technology and also physical branches as an efficient strategy to reduce capital and operating costs. There are multiple examples of shared business infrastructure in Kenya, both in the private and public sectors. The Huduma centres concept initiated by the Government of Kenya is a case of shared services infrastructure by public institutions. Small commercial banks in Kenya provide automated teller machines ATMs via shared infrastructure, Kenswitch.

The research further recommends that SASRA should be in the forefront in designing prudential regulations to guide DT SACCOs in their asset's management. This will help the institutions in

their acquisition and liquidation of loss-making assets. Furthermore, through developing regulatory benchmarks on the level of assets that Saccos are allowed to hold, the authority will help the institutions manage their assets effectively and improve on the financial outcome. The study further recommends the regulatory body should ensure there is full compliance to their requirements on capital adequacy (>10%), external borrowing (<25%) and non-performing loans (<5%) which will help SACCOS in reducing their agency related costs.

#### **5.4.2 Practical Recommendations**

The study recommends that the management of SACCOS should rely on these results to design new measures to improve their size related factors (total assets and number of members) to gain from scale advantages. The study recommends that SACCOS should involve financial management firms in designing their assets management guidelines including asset-liability management policies to optimize on asset size and hence increase earnings. This will ensure that SACCOS adopt a conservative (prudent) and cautious assets and expenditure management approach that will ensure optimal revenue from their assets for the benefit of the members. The study recommends that the SACCO management should adopt least-cost strategies for market outreach such as SACCO shared services as it is happening in developed credit union jurisdictions. Marchio (2009), asserts that credit unions can attain economies of scale regardless of their challenging structural features by adopting appropriate and standardized technology in the business. For instance, cooperation amongst cooperatives, the fifth principle of Cooperatives implies that a number of SACCOS could jointly invest in a technology platform as opposed to every SACCO buy its own system; thus cutting down technology investment. Thus, strategic investments in information technology will enable shared branches by a group of SACCOS, again cutting down branch investment. This will enable SACCOS to efficiently serve the unbanked segments of the economy while maximizing value to existing members for improved financial outcomes.

The study also recommends that SACCO Boards consider performance-based incentive schemes for top management including the CEO to encourage innovation and link compensation to performance. This will lead to improvement in process and service innovations to enhance the efficiency in customer management. This will be key to improving the cost efficiency and reducing operational costs within the institutions.

With the current growth in digital reach within the country the study recommends that Saccos should improve the digitalization of their services. First, SACCOs should actively invests in digital branches and agency operations which will also drastically improve the outreach of the SACCOs across the country at minimal costs, hence lowering the ARCs. Secondly, SACCOs should invest in research and development geared towards using data to better understand their member preferences and needs including their appetite for digital products and services. This will improve the appeal of the SACCOs to the youthful generation who are the largest unbanked population in the country. Good research and development investment will also inform potential and strategic alliances with financial technology firms in product innovation. Increased adoption of technology to recruit member and increase the outreach of the SACCOs will contribute immensely to the reduction of agency-related costs.

### **5.5 Suggestions for Further Research**

In order to build on this study and improve on the empirical knowledge in the SACCO industry, below are possible areas of further research.

This study focused on all the DT SACCOs but the findings point to a need for further investigation on the determinants of ARCs amongst the different peer groups for the SACCOs. This is particularly important given the study finding on medium-sized SACCOs, where the scale advantages were evident compared to the large and small SACCOs. Large SACCOs account for the two-third of the Ksh.800 billion in assets.

There is opportunity for research on the relative levels of ARCs as the SACCOs transition from, small, medium to large SACCOs. This is important to further investigate the finding that large peer group of the DT SACCOs are having scale disadvantages in respect of agency related costs. The observed positive association between ARCs and branch offices also points on a need for investigation on the impact of level of technological adoption amongst the large SACCOs. The research findings point to the need for further research on the institutional policies governing compensation for SACCO boards and management to better understand the drivers for the scale disadvantages observed in this study.

## 5.6 Limitations of the Study

The Kenya SACCO business model differ markedly from developed credit union jurisdictions where most available studies on the subject are found. In particular, SACCOs in Kenya rely heavily on mandatory periodic contributions for deposits and loan repayments, while developed jurisdictions operate on voluntary deposit contributions akin to retail banking model. This may potentially have an impact on the risk-taking behavior of the management especially in the large SACCOs.

The study used data from all deposit taking SACCOs but the large peer group is dominated by SACCOs whose original bond is the public sector accounting for two-thirds of the industry assets. Thus, caution should be exercised in generalizing the findings across all the SACCOs in Kenya. This is the reason the researcher did several models including with all the 160 SACCOs and then with each peer group to ensure robustness of the findings.

Some of the variables analyzed are not at individual firm level since they are macro variables. As a result, caution should be taken in their interpretation and generalizations. The study focused on DT SACCOs only hence general application in other types of SACCOs. An examination of the non-withdrawable DT SACCOs and other types of cooperative organizations could yield greater insights.



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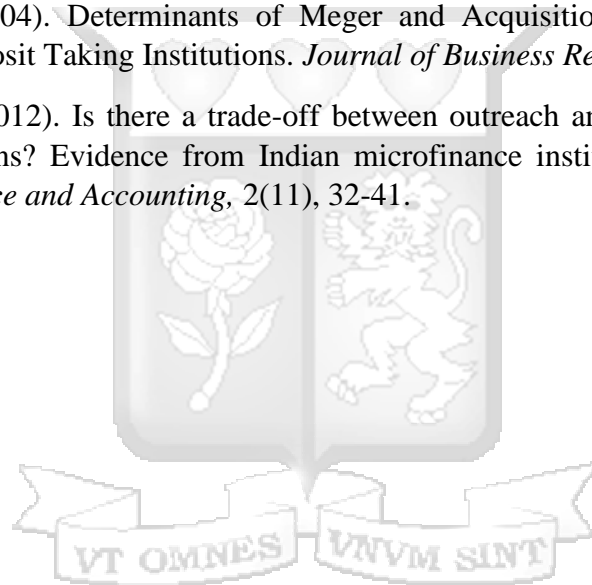
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## APPENDICES

### Appendix 1: Schedule I: Licensed Sacco Societies

No.	Name Of Society	Postal Address
1.	2NK Sacco Society Ltd	P.O Box 12196 – 10109, Nyeri.
2.	Afya Sacco Society Ltd	P.O.Box 11607 – 00400, Nairobi.
3.	Agro-Chem Sacco Society Ltd	P.O Box 94 – 40107, Muhoroni.
4.	Ainabkoi Sacco Society Ltd	P.O. Box 120 – 30101, Ainabkoi
5.	All Churches Sacco Society Ltd	P.O Box 6957 – 01000, Thika.
6.	Airports Sacco Society Ltd	P.O. Box 19001 – 00501, Nairobi
7.	Amica Sacco Society Ltd	P.O.Box 816 – 10200, Murang'a.
8.	Ardhi Sacco Society Ltd	P.O. Box 28782 – 00200, Nairobi.
9.	Asili Sacco Society Ltd	P.O.Box 49064 – 00100, Nairobi.
10.	Azima Sacco Society Ltd	P.O.Box 1124 – 01000, Thika.
11.	Bandari Sacco Society Ltd	P.O.Box 95011 – 80104, Mombasa.
12.	Baraka Sacco Society Ltd	P.O.Box 1548 – 10101, Karatina.
13.	Baraton University Sacco Society Ltd	P.O Box 2500 – 30100, Eldoret.
14.	Biashara Sacco Society Ltd	P.O.Box 1895 – 10100, Nyeri.
15.	Biashara Tosha Sacco Society Ltd	P.O Box 189 – 60101, Manyatta.
16.	Bi-High Sacco Society Ltd	P.O.Box 90 – 60500, Marsabit.
17.	Bingwa Sacco Society Ltd	P.O.Box 434 – 10300, Kerugoya.
18.	Boresha Sacco Society Ltd	P.O.Box 80 – 20103, Eldama Ravine.
19.	Capital Sacco Society Ltd	P.O Box 1479-60200, Meru.
20.	Centenary Sacco Society Ltd	P.O.Box 1207 – 60200, Meru.
21.	Chai Sacco Society Ltd	P.O.Box 278 – 00200, Nairobi.
22.	Chuna Sacco Society Ltd	P.O.Box 30197 – 00100, Nairobi.
23.	Comoco Sacco Society Ltd	P.O. Box 30135 – 00100, Nairobi
24.	Cosmopolitan Sacco Society Ltd	P.O.Box 1931 – 20100, Nakuru.
25.	County Sacco Society Ltd	P.O.Box 21 – 60103, Runyenjes.
26.	Daima Sacco Society Ltd	P.O.Box 2032 – 60100, Embu.

<b>No.</b>	<b>Name Of Society</b>	<b>Postal Address</b>
27.	Dhabiti Sacco Society Ltd	P.O.Box 353 – 60600, Maua.
28.	Dimkes Sacco Society Ltd	P.O.Box 886 – 00900, Kiambu.
29.	Dumisha Sacco Society Ltd	P.O Box 84 – 20600, Mararal.
30.	Eco-Pillar Sacco Society Ltd	P.O. Box 48 – 30600, Kapenguria
31.	Egerton Sacco Society Ltd	P.O.Box 178 – 20115, Egerton.
32.	Elgon Teachers Sacco Society Ltd	P.O Box 27 – 50203, Kapsokwony.
33.	Elimu Sacco Society Ltd	P.O Box 10073 – 00100, Nairobi.
34.	Enea Sacco Society Ltd	P.O.Box 1836 – 10101, Karatina.
35.	Faridi Sacco Society Ltd	P.O. Box 448 – 50400, Busia.
36.	Fariji Sacco Society Ltd	P.O.Box 589 – 00216, Githunguri.
37.	Fortune Sacco Society Ltd	P.O.Box 559 – 10300, Kerugoya.
38.	Fundilima Sacco Society Ltd	P.O.Box 62000 – 00200, Nairobi.
39.	Githunguri Dairy & Community Sacco Society Ltd	P.O.Box 896 – 00206, Guthunguri.
40.	Good Hope Sacco Society Ltd	P.O.Box 158 – 20500, Narok.
41.	Goodway Sacco Society Ltd	P.O Box 626 – 10300, Kerugoya.
42.	Gusii Mwalimu Sacco Society Ltd	P.O.Box 1335 – 40200, Kisii.
43.	Harambee Sacco Society Ltd	P.O.Box 47815 – 00100, Nairobi.
44.	Hazina Sacco Society Ltd	P.O.Box 59877 – 00200, Nairobi.
45.	Ig Sacco Society Ltd	P.O.Box 1150 – 50100, Kakamega.
46.	Ilkisonko Sacco Society Ltd	P.O Box 91 – 00209, Loitokitok.
47.	Imarika Sacco Society Ltd	P.O.Box 712 – 80108, Kilifi.
48.	Imarisha Sacco Society Ltd	P.O.Box 682 – 20200, Kericho.
49.	Imenti Sacco Society Ltd	P.O.Box 3192 – 60200, Meru.
50.	Jacaranda Sacco Society Ltd	P.O. Box 1767 – 00232, Ruiru.
51.	Jamii Sacco Society Ltd	P.O.Box 57929 – 00200, Nairobi.
52.	Joinas Sacco Society Ltd	P.O.Box 669 – 00219, Karuri.
53.	Kaimosi Sacco Society Ltd	P.O Box 153 – 50305, Sirwa.
54.	Kathera Rural Sacco Society Ltd	P.O Box 251 – 60202, Nkubu.

<b>No.</b>	<b>Name Of Society</b>	<b>Postal Address</b>
55.	Kenpipe Sacco Society Ltd	P.O.Box 314 – 00507, Nairobi.
56.	Kenversity Sacco Society Ltd	P.O.Box 10263 – 00100, Nairobi.
57.	Kenya Achievas Sacco Society Ltd	P.O. Box 3080 – 40200, Kisii.
58.	Kenya Bankers Sacco Society Ltd	P.O.Box 73236 – 00200, Nairobi.
59.	Kenya Highlands Sacco Society Ltd	P.O.Box 2085 – 20200, Kericho.
60.	Kenya Police Sacco Society Ltd	P.O.Box 51042 – 00200, Nairobi.
61.	Kimbilio Daima Sacco Society Ltd	P.O. Box 81 – 20225, Kimulot.
62.	Kingdom Sacco Society Ltd	P.O.Box 8017 – 00300, Nairobi.
63.	Kipsigis Edis Sacco Society Ltd	P.O Box 228 – 20400, Bomet.
64.	Kite Sacco Society Ltd	P.O.Box 2073 – 40100, Kisumu.
65.	Kitui Teachers Sacco Society Ltd	P.O.Box 254 – 90200, Kitui.
66.	Kmfri Sacco Society Ltd	P.O.Box 80862 – 80100, Mombasa.
67.	Kolenge Tea Sacco Society Ltd	P.O Box 291 – 30301, Nandi Hills.
68.	Koru Sacco Society Ltd	P.O. Box Private Bag, Koru.
69.	K – Pillar Sacco Society Ltd	P.O.Box 83 – 20403, Mogogosiek.
70.	K – Unity Sacco Society Ltd	P.O.Box 268 – 00900, Kiambu.
71.	Kwetu Sacco Society Ltd	P.O Box 818 – 90100, Machakos.
72.	Lainisha Sacco Society Ltd	P.O. Box 272 – 10303, Wang’uru.
73.	Lengo Sacco Society Ltd	P.O.Box 1005 – 80200, Malindi.
74.	Mafanikio Sacco Society Ltd	P.O Box 86515 – 80100, Mombasa.
75.	Magadi Sacco Society Ltd	P.O.Box 13 – 00205, Magadi.
76.	Magereza Sacco Society Ltd	P.O.Box 53131 – 00200, Nairobi.
77.	Maisha Bora Sacco Society Ltd	P.O.Box 72713 – 00200, Nairobi.
78.	Mentor Sacco Society Ltd	P.O.Box 789 – 10200, Murang’a.
79.	Metropolitan National Sacco Society Ltd	P.O.Box 5684 – 00100, Nairobi.
80.	Mmh Sacco Society Ltd	P.O.Box 469 – 60600, Maua.
81.	Mombasa Port Sacco Society Ltd	P.O.Box 95372 – 80104, Mombasa.
82.	Mudete Tea Growers Sacco Society Ltd	P.O.Box 221 – 50104, Kakamega.

<b>No.</b>	<b>Name Of Society</b>	<b>Postal Address</b>
83.	Muki Sacco Society Ltd	P.O Box 398 – 20318, North Kinangop.
84.	Mwalimu National Sacco Society Ltd	P.O.Box 62641 – 00200, Nairobi.
85.	Mwietheri Sacco Society Ltd	P.O. Box 2445 – 60100, Embu.
86.	Mwingi Mwalimu Sacco Society Ltd	P.O Box 489 – 90400, Mwingi.
87.	Mwito Sacco Society Ltd	P.O.Box 56763 – 00200, Nairobi.
88.	Nacico Sacco Society Ltd	P.O.Box 34525 – 00100, Nairobi.
89.	Nafaka Sacco Society Ltd	P.O.Box 30586 – 00100, Nairobi.
90.	Nandi Farmers Sacco Society Ltd	P.O Box 333 – 30301, Nandi Hills.
91.	Nation Sacco Society Ltd	P.O.Box 22022 – 00400, Nairobi.
92.	Nawiri Sacco Society Ltd	P.O Box 400 – 60100, Embu.
93.	Ndege Chai Sacco Society Ltd	P.O.Box 857 – 20200, Kericho.
94.	Ndosha Sacco Society Ltd	P.O.Box 532 – 60401, Chogoria – Maara.
95.	Ng'arisha Sacco Society Ltd	P.O.Box 1199 – 50200, Bungoma.
96.	Noble Sacco Society Ltd	P.O.Box 3466 – 30100, Eldoret.
97.	Nrs Sacco Society Ltd	P. O Box 575 – 00902, Kikuyu.
98.	Nssf Sacco Society Ltd	P.O.Box 43338 – 00100, Nairobi.
99.	Nufaika Sacco Society Ltd	P.O Box 735 – 10300, Kerugoya.
100.	Nyala Vision Sacco Society Ltd	P.O Box 27 – 20306, Ndaragwa.
101.	Nyambene Arimi Sacco Society Ltd	P.O.Box 493 – 60600, Maua.
102.	Nyamira Tea Farmers Sacco Society Ltd	P.O. Box 633 – 40500, Nyamira.
103.	Nyati Sacco Society Ltd	P.O. Box 7601 – 00200, Nairobi.
104.	New Fortis Sacco Society Ltd	P.O.Box 1939 – 10100, Nyeri.
105.	Ollin Sacco Society Ltd	P.O Box 83 – 10300, Kerugoya.
106.	Patnas Sacco Society Ltd	P.O Box 601 – 20210, Litein.
107.	Prime Time Sacco	P.O. Box 512 – 30700, Iten.
108.	Puan Sacco Society Ltd	P.O Box 404 – 20500, Narok.
109.	Qwetu Sacco Society Ltd	P.O Box 1186 – 80304, Wundanyi.
110.	Rachuonyo Teachers Sacco Society Ltd	P.O. Box 147 – 40332, Kosele.

<b>No.</b>	<b>Name Of Society</b>	<b>Postal Address</b>
111.	Safaricom Sacco Society Ltd	P.O.Box 66827 – 00800, Nairobi.
112.	Sheria Sacco Society Ltd	P.O.Box 34390 – 00100, Nairobi.
113.	Shirika Sacco Society Ltd	P.O Box 43429 – 00100, Nairobi.
114.	Simba Chai Sacco Society Ltd	P.O.Box 977 – 20200, Kericho.
115.	Siraji Sacco Society Ltd	P.O.Box Private Bag, Timau.
116.	Skyline Sacco Society Ltd	P.O.Box 660 – 20103, Eldama Ravine.
117.	Smart Champions Sacco Society Ltd	P.O Box 64 – 60205, Githongo.
118.	Smart Life Sacco Society Ltd	P.O Box 118 – 30705, Kapsowar.
119.	Solution Sacco Society Ltd	P.O.Box 1694 – 60200, Meru.
120.	Sotico Sacco Society Ltd	P.O.Box 959 – 20406, Sotik.
121.	Southern Star Sacco Society Ltd	P.O Box 514 – 60400, Chuka.
122.	Shoppers Sacco Society Ltd	P.O. Box 16 – 00507, Nairobi.
123.	Stake Kenya Sacco Society Ltd	P.O.Box 208 – 40413, Kehancha.
124.	Stima Sacco Society Ltd	P.O.Box 75629 – 00200, Nairobi.
125.	Suba Teachers Sacco Society Ltd	P.O. Box 237 – 40305, Mbita.
126.	Sukari Sacco Society Ltd	P.O Box 841 – 50102, Mumias.
127.	Supa Sacco Society Ltd	P.O.Box 271 – 20600, Maralal.
128.	Tabasamu Sacco Society Ltd	P.O. Box 123 – 80403, Kwale.
129.	Tai Sacco Society Ltd	P.O.Box 718 – 00216, Githunguri.
130.	Taifa Sacco Society Ltd	P.O.Box 1649 – 10100, Nyeri.
131.	Taqwa Sacco Society Ltd	P.O. Box 10180 – 00100, Nairobi.
132.	Tembo Sacco Society Ltd	P.O.Box 91 – 00618, Ruaraka Nairobi.
133.	Tenhos Sacco Society Ltd	P.O.Box 391 – 20400, Bomet.
134.	Thamani Sacco Society Ltd	P.O.Box 467 – 60400, Chuka.
135.	Transcounties Sacco Society Ltd	P.O. Box 2965 – 30200, Kitale.
136.	Trans Nation Sacco Society Ltd	P.O.Box 15 – 60400, Chuka.
137.	Times U Sacco Society Ltd	P.O.Box 310 – 60202, Nkubu.
138.	Tower Sacco Society Ltd	P.O.Box 259 – 20303, Ol'kalou.

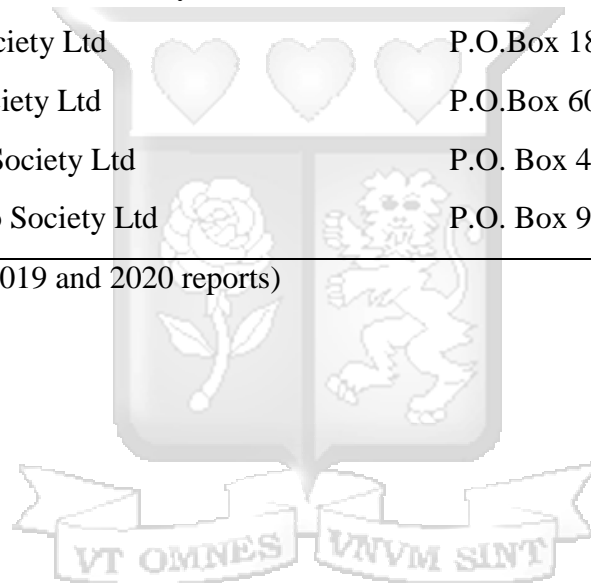
<b>No.</b>	<b>Name Of Society</b>	<b>Postal Address</b>
139.	Trans – Elite County Sacco Society Ltd	P.O Box 547 – 30300, Kapsabet.
140.	Transnational Times Sacco Society Ltd	P.O. Box 2274 – 30200, Kitale.
141.	Ufanisi Sacco Society Ltd	P.O. Box 2973 – 00200, Nairobi.
142.	Ukristo Na Ufanisi Wa Anglicana Sacco Society Ltd	P.O Box 872 – 00605, Nairobi.
143.	Ukulima Saco Society Ltd	P.O.Box 44071 – 00100, Nairobi.
144.	Unaitas Sacco Society Ltd	P.O.Box 38721– 00100, Nairobi.
145.	Uni–County Sacco Society Ltd	P.O Box 10132 – 20100, Nakuru.
146.	United Nations Sacco Society Ltd	P.O.Box 30552 – 00100, Nairobi.
147.	Unison Sacco Society Ltd	P.O Box 414 – 10400, Nanyuki.
148.	Universal Traders Sacco Society Ltd	P.O.Box 2119 – 90100, Machakos.
149.	Vihiga County Farmers Sacco Society Ltd	P.O Box 309 – 50317, Chavakali.
150.	Viktas Sacco Society Ltd	P.O Box 2183 – 20300, Nyahururu.
151.	Vision Point Sacco Society Ltd	P.O.Box 42 – 40502, Nyansiongo.
152.	Vision Africa Sacco Society Ltd	P.O Box 18263 – 20100, Nakuru.
153.	Wakenya Pamoja Sacco Society Ltd	P.O.Box 829 – 40200, Kisii.
154.	Wakulima Commercial Sacco Society Ltd	P.O.Box 232 – 10103, Mukurweni.
155.	Wana – Anga Sacco Society Ltd	P.O.Box 34680 – 00100, Nairobi.
156.	Wananchi Sacco Society Ltd	P.O.Box 910 – 10106, Othaya.
157.	Wanandegge Sacco Society Ltd	P.O.Box 19074 – 00501, Nairobi.
158.	Washa Sacco Society Ltd	P.O.Box 83256 – 80100, Mombasa.
159.	Waumini Sacco Society Ltd	P.O.Box 66121 – 00800, Nairobi.
160.	Wevarsiy Sacco Society Ltd	P.O Box 873 – 50100, Kakamega.
161.	Winas Sacco Society Ltd	P.O.Box 696 – 60100, Embu.
162.	Yetu Sacco Society Ltd	P.O.Box 511 – 60202, Nkubu.

Source: SASRA (2018, 2019 and 2020 reports)

## Appendix 2: Schedule II: Restricted Licenses

No.	Name Of Society	Postal Address
1.	Good Faith Sacco Society Ltd	P.O. Box 224 – 00222, Uplands.
2.	Jitegemee Sacco Society Ltd	P.O. Box 86937 – 80100, Mombasa.
3.	Jumuika Sacco Society Ltd	P.O. Box 14 – 40112, Awasi.
4.	Kenya Midland Sacco Society Ltd	P.O. Box 287 – 20400, Bomet.
5.	Lamu Teachers Sacco Society Ltd	P.O. Box 110 – 80500, Lamu.
6.	Miliki Sacco Society Ltd	P.O.Box 43582 – 00100, Nairobi.
7.	Nandi Hekima Sacco Society Ltd	P.O. Box 211 – 30300, Kapsabet.
8.	Nanyuki Equator Sacco Society Ltd	P.O. Box 1098 – 10400, Nanyuki.
9.	Orient Sacco Society Ltd	P.O.Box 1842 – 01000, Thika.
10.	Taraji Sacco Society Ltd	P.O.Box 605 – 40600, Siaya.
11.	Telepost Sacco Society Ltd	P.O. Box 49557 – 00100, Nairobi.
12.	Uchongaji Sacco Society Ltd	P.O. Box 92503 – 80102, Mombasa.

Source: SASRA (2018, 2019 and 2020 reports)



## Appendix 3: Ethical Review Committee Letter



**Strathmore**  
UNIVERSITY

14<sup>th</sup> July 2020

Mr Njuguna, Peter  
Kahunyo.njuguna@strathmore.edu

Dear Mr Njuguna,

**RE: The Influence of Size and Outreach Factors on Agency Related Costs in The Management of Deposit Taking Saving and Credit Cooperatives in Kenya**


This is to inform you that SU-IERC has reviewed and **approved** your above research proposal. Your application approval number is SU-IERC0841/20. The approval period is **14<sup>th</sup> July 2020 to 13<sup>th</sup> July 2021**.

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-IERC.
- 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-IERC 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-IERC within 72 hours
- v. Clearance for 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 expiry of the approval period. Attach a comprehensive progress report to support the renewal.
- vii. Submission of an executive summary report within 90 days upon completion of the study to SU-IERC.

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

Yours sincerely,

  
Dr Virginia Gichuru,  
Secretary; SU-IERC

Cc: Prof Fred Were,  
Chairperson; SU-IERC




Ole Sangale Rd, Madaraka Estate. PO Box 59857-00200, Nairobi, Kenya. Tel +254 (0)703 034000  
Email [info@strathmore.edu](mailto:info@strathmore.edu) [www.strathmore.edu](http://www.strathmore.edu)

Appendix 4: NACOSTI Research License

Republic of Kenya  
NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

RefNo: 390280

**RESEARCH LICENSE**




This is to Certify that Mr. PETER KAHUNYO NJUGUNA of Strathmore University, has been licensed to conduct research in Nairobi on the topic: **The Influence of Size and Outreach Factors on Agency Related Costs in the Management of Deposit Taking Savings and Credit Cooperatives in Kenya for the period ending : 03/August/2021.**

License No: NACOSTI/P/20/6047

Applicant Identification Number: 390280

Director General  
NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Verification QR Code



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