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Effectiveness of Internal Fraud Mitigation Approaches on Financial Performance in Savings and Credit Cooperative Societies in Kisumu County, Kenya

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Abstract: An internal control system is crucial for organizations to achieve their objectives in the best interests of their stakeholders through effective monitoring. Savings and Credit Cooperatives Societies (SACCOs), which are member-owned and controlled financial institutions, have adopted various fraud mitigation strategies to prevent financial losses. This study aimed to examine three key approaches: fraud prevention measures, fraud detection technologies, and internal control systems. These strategies play a vital role in safeguarding SACCOs' financial health by minimizing fraud and financial misconduct. According to SASRA, nearly 5% of SACCOs cease operations annually due to a decline in trust and a loss of financial benefits for members. The study employed a descriptive survey design to gather, analyze, and interpret both qualitative and quantitative data. The target population included all eleven Deposit-Taking SACCOs licensed by SASRA in Kisumu County as of December 31, 2022. The researcher used purposive sampling to focus on finance and accounting staff, collecting primary data through questionnaires. This research is significant due to its focus on addressing fraud in SACCOs and its implications for financial performance, policy-making, and practical applications. The findings aim to provide valuable insights to improve SACCO operations in Kisumu County, Kenya, and beyond.

Keywords: *Savings Credit and Cooperative Societies, Internal fraud, Fraud Prevention, Fraud detection, Financial performance.*

I. INTRODUCTION

1.1Introduction

This chapter constitutes a brief background of the study concerning the research topic which has analyzed the efficacy of internal fraud mitigation approaches in deposit-taking SACCOs. It also highlights the statement of the problem which is the knowledge gap that had prompted the researcher to carry out the study. Both general and specific objectives of this study are highlighted in this chapter. The chapter also outlines the study's significance, its scope, and the potential challanges that were encountered during the research.

1.2 Background of the Study

According toKahuthu, Muturi, and Kiweu(2015), SACCOs play a key role in providing financial services to members, particularly in underserved communities where traditional banking services may be lacking, and in filling the gap that may be left by other financial service-providing institutions like banks. As such, ensuring the integrity and security of these institutions is vital for maintaining trust among members and safeguarding their savings. Fraud within SACCOs can have detrimental effects on members' financial well-being, potentially leading to loss of savings and undermining their confidence in the cooperative model. By researching effective mitigation approaches, SACCOs can implement proactive measures to detect and prevent fraud, thereby protecting the interests of their members.

Globally, financial institutions, including Savings and Credit Cooperative Societies (SACCOs), play a critical role in fostering economic growth and financial inclusion. However, these institutions are highly vulnerable to internal fraud, which can severely undermine their financial performance and credibility. Various fraud mitigation approaches, such as internal audits, employee vetting, and the adoption of advanced technology, have been implemented to safeguard institutions from internal threats. Despite these efforts, financial fraud remains a growing challenge across different sectors, leading to a persistent need for effective fraud management strategies worldwide.

In Africa, especially within the East African region, SACCOs have become vital in promoting financial inclusion, particularly for populations underserved by traditional banks. However, many SACCOs in the region, including those in Kenya, face significant threats from internal fraud, often due to weak governance structures, lack of robust financial controls, and insufficient technology adoption. Regional regulatory frameworks, such as those from the Central Bank of Kenya and the Ministry of Cooperative Development, have sought to address these gaps. Nonetheless, the effectiveness of these frameworks in mitigating internal fraud and improving financial performance remains a topic of concern and ongoing research.

In Kisumu County, Kenya, SACCOs are a key driver of local economic empowerment, providing financial services to a large portion of the population. However, these institutions have increasingly been susceptible to internal fraud, resulting in financial losses and a loss of trust among members. Although various fraud mitigation strategies, such as regular audits, enhanced internal controls, and employee training, have been implemented by local SACCOs, the effectiveness of these approaches on improving financial performance is still uncertain. This study aims to investigate the effectiveness of internal fraud mitigation measures within Kisumu County's SACCOs and their impact on the financial performance of these institutions.

Fraudsters are continually evolving their tactics, utilizing technology and social engineering techniques to exploit vulnerabilities within SACCO operations (Abate, Rashid, Borzaga, and Getnet, 2016). The digital transformation of financial services introduces new risks associated with cyber fraud and data breaches. As SACCOs adopt digital platforms for member transactions and data management, they become targets for cybercriminals seeking to compromise sensitive information or manipulate digital systems for illicit gains. The insider threat remains a persistent challenge for SACCOs, as employees or trusted individuals within the organization may exploit their access privileges for fraudulent purposes. This could involve unauthorized access to member accounts, manipulation of financial records, or collusion with external parties to perpetrate fraud schemes. The increasing regulatory scrutiny and compliance requirements place added pressure on SACCOs to strengthen their internal fraud prevention measures. Regulatory authorities are increasingly mandating stringent anti-fraud controls and reporting standards to mitigate financial crimes and protect depositor interests. SACCOs therefore have to stay abreast of evolving regulatory expectations and invest in compliance infrastructure to ensure adherence to legal and ethical standards.

The relevant financial theories identified to support the research variables include the agency theory by Alchian & Demsetz (1972). This theory examines the relationship between principals (owners) and agents (managers), addressing potential conflicts of interest arising from their differing goals. It explores ways to align these interests to ensure that agents act in the best interests of the principals. The relevance of agency theory to this study is that the SACCO members entrust the management and employees with the responsibility of safeguarding their financial interests and ensuring the cooperative's financial performance. The other theory is the Risk management theory by Wenk (2005). Risk Management theory is relevant to the research topic since it provides a comprehensive framework for understanding, assessing, and mitigating risks, which is directly applicable to the evaluation of internal fraud mitigation approaches and their impact on the financial performance of SACCOs in Kisumu County, Kenya.

The cooperative society sector in Kisumu County plays a vital role in fostering financial inclusion and economic development within the county and the country by extension (Odhiambo,2016).The financial performance of Deposit-taking Saccos in Kisumu County is impended by an inadequate existence, and there exists inconsistency in the implementation of internal fraud mitigation approaches, as a result of the ongoing issuance of loans exceeding their deposits, which depletes their liquidity. Some D.T SCCOs are compelled to borrow from outside sources to cover any shortfalls that may occur (Ministry of Cooperative Development & Marketing, 2018).The sector is confronted with a significant challenge in the form of internal financial malpractices and fraudulent activities, which pose a threat to the financial stability and trustworthiness of these cooperative institutions, which are currently eleven in number within the county.

1.2.1 Fraud Mitigation

According to Albrecht and Zimbelman (2016), fraud mitigation refers to the strategies and measures implemented by organizations to prevent, detect, and respond to fraudulent activities, aiming to reduce the occurrence and impact of financial losses resulting from fraudulent behavior. Wells (2014) defines fraud mitigation as that which encompasses the array of techniques and controls employed by enterprises to identify, assess, and manage fraud risks, to minimize the likelihood and severity of fraudulent incidents while Button and Gee (2015), fraud mitigation involves the systematic approach adopted by organizations to proactively address vulnerabilities, strengthen internal controls, and foster a culture of integrity and accountability, thereby mitigating the risk of fraud and preserving the trust and confidence of stakeholders. Fraud mitigation is any structure that is put in place in an organization to prevent, detect, or counter any illegal action that may lead to pilferage or leakage of organization resources to unintended destinations.

Kothari and Boeckmann (2017) explored fraud mitigation approach specifically tailored to Savings and Credit Cooperative Societies. The findings emphasized the importance of a multi-dimensional strategy encompassing preventive, detective, and corrective measures to mitigate fraud risks within SACCOs effectively. Preventive measures included robust internal controls, segregation of duties, and employee training to deter fraudulent behavior and minimize opportunities for misconduct. Detective measures involved implementing fraud detection systems, conducting regular audits, and establishing whistleblower mechanisms to identify suspicious activities promptly. Overall, the research underscored the necessity for SACCOs to adopt a comprehensive fraud mitigation framework tailored to their unique operational context, regulatory environment, and member needs to safeguard their financial integrity and maintain member trust.

Fraud mitigation approaches are evaluated through a combination of quantitative and qualitative measures aimed at assessing their effectiveness in preventing, detecting, and responding to fraudulent activities (Sun, 2021). Quantitative metrics involve tracking the frequency, severity, and financial impact of fraud incidents over time, including the number of reported cases, monetary losses prevented or detected, and the time taken to resolve fraud-related issues. Financial impact analysis compares the costs of implementing fraud prevention controls against the monetary losses averted, providing insights into the return on investment of fraud mitigation measures.

1.2.2 Financial Performance

According to Brigham and Eugene (2013), Financial performance refers to the evaluation of a company's overall financial health and efficiency based on various indicators such as profitability, liquidity, solvency, and asset quality.The financial performance of SACCOs is a crucial aspect reflecting their overall health and sustainability. Liquidity measures the ability of SACCOs to meet short-term financial obligations, such as member withdrawals, and is often evaluated through the ratio of liquid assets to liabilities. Profitability indicators, such as return on assets (ROA) and return on equity (ROE), assess the SACCOs' ability to generate income from their operations relative to their assets and members' equity. Asset quality metrics, such as the ratio of non-performing loans (NPLs) to total loans, reflect the quality of SACCOs' loan portfolios and their ability to manage credit risks effectively. Solvency measures, including the capital adequacy ratio (CAR), evaluate the SACCOs' ability to absorb losses and maintain a healthy capital base to support their operations and growth. Overall, monitoring the financial performance of SACCOs is essential for ensuring their stability, soundness, and ability to fulfill their mission of providing accessible financial services to members while maintaining financial integrity and sustainability.

1.2.3 SACCOs

Savings and Credit Cooperatives Societies (SACCOs) are business organizations under cooperatives. They are structured as member-owned and member-controlled and majorly offer financial services. They operate on the principle of self-help and mutual assistance, by members pooling their savings together and using it to provide loans and other financial assistance to its members. Globally and locally, SACCOs have been implementing internal fraud mitigation strategies such as internal and external regular audits and reviews, whistle-blower policies, strict access controls, employee training, and awareness programs (Epstein, 2017).

1.3 Statement of the Problem

The savings and credit cooperatives are notably fostering financial inclusion, empowering local communities, and contributing to the overall economic development of a region, in this case, the Kisumu County economy and Kenya at large. The cooperative society sector in Kisumu County for example plays a vital role in fostering financial inclusion and economic development within the county and the country by extension (Odhiambo,2016). However, the SASRA secretarial report indicates nearly 5% of SACCOs stop their operations annually with a decline in membership due to a reduction or complete loss of trust in the SACCOs or no longer being able to benefitfrom financial services as intended (Muriuki 2017). The financial performance of Deposit-taking Saccos in Kisumu County is impended by an inadequate existence, and there exists inconsistency in the implementation of internal fraud mitigation strategies, as a result of ongoing lending of more than the deposits, which depletes their liquidity. Some deposit-taking SCCOs are compelled to borrow from outside sources to cover any shortfalls that may occur (Ministry of Cooperative Development & Marketing, 2018).

The literature on internal control has extensively examined the components of internal control within various institutions such as banks and manufacturing firms. However, there is limited research on the components of internal control systems specifically related to the financial performance of SACCOs. Adoyo (2016) examined corporate governance practices and solvency among D.T SACCOs in Kisumu County, while Toroitich, Jerop, Omagwa, and Job (Globeedu Group, 2017) focused on credit risk management and the performance of loan portfolios within SACCOs in the same region.None of the studies focused on internal fraud mitigation strategies in SACCOs within Kisumu County which the current research has majorly focused on. The sector is confronted with a significant challenge in the form of internal financial malpractices and fraudulent activities, which pose a threat to the financial stability and trustworthiness of these cooperative institutions. This research hence has filled the gap by proposing the possible internal fraud mitigation strategies, from the findings, that if well implemented shall mitigate the possibility of internal fraud activities that affect the financial well-being of SACCOs.

1.4 Objective of the Study

1.4.1 General Objective

To assess the effectiveness of internal fraud mitigation approaches on financial performance in savings and credit cooperative societies in Kisumu County.

1.4.2 Specific Objectives

i. To evaluate the effectiveness of mechanisms for preventing fraudulent activities aimed at enhancing the financial performance of SACCOs in Kisumu County.
ii. To examine how effective the existing internal fraud detection mechanisms are in improving the financial performance of SACCOs in Kisumu County.
iii. To investigate the impact of current internal fraud control mechanisms on the financial performance of SACCOs within Kisumu County.

1.5 Research Questions.

i. What are the effects of current fraud prevention measures, on financial performance, implemented by D.T SACCOs in Kisumu County?

ii. How effective and efficient are the existing fraud detection mechanisms employed by D.T SACCOs within Kisumu County?

iii. How effective are the internal controls in preventing and detecting fraudulent activities within D.T SACCOs in Kisumu County?

1.6 Significance of the Study

The significance of this study extends beyond the immediate context of SACCOs within Kisumu County since it offers valuable insights for SACCOs, policymakers, academics, and other stakeholders involved in the cooperative and financial sectors (F.S.).

SACCO management in Kenya benefits from this study because it identifies the primary internal controls used by the cooperatives and their impact on financial performance. The management of these cooperatives are best placed to administer successful solutions to internal control difficulties as a result of this study's findings and recommendations. This information guides them in refining and implementing more efficient measures to protect their financial assets. The study will provide Financial Stability and Viability by assessing the relationship between internal fraud mitigation strategies and financial performance.

The results could serve as a valuable resource for the Ministry of Cooperatives to offer insights into policy direction concerning the establishment of security mechanisms, both domestically and internationally. This data could inform the development of practical policy frameworks aimed at addressing the challenges posed by SACCOs and devising strategies for future mitigation. Furthermore, the research will pinpoint precise areas of susceptibility to internal fraud within SACCOs. This knowledge is valuable for enhancing risk management practices, allowing SACCOs to proactively address potential threats to their financial well-being (Shelton & Whittington, 2008).

The findings of this study would be valuable to scholars and academics as they provide a foundation for further research into the SACCO business in Kenya and the factors influencing their financial performance. It is hoped that the study will also serve as a guide for SACCO's Boards of Directors and management in making relevant decisions and strategies regarding internal control systems and compliance with set standards. This research will contribute to the existing body of knowledge on the cooperatives sector. Academics interested in this field will find the study's findings useful for expanding current information and as a basis for future research.

1.7 Justifications of the Study

The study topic "Internal fraud mitigation strategies on financial performance in savings and credit cooperatives societies" is justified by its local relevance, the urgency of addressing fraud in SACCOs, the impact on financial performance, and the potential for practical applications and policy implications. The research findings provide valuable insights that can inform decision-making and contribute to the overall well-being of SACCOs in Kisumu County, Kenya, and the world at large.

The study informs policymakers and regulatory bodies such as SASRA and the Ministry of Cooperatives about the effectiveness of existing regulations and policies related to internal fraud prevention in SACCOs. This can lead to the development of more targeted and effective policies to safeguard the financial sector. This research also contributes to the academic understanding of the relationship between internal fraud mitigation strategies and financial performance in the context of D.T SACCOs. It adds to the existing body of literature on financial management, fraud prevention, and cooperative institutions. Finally, the study enhances fraud mitigation strategies and improves financial performance which in turn contributes to increased confidence among investors and SACCO members. This confidence is crucial for attracting investments and maintaining the loyalty of members which is a key factor for the continuity of the SACCOs.

1.8 Scope of the Study

The research specifically focuses on Deposit-taking Savings and Credit Cooperatives (SACCOs) within Kisumu County, Kenya. It intended to evaluate the effectiveness of internal fraud mitigation approaches employed by SACCOs. This includes but is not limited to fraud prevention, detection, and response strategies. The scope encompasses an analysis of the types of strategies currently in place. The study evaluated the impact of internal fraud mitigation strategies on the financial performance of SACCOs. Financial performance indicators may include profitability, liquidity, solvency, and efficiency ratios. This research was conducted for nine months from January 2024 to September 2024.

This research specifically targeted SACCOs within Kisumu County, Kenya, to evaluate the effectiveness of internal fraud mitigation approaches employed by these financial institutions. As highlighted by Waweru and Uliana (2019), SACCOs play a critical role in enhancing financial inclusion and providing credit to underserved communities, making it essential to understand and address the risks associated with internal fraud. This study encompassed a thorough analysis of various strategies employed for fraud prevention, detection, and response, examining how these measures contribute to mitigating risks. The focus on these strategies is vital, given that internal fraud can undermine member trust and jeopardize the financial stability of SACCOs (Muli & Karanja, 2021).

Furthermore, the research evaluates the impact of these internal fraud mitigation strategies on the financial performance of SACCOs, utilizing key financial performance indicators such as profitability, liquidity, solvency, and efficiency ratios. The relationship between robust internal controls and improved financial performance is well-documented in financial literature, as noted by Abiola and Sanni (2019), who argue that effective fraud mitigation measures can lead to enhanced operational efficiency and financial resilience. By conducting this study over nine months, from January 2024 to September 2024, the researcher aims to gather comprehensive data that reflects both the current practices and the effectiveness of these strategies within the SACCO sector. This timeframe allows for a detailed investigation, enabling the identification of trends and patterns that can inform future policy and operational improvements within SACCOs in Kisumu County.

1.9 Limitations of the Study

Limitations are factors that may impact the accuracy and generalizability of research findings, rendering them not entirely applicable to the broader population (Yin, 2018). This study specifically focused on SACCOs within Kisumu County, encompassing six constituencies: Kisumu West, Kisumu East, Muhoroni, Nyakach, Seme, and Nyando. Although the study addressed the objectives outlined, there may be other factors that influence the financial performance of SACCOs in Kisumu and Kenya as a whole, potentially constraining the study's outcomes. Furthermore, confining the study solely to Kisumu County restricts its applicability beyond this region, thereby limiting the ability to generalize the results to other cooperative society institutions across the country. Challenges such as respondent secrecy and indifference also posed limitations; however, efforts were made to address these concerns by assuring respondents of confidentiality and anonymity.

II. LITERATURE REVIEW

2.1 Introduction

This chapter covers the theoretical review,this section encompasses an examination and synthesis of existing theoretical frameworks, models, and concepts relevant to the study's topic. It contains a comprehensive exploration of academic literature, and theoretical perspectives that lay the groundwork for understanding the research problem. This section also shows context, establishes the theoretical foundation upon which the study is built, and highlight key concepts and debates within the field and finally the literature that anchors the study. It also includes a conceptual framework that highlights the variables under consideration.

2.2 Theoretical Reviews

The financial theories that underpin the research variables include Agency Theory (Alchian & Demsetz, 1972), Risk Management Theory (Wenk, 2005), and Pecking Order Theory (Majluf, 1984). Agency Theory focuses on the relationship between principals (owners) and agents (managers), emphasizing how internal fraud can arise when agents prioritize their own interests over those of the principals. This theory is relevant in understanding the need for effective internal fraud mitigation measures to align the interests of managers with the financial performance goals of the SACCOs.

Risk Management Theory (Wenk, 2005) highlights the importance of identifying, assessing, and managing risks, including fraud risks, to protect organizational assets and ensure financial stability. It supports the role of fraud prevention and detection strategies in minimizing financial losses. Lastly, Pecking Order Theory (Majluf, 1984) addresses how organizations prioritize their sources of financing, often favoring internal funds over external borrowing. In the context of SACCOs, this theory can be linked to how internal fraud can impact financial decision-making and performance by depleting internal resources that could otherwise be used to fund operations or expansion.

2.2.1 Agency Theory

The theory was first introduced by Alchian & Demsetz (1972) and later developed by Jensen & Meckling (1976). It examines how shareholders delegate the day-to-day operations of a firm to management (Clarke, 2004), with the expectation that management will act in the shareholders' best interests as the owners of the company. Fama and Jensen (2000) and Jensen and Meckling (2011) underscore the importance of monitoring mechanisms to manage conflicts of interest and ensure that shareholders' interests remain paramount. The theory centers on the relationship between principals (owners) and agents (managers), specifically addressing potential conflicts of interest stemming from divergent objectives. It examines strategies for aligning interests to guarantee that agents act in the best interest of principals.

Agency Theory, initially introduced by Alchian and Demsetz (1972) and further refined by Jensen and Meckling (1976), addresses the principal-agent relationship, where shareholders (principals) delegate authority to managers (agents) to oversee the firm's operations. The core issue Agency Theory seeks to address is the potential conflict of interest that arises when the goals of the agents differ from those of the principals. As Clarke (2004) noted, shareholders expect managers to act in their best interests; however, misalignment often leads to the need for monitoring mechanisms to ensure that managers' actions align with shareholders' goals. Recent scholars, such as Adegbite et al. (2020), emphasize that effective corporate governance structures, like board oversight and transparent reporting systems, play a pivotal role in mitigating agency problems. These mechanisms are vital for ensuring that managers act in ways that enhance shareholder value and minimize opportunistic behavior, including fraudulent activities.

In the context of SACCOs, Agency Theory is particularly relevant, as members entrust the management with safeguarding their financial interests. The study explored how internal fraud mitigation measures, such as audits and reporting mechanisms, align with SACCO members' (principals) objectives to ensure the cooperative's financial stability. According to recent work by Joshi et al. (2019), internal control systems and transparent monitoring frameworks are crucial in reducing the agency costs associated with fraud and ensuring that managers remain accountable to the principals. These mechanisms help mitigate risks by enforcing oversight, thus ensuring that the interests of SACCO members are upheld, and the financial performance of the cooperative is safeguarded.

The relevance of agency theory to this study is that the SACCO members entrust the management and employees with the responsibility of safeguarding their financial interests and ensuring the cooperative's financial performance. The studyexplored how well internal fraud mitigation strategies align with the interests of SACCO members (principals). In addition, Agency theory emphasizes the importance of monitoring mechanisms to ensure that agents act in the best interest of principals. The study examined the monitoring mechanisms SACCOs employ to assess the efficiency of internal fraud mitigation strategies, including internal audits, reporting systems, and member oversight.

2.2.2 Risk Management Theory

According to Wenk (2005), the risk management model consists of three main phases: risk identification, assessing the probability and potential impact of these risks, and prioritizing them. Following this, resources are strategically allocated in a cost-effective and coordinated manner to reduce, monitor, and control the likelihood and impact of negative events or to take advantage of opportunities. Risks can originate from various sources, including volatile financial markets, project failures, legal liabilities, credit risks, accidents, natural disasters, or intentional attacks, and their origins may be uncertain. Several risk management standards have been developed, such as those from the Project Management Institute, actuarial organizations, and ISO. The approaches, goals, and definitions of risk management vary based on the field of application, whether in project management, engineering, processes, security, assessments, or public health and safety. Risk management strategies typically involve transferring, avoiding, mitigating, or accepting the consequences of specific risks.

Risk Management Theory, as defined by Wenk (2005), emphasizes a structured approach to identifying, assessing, and prioritizing risks, followed by resource allocation to minimize, monitor, and control potential negative outcomes. In the context of financial institutions like SACCOs, risks could stem from internal fraud, credit defaults, or market volatility. Recent scholars have elaborated on the evolving nature of risk management, with Spillan and Hough (2020) noting that a robust risk management system helps organizations proactively identify potential threats and respond more effectively. This framework is particularly relevant to SACCOs, where internal fraud risks can undermine financial stability. By applying risk management strategies, SACCOs can mitigate such risks, thereby safeguarding their financial health and ensuring better performance outcomes.

Moreover, the benefits of effective risk management are extensive. Bernstein (2018) argues that superior risk management practices lead to improved financial performance, reduced wastage and fraud, and more efficient resource utilization. In line with this, SACCOs that implement risk management strategies effectively are better positioned to minimize the occurrence and impact of fraud, which, in turn, enhances their operational efficiency and financial performance. Fukuyama (2016) also underscores the significance of risk management in improving governance and decision-making processes in SACCOs. By incorporating risk management disciplines, SACCOs can strengthen internal controls, reduce fraud risks, and enhance their financial outcomes, thereby aligning with the objectives of the research on fraud mitigation strategies and their influence on financial performance.

Effective risk management can bring far-reaching benefits to an organization, whether public or private, large or small (Bernstein, 2018). Some of the far-reaching benefits include;superior financial performance, good basis for setting,better service delivery, less time spent firefighting achieved, closer focus for doing things properly, more efficient use of resources, reduced wastage and fraud, better value for money, improved creativity and innovation, and better value for money.

Effective risk management also improves better decision-making when risks are wellunderstood and their impacts. If risks are poorly managed, they cause negative impacts on stakeholders' value.Goodgovernance process and effectivenessare created when good discipline in risk management is applied in a study to determine the effects of risk management on the financial performance according to Fukuyama (2013) of deposit-taking SACCOs in Kisumu County, Kenya. Risk Management theory is thus relevant to the research topic since it provides a comprehensive framework for understanding, assessing, and mitigating risks, which is directly applicable to the evaluation of internal fraud mitigation strategies and their impact on the financial performance of SACCOs in Kisumu County, Kenya.

2.2.3 Pecking Order Theory

The pecking order theory, by Stewart and Majluf (2007) in corporate finance, suggests that companies prefer to finance investments first with internal funds, then with debt, and finally with equity. It explains the hierarchy of financing sources based on their cost and asymmetric information. Pecking Order Theory, initially proposed by Stewart and Majluf (1984), offers insights into how firms prioritize their sources of financing, preferring internal funds over debt and equity to minimize the costs associated with external financing and asymmetric information. This theory is particularly relevant to the context of SACCOs, where preserving financial resources is crucial for sustaining operational efficiency. In the corporate finance framework, firms prefer internal funds because they do not involve additional costs or the risk of revealing sensitive information to external financiers. In the context of SACCOs, internal fraud mitigation plays a significant role in protecting these internal funds. By preventing financial losses through fraud prevention strategies, SACCOs ensure that internal funds remain available for reinvestment, aligning with the pecking order theory's objective of conserving financial resources. Recent studies, such as those by Kałużny and Kapuściński (2018), have reinforced the theory's relevance in resource allocation and cost management.

Moreover, Pecking Order Theory emphasizes maintaining investor confidence, a critical factor in SACCOs where members act as investors. Trust and confidence are fundamental to ensuring that members continue to invest their savings and contribute to the cooperative's capital. Fraudulent activities can severely undermine this trust, leading to a loss of member confidence and financial withdrawals. As argued by Fosu et al. (2017), a loss of investor confidence due to poor financial management or fraud can increase the cost of capital and reduce access to necessary funds. By implementing effective fraud mitigation strategies, SACCOs not only preserve internal financial resources but also maintain the trust of their members. This creates a stable financial environment in which SACCOs can fund future growth without resorting to expensive external financing, thus adhering to the principles of the pecking order theory.

In the context of SACCOs in Kisumu County, Kenya, applying the Pecking Order Theory extends beyond capital structure decisions to the effective management of internal funds. Efficient fraud mitigation strategies safeguard internal resources, reducing the need for external debt or equity, which aligns with the theory's hierarchy of financing preferences. Additionally, as fraud prevention and detection directly influence financial stability, the theory's focus on internal financing highlights how SACCOs' financial decision-making is shaped by the effectiveness of their fraud mitigation efforts. This alignment between fraud prevention and financial resource preservation was noted by Osei-Assibey et al. (2019), who found that organizations with better internal controls experienced improved financial outcomes. Thus, the application of the Pecking Order Theory in this research is relevant for understanding how SACCOs can enhance their financial decision-making by implementing robust fraud mitigation strategies.

The pecking order theory is concerned with preserving financial resources. Efficient internal fraud mitigation strategies align with this objective by preventing financial losses due to fraudulent activities. The research will thus examine how the preservation of financial resources through these strategies influences the financial decision-making process within SACCOs. Pecking order theory also recognizes the importance of maintaining investor confidence. In the context of SACCOs, maintaining the confidence of members (investors) is crucial. Effective fraud mitigation strategies contribute to trust and confidence.While the pecking order theory is traditionally associated with capital structure decisions, its principles of preferring internal financing and preserving financial resources can be applied to the context of internal fraud mitigation in SACCOs. The study examined how efficient implementation of fraud mitigation strategies aligns with or influences the financial decision-making processes within SACCOs in Kisumu County, Kenya.

2.3 Empirical Review

This section examines research conducted by various authors and scholars concerning internal control systems and the financial performance of businesses. Relationships between internal fraud mitigation strategies implanted by SACCOs concerning their financial performance. Risk assessment, transaction monitoring, regular audits, biometric authentication, real-time alerts and notifications, social media monitoring, documented policies and procedures, budget controls, and physical security measures are some of the areas to be looked at.

2.3.1 Fraud Prevention Measures

Fraud prevention measures are crucial for safeguarding organizations against financial losses and reputational damage (Hazen, 2017). Scholars emphasize the significance of a comprehensive approach to fraud prevention, incorporating various strategies. One key aspect is risk assessment, which involves identifying and evaluating potential vulnerabilities within an organization's systems and processes (Hubbard, 2014). The Committee of Sponsoring Organizations of the Tredway Commission (COSO) in its Internal Control - Integrated Framework underscores the importance of risk assessment in establishing a solid foundation for internal control.

Fraud prevention measures are essential for protecting organizations from financial harm and reputational damage. Scholars emphasize that a comprehensive fraud prevention strategy must integrate risk assessment, transaction monitoring, and regular audits. Risk assessment, as Hazen (2017) and Hubbard (2014) suggest, is a critical first step in fraud prevention. Organizations should identify and evaluate vulnerabilities within their systems and processes to build effective internal controls. The Committee of Sponsoring Organizations of the Treadway Commission (COSO), in its Internal Control - Integrated Framework, highlights risk assessment as the foundation of an organization's internal control system, emphasizing its role in preventing fraud by identifying potential risks early.

Transaction monitoring is another crucial element in fraud detection. Albrecht, Albrecht, and Albrecht (2016) argue that continuous monitoring of financial transactions is necessary to identify anomalies that may signal fraudulent activity.

Such monitoring systems, when integrated into an organization's internal control framework, offer a proactive mechanism for identifying fraud risks in real time. These systems can automate alerts, allowing for quicker responses to suspicious activities, thereby minimizing potential losses. Proactive monitoring complements a strong internal control environment by providing ongoing oversight of financial processes.

Audits also play a key role in fraud prevention. Beasley, Carcello, and Hermanson (2016) note that both internal and external audits are critical for ensuring adherence to policies and procedures. Audits provide an independent review of an organization's financial processes and help maintain accountability. Regular audits serve as a strong deterrent against fraud by fostering transparency and reinforcing the perception that irregularities will be discovered. This creates a culture of accountability within the organization, further safeguarding it from fraud.

Transaction monitoring is another essential component in fraud prevention. Scholars such as Albrecht, Albrecht, and Albrecht (2016) stress the need for continuous monitoring of financial transactions to detect irregularities and anomalies that may indicate fraudulent activities. A well-designed system for transaction monitoring, integrated into an organization's internal control structure, provides a proactive means of identifying and mitigating potential fraud risks.

Regular audits, as advocated by scholars like Beasley, Carcello, and Hermanson (2016), play a vital role in fraud prevention. Internal and external audits help ensure compliance with established policies and procedures, offering an independent and systematic review of an organization's financial processes. Audits not only detect potential fraud but also serve as a deterrent by creating accountability and transparency within the organization.

2.3.2 Fraud Detection Technologies

Fraud detection technologies have evolved significantly, employing advanced methods to proactively identify and combat fraudulent activities within organizations (Metcalfe, 2007). Real-time alerts and notifications form a critical component of these technologies, enabling immediate response to potential threats. By continuously monitoring transactions and activities, these systems can detect anomalies and deviations from established patterns in realtime, triggering instant alerts. This real-time capability empowers organizations to swiftly investigate and mitigate potential risks, reducing the impact of fraudulent actions (Metcalfe, 2007).

Fraud detection technologies have undergone rapid advancements, leveraging cutting-edge tools to identify and counter fraudulent activities more effectively. Real-time alerts are a vital aspect of modern fraud detection systems, enabling organizations to respond to suspicious activities as they happen. Recent studies, such as those by Reddy and Reddy (2018), highlight how these systems utilize algorithms to monitor transactional data continuously and trigger alerts when deviations from normal patterns are detected. The ability to respond immediately helps organizations mitigate potential risks quickly, thereby minimizing financial losses and safeguarding their reputations. Real-time monitoring has proven to be an effective deterrent against fraud by creating an environment where rapid detection and response are prioritized.

Social media monitoring is another advanced fraud detection technique gaining importance. As pointed out by scholars like Thakur and Srivastava (2018), social media platforms have become both communication hubs and venues for commercial transactions, which fraudsters exploit. By employing artificial intelligence and machine learning algorithms, organizations can analyze user behavior, identify fake accounts, phishing attempts, or fraudulent promotions, and take pre-emptive measures. These algorithms are capable of sifting through vast amounts of social media data to recognize suspicious patterns, making it easier for organizations to identify reputational risks or fraudulent schemes in real-time.

Big data analytics plays a crucial role in modern fraud detection, especially in the processing of large volumes of structured and unstructured data. According to Huang and Pearlson (2019), the integration of big data analytics enables organizations to uncover hidden correlations, patterns, and trends that might indicate fraudulent behaviour. This technology can analyze diverse data sources, including financial records, communication logs, and even social media interactions, to provide a holistic view of potential risks. By utilizing predictive analytics, organizations can not only detect fraud but also anticipate emerging threats, thus proactively safeguarding against future fraudulent activities.

Social media monitoring is another key aspect of modern fraud detection technologies. Recognizing the increasing use of social platforms for communication and commerce, these technologies leverage sophisticated algorithms to analyze social media data. By scrutinizing user interactions and sentiments, organizations can identify potential fraudulent schemes, phishing attempts, or reputational risks. Big data analytics plays a pivotal role in fraud detection by processing and analyzing vast amounts of structured and unstructured data. By harnessing the power of big data, organizations can uncover hidden patterns, correlations, and trends that may indicate fraudulent behavior (Metcalfe, 2007).

2.3.3 Internal Control

Internal control measures are essential components of an organization's risk management and governance framework, aiming to ensure the integrity, reliability, and security of its operations (Knapp, 2021). One crucial aspect is the segregation of duties, where responsibilities are divided among different individuals to prevent any single person from having too much control over a process. This helps in minimizing the risk of errors or fraudulent activities by requiring collusion among multiple parties. Dual authorization is another key element in internal control, involving the requirement for two individuals to approve certain actions or transactions. This adds an extra layer of scrutiny and accountability, reducing the likelihood of unauthorized activities and enhancing the overall control environment.

Internal control measures are crucial for maintaining an organization's integrity, reliability, and operational security. A key component of internal controls is the segregation of duties, which involves dividing responsibilities among multiple individuals to ensure that no one person has control over all aspects of a transaction or process. This practice is central to reducing the risk of both errors and fraud, as it requires collusion between individuals for illicit actions to occur (Knapp, 2021). Segregation of duties is often supplemented by dual authorization, where two or more individuals must approve critical transactions. As highlighted by Marks and Walker (2019), dual authorization acts as an additional safeguard, increasing oversight and reducing the chance of unauthorized activities by ensuring that no single person can execute high-risk actions without peer review. Documented policies and procedures form another pillar of effective internal control systems. These documents provide employees with structured guidelines for executing tasks and processes, thereby ensuring consistency across the organization. Drucker (2002) stresses that formalized policies promote accountability and transparency by establishing clear operational standards for employees, auditors, and stakeholders. Moreover, they offer a reference framework that can be used during internal and external audits, facilitating the identification of deviations from established protocols. According to Esmeralda and Yasin (2017), well-documented procedures also contribute to operational efficiency by reducing ambiguity and ensuring that employees understand their roles within the broader organizational framework.

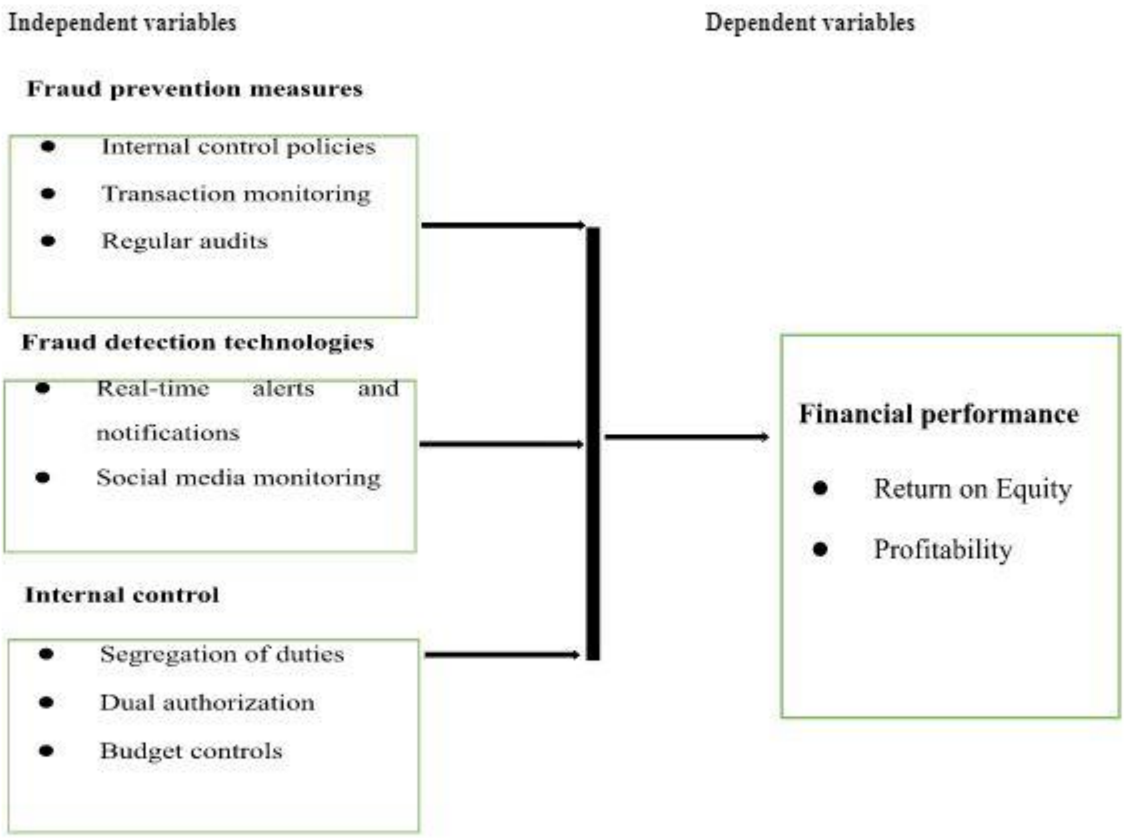
Budget controls and physical security measures further enhance an organization's internal control framework. Budget controls involve setting financial limits and tracking expenditures to ensure alignment with approved budgets, preventing overspending and financial mismanagement (Singh, 2020). These controls play a critical role in ensuring that resources are used effectively and in accordance with the organization's strategic goals. Additionally, physical security measures, such as access controls and surveillance systems, are essential for protecting tangible assets, such as facilities and sensitive documents. Effective physical security measures safeguard against theft, unauthorized access, and damage, contributing to the overall protection of organizational assets and information (Knapp, 2021). Together, these internal controls create a comprehensive risk management system that enhances operational integrity and governance.

Documented policies and procedures provide a structured framework for employees to follow, establishing clear guidelines for various tasks and processes (Drucker, 2002). This not only ensures consistency in operations but also serves as a reference point for employees, auditors, and other stakeholders, contributing to transparency and accountability. Budget controls are integral to internal control mechanisms, involving the establishment of financial limits and monitoring mechanisms to ensure that expenditures align with approved budgets. This helps prevent overspending and ensures financial resources are allocated efficiently and per organizational goals. Physical security measures are implemented to safeguard an organization's tangible assets, including facilities, equipment, and sensitive documents. Access controls, surveillance systems, and other security measures help protect against unauthorized access, theft, or damage, contributing to the overall protection of organizational assets and information.

2.4 Conceptual Framework

Figure 2.1 illustrates the interplay of various variables of the study. Theseare independent variables, which includefraud mitigation approaches. The mitigation approaches identified include fraud prevention measures–which are indicated by internal control and policies, risk assessment, transaction monitoring, and regular audits. The other is fraud detection technologies, which are indicated by real-time alerts and notifications, social media monitoring, and big data analytics. Finally, there is the internal fraud control approach, which is indicated bythe segregation of duties, dual authorization, documented policies and procedures, and budget controls.

The dependent variable is financial performance, which is measured by the rate of return on equity (ROE). The indicators involved here are profitability, loan portfolio quality, asset growth, member savings, and dividend payment (Aswath, 2022).



Source: Author (2024)

2.6 Summary and Research Gap

The study examines the impact of internal fraud mitigation strategies on the financial performance of deposit-taking SACCOs in Kisumu County, with a focus on various financial performance indicators like profitability, loan portfolio quality, asset growth, and member savings. The independent variables include fraud prevention measures such as internal controls, transaction monitoring, risk assessments, and advanced detection technologies like biometric authentication and big data analytics. Additionally, internal control elements, such as segregation of duties, dual authorization, and documented policies, are also considered. A critical aspect of the study is the moderating variable, SACCO size, which may affect SACCO's ability to implement these fraud mitigation strategies. Larger SACCOs, with greater resources and more sophisticated infrastructure, might be more effective in implementing robust fraud controls, as compared to smaller SACCOs. This study aims to assess whether these strategies can directly influence the financial health and trustworthiness of SACCOs in Kisumu County.

Despite previous research on corporate governance (Adoyo, 2016) and credit risk management in SACCOs (Jerop & Omagwa, 2017), the specific area of internal fraud mitigation in SACCOs in Kisumu County has not been extensively studied. The growing threat of internal financial malpractices in SACCOs, such as fraud and mismanagement, makes this research critical. The gap in existing literature points to a lack of empirical studies focused on fraud mitigation strategies in this sector. By addressing this gap, the current study aims to identify and propose the most effective internal fraud mitigation strategies that, if well-implemented, can enhance the financial stability of SACCOs. This will provide practical recommendations to SACCOs in Kisumu County, as well as contribute to the broader body of knowledge on fraud prevention in cooperative financial institutions.

The study evaluates the effectiveness of internal fraud mitigation approaches on financial performance in deposit-taking SACCOs within Kisumu County. The dependent variable is the financial performance which is measured by the level of profitability, loan portfolio quality, asset growth, member savings, dividend payment, and capital adequacy. The independent variable includes fraud prevention measures- internal control and policies, risk assessment, transaction monitoring, regular audits and biometric authentication, fraud detection technologies –real-time alerts and notifications, social media monitoring and big data analytics, and internal control –segregation of duties, dual authorization, documented policies and procedures, budget controls, physical security measures, and training and awareness programs. Finally, the moderating variable which is the SACCO size, will impact the ability of a SACCO to implement fraud mitigation strategies.Adoyo (2016), researched corporate governance practices and solvency of deposit-taking SACCOs in Kisumu County, while Jerop and Omagwa (2017) focus on the credit risk management and performance of loan portfolios among Saccos in Kisumu County. None of the studies focused on internal fraud mitigation strategies in SACCOs within Kisumu County which the current research intends to focus on. The sector is confronted with a significant challenge in the form of internal financial malpractices and fraudulent activities, which pose a threat to the financial stability and trustworthiness of these cooperative institutions. This research hence fills the gap by proposing the best internal fraud mitigation strategies, from the findings, that, if well implemented, shall mitigate the possibility of internal fraud activities that affect the financial well-being of SACCOs.

III. RESEARCH METHODOLOGY

3.1 Introduction

This chapter delves into the fundamental components of conducting research, focusing on population and sampling, sampling procedures, data collection procedures, instruments utilized, piloting techniques, reliability and validity assessments, data analysis models, and ethical considerations.

3.2 Research Design

The researcher utilized a descriptive survey design, which Burns (2019) defines as a method that facilitates the collection, summarization, presentation, and interpretation of data for clarification purposes. This design was chosen due to its effectiveness in gathering both quantitative and qualitative data, as emphasized by Mugenda and Mugenda (1999). The aim of the descriptive study design was to investigate the effect of internal fraud mitigation strategies on the financial performance of D.T SACCOs in Kisumu County, Kenya, that are licensed by SASRA.The descriptive survey design was a suitable choice for this research, given its capacity to provide a comprehensive overview of internal fraud mitigation strategies and their impact on financial performance in D.T. SACCOs. As noted by Burns (2019), this design enables the researcher to collect, summarize, and interpret data in a way that clarifies key relationships and patterns. The descriptive approach is particularly valuable in studies seeking to assess the current status of phenomena, such as the effectiveness of fraud prevention measures within organizations (Creswell & Creswell, 2018). This research aimed to evaluate how various fraud mitigation strategies influence financial performance, providing actionable insights that could be applied to improve organizational practices within SACCOs licensed by the Sacco Societies Regulatory Authority (SASRA).

Moreover, the descriptive survey design allowed for the collection of both quantitative and qualitative data, a dual approach that strengthens the depth and validity of the findings (Saunders, Lewis, & Thornhill, 2019). Quantitative data, such as financial performance metrics and fraud incidence rates, provided measurable indicators of the impact of fraud mitigation strategies. Simultaneously, qualitative data from open-ended survey questions offered nuanced insights into the effectiveness and challenges of implementing these strategies within SACCOs. The combination of these data types aligns with the recommendations of Mugenda and Mugenda (1999), who highlight that descriptive studies are particularly effective in exploring multifaceted research problems by integrating diverse forms of evidence.

The focus on D.T. SACCOs in Kisumu County also underscores the relevance of the descriptive design in studying specific geographic and regulatory contexts. Given that these SACCOs are regulated by SASRA, the research needed to consider how regulatory frameworks might shape the adoption and success of internal fraud mitigation strategies. According to Tracy (2020), descriptive studies are particularly well-suited for capturing contextual factors that influence organizational practices. By examining a specific, well-defined group of SACCOs, the research could draw clearer conclusions about the effectiveness of fraud prevention measures and how these measures contribute to financial stability and performance within the regulatory environment of Kisumu County. This targeted approach ensures that the findings are both relevant and applicable to the local context.

3.3 Population and Sampling

The study focused on the staff from the finance, accounting, and credit departments of all 11 D.T SACCOs licensed by the Sacco Societies Regulatory Authority (SASRA) and operating in Kisumu County as of December 31, 2022. By targeting these specific departments, the research aimed to capture insights from individuals directly involved in the financial management and operational processes that are critical to the effective implementation of fraud mitigation strategies. Research by Ochieng and Ngoya (2018) emphasizes that individuals in these roles possess unique insights into the operational vulnerabilities and the effectiveness of internal controls, making them ideal participants for this study. Furthermore, engaging staff from various hierarchical levels within these departments can provide a more comprehensive understanding of the challenges and best practices associated with fraud prevention in SACCOs.

Involving the staff from all licensed D.T SACCOs within Kisumu County ensures a diverse range of perspectives that can enhance the study's validity and reliability. As indicated by Karanja and Muli (2021), examining a broader spectrum of experiences across multiple SACCOs allows for a more nuanced understanding of industry-specific challenges and solutions regarding fraud mitigation. The regulatory oversight provided by SASRA ensures that these SACCOs adhere to the required operational standards, which adds an additional layer of relevance to the research. By aligning the study's focus with the regulatory framework, the research can yield insights that not only reflect the current state of internal fraud mitigation efforts but also inform future regulatory and operational practices within the SACCO sector in Kisumu County.

3.3.1 Sampling Procedure

The researcher employed a purposive sampling method. As outlined by Campbell (2020), purposive sampling involves the deliberate selection of participants or cases based on specific characteristics or criteria pertinent to the research objectives.

The researcher applied purposive sampling, a non-probability sampling method where participants are deliberately selected based on specific criteria aligned with the research objectives. Unlike random sampling, where every individual has an equal chance of being included, purposive sampling is more focused and strategic. In this study, which explores the effectiveness of internal fraud mitigation approaches on the financial performance of SACCOs in Kisumu County, the researcher specifically targeted individuals with direct knowledge and experience in fraud control. For example, finance managers, internal auditors, and fraud prevention officers were selected because of their specialized roles in implementing and managing fraud mitigation strategies. This method ensures that the data gathered is highly relevant and directly addresses the research questions, allowing for a deeper understanding of how internal fraud mitigation impacts the financial performance of SACCOs, even though it may not represent the general population. As Campbell (2020) notes, purposive sampling allows researchers to focus on individuals who possess specific knowledge or experience directly related to the study, enhancing the relevance and depth of the data collected. In this case, the study targeted key personnel from the finance, accounting, and credit departments of all 11 D.T SACCOs operating in Kisumu County. By focusing on officers from these departments, the research sought insights from individuals directly involved in the financial operations and management processes most affected by internal fraud mitigation strategies. The sample included chief executive officers (11), finance officers (60), and credit officers (49), providing a total population of 120 potential participants, with the study selecting 100 of these officers, achieving an 83.3% sample size.

This purposive approach was designed to ensure that the sample consisted of individuals with the requisite expertise to provide informed perspectives on fraud mitigation strategies. By concentrating on key departments, the researcher ensured that the collected data would be highly relevant to the study’s objectives. The decision to target 83.3% of the total population strikes a balance between feasibility and representation, ensuring that the findings reflect a broad cross-section of the SACCOs' financial and credit management functions. This targeted sampling approach enhances the validity of the research by ensuring that participants have both the experience and insight necessary to assess the effectiveness of internal fraud mitigation strategies within their respective SACCOs.

The study aimed to involveall the staff from finance, accounting, and credit departments of all the eleven D.T SACCOs operating within Kisumu County. For the eleven D.T SACCOs, the total number of chief executive officers is 11, in the finance department therewere 60 officers while in the credit department therewere 49 officers in number. This translates to a total population of 120 officers this research targeted. Out of the population of 120 officers, this research picked a sample size of 100 officers translating to 83.3% of the total population. Table 3.1 herein demonstrates this sampling frame.

3.3.2 Sampling Frame

Table 3.1: Sampling frame

Type of sample	Total population	Sample size	%age against the total population
SACCO Chief Executive Officers			

	11	11	100%
Finance and accounting department officers	60	50	83.3%
Credit department officers	49	39	79.6%
Total	**120**	**100**	**83.3%**

Source: Author (2024)

3.4 Data Collection Procedure and Instruments

The researcher provided the respondents with an introductory letter, duly endorsed by the university, to instill confidence in their participation in the study. Anonymity was ensured, as respondents were not asked to disclose their names, to elicit accurate and unbiased information. These questionnaires featured both open and closed-ended questions, facilitating the collection of comprehensive data.

To foster a sense of trust and encourage participation, the researcher provided respondents with an introductory letter endorsed by the university. This approach aligns with the findings of Muli and Karanja (2018), who highlight that official endorsements can significantly enhance participant confidence in the research process. By ensuring that respondents understood the study's purpose and the ethical considerations in place, the researcher aimed to create an environment conducive to open and honest communication. The inclusion of an anonymity guarantee was particularly crucial; as noted by Dyer and O'Brien (2019), anonymity can reduce response bias and promote more accurate data collection, as participants may feel more comfortable sharing their views without fear of repercussion.

The questionnaires used in the study comprised both open and closed-ended questions, strategically designed to gather a rich and nuanced dataset. Closed-ended questions enable quantitative analysis and straightforward comparisons, while open-ended questions allow participants to express their thoughts and experiences in their own words, providing deeper insights into their perspectives (Fowler, 2016). This mixed-method approach enhances the validity of the research findings by combining the strengths of both qualitative and quantitative data. Additionally, as highlighted by Creswell (2018), such an approach facilitates a comprehensive understanding of complex phenomena, such as internal fraud mitigation strategies in SACCOs, by capturing the nuances of respondents' experiences alongside measurable trends. This design not only enriches the data but also contributes to a more robust analysis of the effectiveness of the fraud prevention measures in place.

3.5 Reliability and Validity

Reliability denotes the extent to which a research instrument consistently produces similar outcomes across multiple trials (Mugenda and Mugenda, 2003). Piloting was carried out to enhance reliability. As per Eldridge (2016), research piloting entails conducting a preliminary investigation on a small scale to evaluate and improve research methods, tools, procedures, or logistical arrangements before initiating the main study. The piloting phase aimed to identify and address any uncertainties and deficiencies. Specifically, the piloting involved carrying out similar guided interview in similar organizations in Siaya county.

Reliability is a crucial concept in research, indicating how consistently a tool or method produces stable and consistent results under repeated trials (Creswell & Creswell, 2018). In line with the views of Mugenda and Mugenda (2003), piloting serves as a key strategy to enhance the reliability of research instruments. By conducting a pilot test, researchers can evaluate the effectiveness of their methodologies, identify potential issues, and make necessary adjustments before proceeding with the main study. This is especially important for qualitative studies, where instruments like interviews or questionnaires need to yield consistent and credible insights across different contexts (Bryman, 2016). In the case of guided interviews, piloting ensures that the questions are clear, the flow is logical, and that participants can provide meaningful responses without confusion or bias.

According to Eldridge et al. (2016), piloting is a valuable approach for identifying logistical and procedural challenges that could affect the overall quality of a study. The aim of conducting a pilot study in Siaya county was to simulate the conditions of the main study, ensuring that the interview questions are relevant and applicable to similar organizations addressing water-related challenges. This preliminary phase allowed the researchers to refine their instruments, improving the clarity, reliability, and overall design of their research. Additionally, the feedback from the pilot phase offered insights into potential barriers, such as cultural nuances or organizational differences, that could impact the broader study, making the research more adaptable and robust in its final form.

Employing the split-half technique for assessing reliability, the researcher ensured that scores from one portion correlate with those from the other, thereby minimizing potential errors resulting from varying test conditions. Regarding validity, Oshri and Gerbasi (2015) characterize findings as meaningful, convincing, and intuitively plausible to the reader. Smith (2016) articulates validity in terms of results that appear truthful or reflective of reality. The validation of research outcomes involved consultation with supervisors.

3.6 Data Analysis Model

Data analysis aims to transform raw data into a format suitable for statistical interpretation and presentation (Banerjee and Gelfand, 2014). The collected data went through various operations, including editing, coding, classification, and analysis utilizing a statistical software package. Descriptive statistics as well as inferential statistics, was employed for analysis. Correlation analysis was utilized to ascertain the strength and direction of the relationship between internal fraud mitigation strategies and financial performance indicators within SACCOs. Pearson correlation coefficients was computed to evaluate the extent of association among variables like fraud incidence rates, fraud prevention measures, and financial ratios.

Data analysis plays a crucial role in translating raw data into meaningful information that can inform decision-making and research findings. This process includes steps like editing, coding, classifying, and analyzing data to ensure accuracy and coherence in the presentation of results (Hair et al., 2019). Statistical software packages, such as SPSS or Stata, are often employed to facilitate this process, allowing for both descriptive and inferential statistical analysis. Descriptive statistics summarize the basic features of the data, providing an overview of trends and distributions, while inferential statistics help to make generalizations about a larger population based on the sample data (Creswell & Creswell, 2018). In this study, correlation analysis was used to determine the strength and direction of the relationship between internal fraud mitigation strategies and financial performance indicators within SACCOs. The Pearson correlation coefficient, a common measure of linear correlation, was computed to assess the relationship between variables such as fraud incidence rates, prevention measures, and financial ratios, providing insights into the interplay between these elements.

Linear regression analysis was applied to investigate the relationship between the dependent variable (Y) and three independent variables: fraud prevention measures, fraud detection technologies, and internal controls. Linear regression is particularly useful in assessing how multiple factors collectively influence a single outcome variable (Tabachnick & Fidell, 2019). This method assumes a straight-line relationship between the dependent and independent variables, which allows the researcher to quantify the contribution of each independent variable to the overall variance in the dependent variable. By using this approach, the study sought to determine the extent to which fraud prevention, detection, and internal controls influence financial performance within SACCOs, offering a structured framework for understanding the dynamics between these critical factors.

Linear regression tests a single dependent variable and it was chosen for use by the researcher in an attempt to accurately assess the degree of association of the different independent variables with theconsequent state. Y, and three independent variables: fraud prevention measures, fraud detection technologies and internal controls. This kind of model assumes straight line relationship between dependent and the independent variables and enables the researcher to find out how each of these factors affects the dependent variable. The linear regression formula used in this study is hereby expressed as:

$$Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \varepsilon$$

Where

Y = Financial performance

X1 = Fraud prevention measures

X2 = Fraud detection technologies

X3 = Internal control

ε = Error term

3.7 Ethical Considerations

Adhering to ethical guidelines is a cornerstone of responsible research, ensuring the protection of participants' rights and the integrity of the study. Before data collection, the researcher sought the necessary approvals from relevant authorities, including obtaining an introductory letter from the University, which acted as formal recognition and permission to conduct the study. This step aligns with the recommendations by Saunders, Lewis, and Thornhill (2019), who emphasize the importance of institutional approval in safeguarding both the research process and participants. Gaining approval ensures that the research complies with ethical standards, particularly concerning the confidentiality, privacy, and consent of participants (Bryman, 2016). Such measures ensure that the research is conducted within a framework that respects all stakeholders' rights and maintains the study's credibility.

Maintaining open communication with participants throughout the research process is another critical aspect of ethical research. Continuous engagement helps to establish trust between the researcher and participants, reducing potential anxiety and ensuring that participants feel respected and valued (Creswell & Creswell, 2018). By keeping participants informed at every stage of the research, the researcher addressed any emerging concerns, ensuring that issues such as consent, data usage, and withdrawal from the study were handled promptly and ethically (Flick, 2018). This approach is particularly important in sensitive research contexts, as it ensures participants remain comfortable and fully aware of their involvement in the study, minimizing the risk of ethical breaches.Furthermore, addressing ethical concerns as they arise helps maintain the integrity of the research. Ethical issues in research are dynamic, and unforeseen challenges may emerge during the data collection process (Tracy, 2020). Open communication channels allow the researcher to respond to these issues in real time, ensuring that participants' rights are upheld and that any deviations from the original ethical framework are managed transparently. This adaptive approach aligns with guidelines on ethical research practices, which stress the importance of continuous ethical oversight to protect the welfare of participants and the validity of research outcomes (Resnik, 2018). By adopting this approach, the researcher can navigate ethical complexities while maintaining the trust and cooperation of participants throughout the study.

IV. RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

This chapter presents the analysis and findings of the study, which are based on data gathered from self-administered questionnaires distributed across the eleven D.T. SACCOs in Kisumu County.

4.2 Response Rate

Table 4.2 summarizes the sample size and participation rates for a research project involving SACCO personnel, showing both the targeted and actual participation of Chief Executive Officers, finance and accounting officers, and credit officers. Out of the 100 targeted participants, 90 participated, resulting in a 90% overall participation rate. According to Don Dillman (2016), a response rate of 50% or higher is sufficient and considered acceptable, making this response rate reliable for thorough analysis. The table also highlights the individual participation rates: 90.9% for SACCO CEOs, 92% for finance and accounting officers, and 87.2% for credit officers, demonstrating strong engagement across all groups.

Table 4. 1Response Rate

Type of sample	Targeted sample	Actual participation	%age against the target
SACCO Chief Executive Officers	11	10	90.9%
Finance and accounting department officers	50	46	92%
Credit department officers	39	34	87.2%
Total	**100**	**90**	**90%**

Source: Author (2024)

4.2.0 Demographic and Background Information

To evaluate the relevance of the information provided by the respondents, understanding their background and demographic details was essential. Collecting this information allows for a more in-depth analysis of how various demographic factors may affect respondents' views and experiences. Therefore, specific questions were asked to gather detailed information on key demographic attributes, including gender, age, education level, and length of service at the respective SACCOs. Analyzing gender helps identify any differences in responses based on gender identities. Age data helps to understand how perspectives may differ across age groups, possibly highlighting generational differences. Education level is important for assessing how different levels of formal education may influence respondents' understanding and opinions. Finally, knowing the length of service offers insights into how the duration of involvement with SACCOs may shape responses, with longer service potentially correlating with greater experience and insight into the organization's operations. The findings related to these demographic factors are presented in the following sections, organized by gender, age, education, and length of service, to provide a comprehensive overview of the respondent profiles.

4.2.1 Gender

The respondents' gender distribution was captured as male or female as shown in the pie chart below.

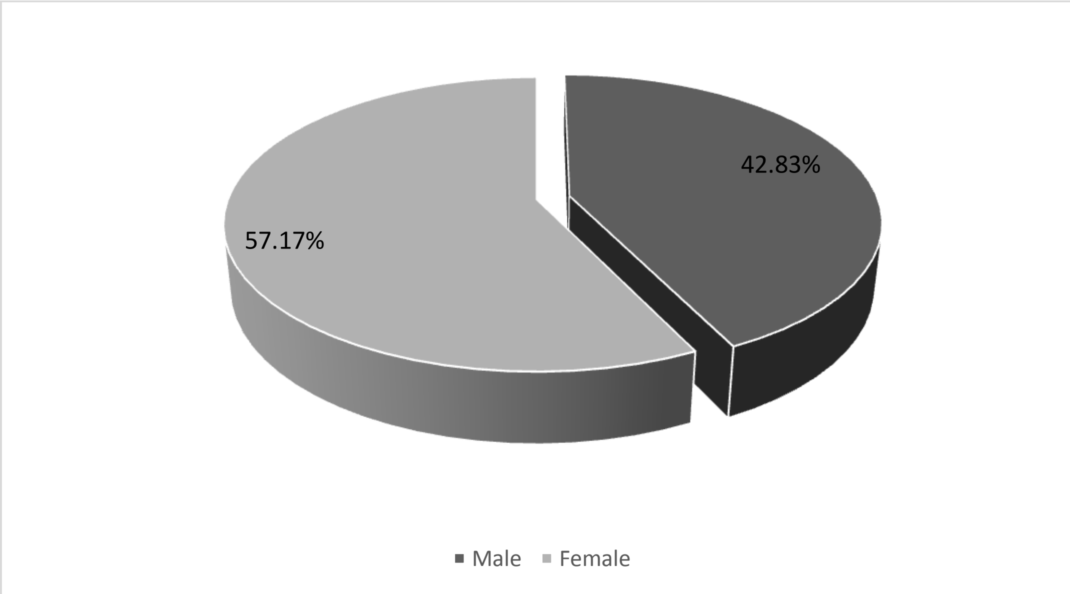


Figure 4.1 Gender chart

Source: Author's analysis (2024)

From the findings, there were more females at 57.17% than males at 42.83% in the finance and accounting, and credit departments of these SACCOs.

The gender distribution, with females making up 57.17% of the respondents and males 42.83%, suggests that women play a dominant role in the finance, accounting, and credit departments of SACCOs. This could have a significant impact on the effectiveness of internal fraud mitigation approaches. Research indicates that diverse teams, especially with strong female representation, often contribute to improved decision-making, ethical standards, and risk management. The higher proportion of women in these roles may suggest a positive influence on the adoption and implementation of fraud prevention measures, which could enhance the financial performance of SACCOs. Their presence may bring a heightened awareness of organizational risks and encourage more thorough compliance with internal control procedures.

However, the gender imbalance also raises questions about whether there are differences in how fraud mitigation strategies are perceived and implemented across genders, and how this affects financial outcomes. If there are gender-specific approaches or tendencies in managing fraud and financial risk, it would be important to assess whether these contribute to or hinder the overall effectiveness of fraud mitigation in these SACCOs. Understanding the impact of gender diversity on fraud detection and financial performance could provide insights into optimizing internal fraud management practices to further enhance organizational efficiency and financial stability.

4.2.2Age Distribution

Age distribution was done in four major categories including below 30years, 31-40 years, 41-50 years, and above 50 years.

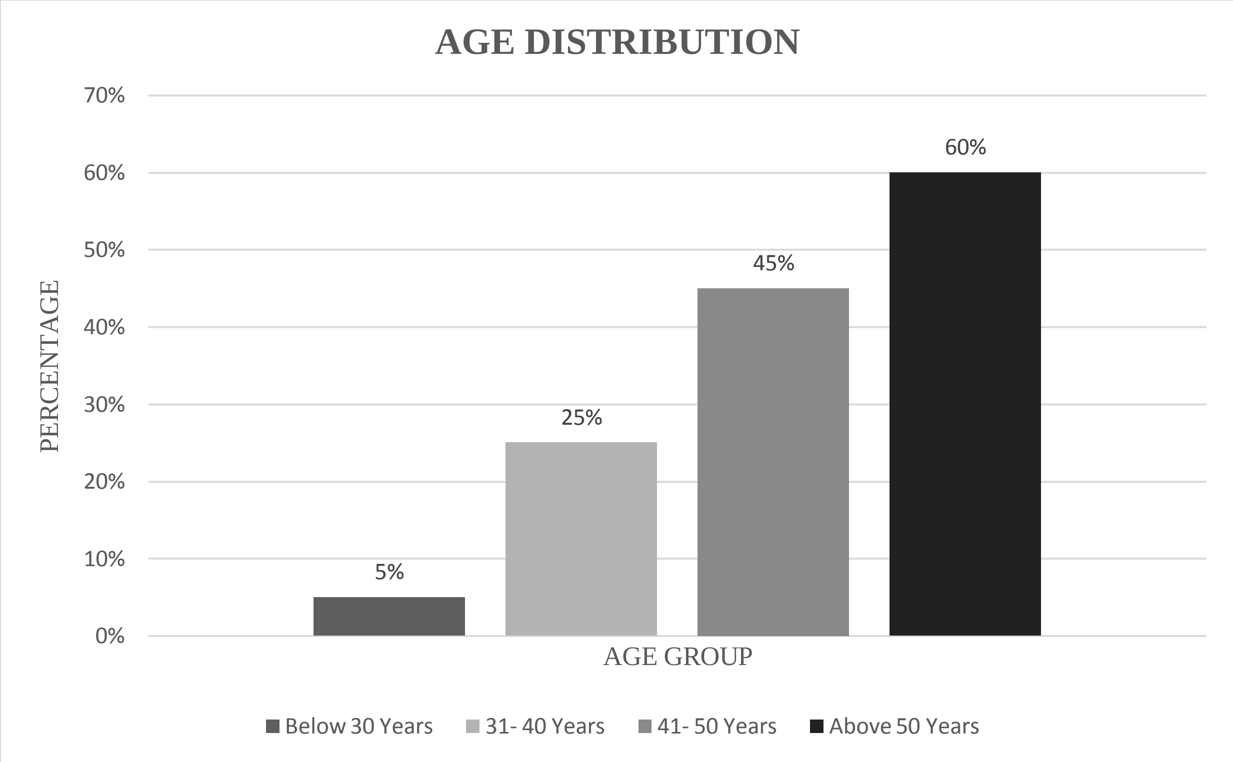


Figure 4.2 Age distribution graph

Source:Author (2024)

The age distribution graph shows that the majority of respondents are over 50 years old, making up 60% of the total. This is followed by the 41-50 years age group, which accounts for 45%. The 31-40 years age group represents 25% of respondents, while the youngest group, those below 30 years, makes up only 5%. This indicates that the SACCO finance and credit departments primarily involves older individuals, with a significant proportion being over 50 years of age. The lower percentage of younger individuals might suggest a lesser engagement or representation of younger demographics within the SACCO.

The age distribution of respondents plays a critical role in understanding the effectiveness of internal fraud mitigation approaches in SACCOs and their impact on financial performance. With the majority of respondents being over 50 years old (60%) and another significant portion in the 41-50 years age group (45%), it suggests that individuals withsubstantial experience predominantly manage thefinance and creditdepartments of these SACCOs. This extensive experience may contribute positively to the implementation of fraud mitigation strategies, as older employees might have a deeper understanding of the organization's processes and the historical context of fraud challenges. Their long tenure could enable them to identify potential fraud risks more effectively and ensure that internal controls are robust.

However, the lower percentage of younger individuals (5% under 30 years) could point to a potential gap in the adoption of modern fraud detection technologies and innovative fraud mitigation approaches. Younger employees may bring new perspectives, particularly when it comes to leveraging digital tools and data analytics to detect and prevent fraud. The relatively small representation of this demographic suggests that SACCOs may be missing out on these opportunities. The more established approaches used by older employees may not fully incorporate advanced technological solutions that could enhance the efficiency and effectiveness of internal controls.This age imbalance could also affect the overall financial performance of SACCOs. While older, experienced employees might ensure the stability of internal controls and reduce the risk of fraud through traditional methods, the lack of younger staff who are typically more tech-savvy may hinder the adoption of innovative fraud detection technologies. This could limit the SACCO's ability to adapt to emerging fraud risks and fully optimize its financial performance. Therefore, a more balanced representation of different age groups may be beneficial for fostering a comprehensive approach to fraud mitigation that leverages both experience and innovation.

4.2.3 Level of Education

The level of education was captured as Certificate, Diploma, Bachelors or Masters levels of education. The findings were as follows**.**

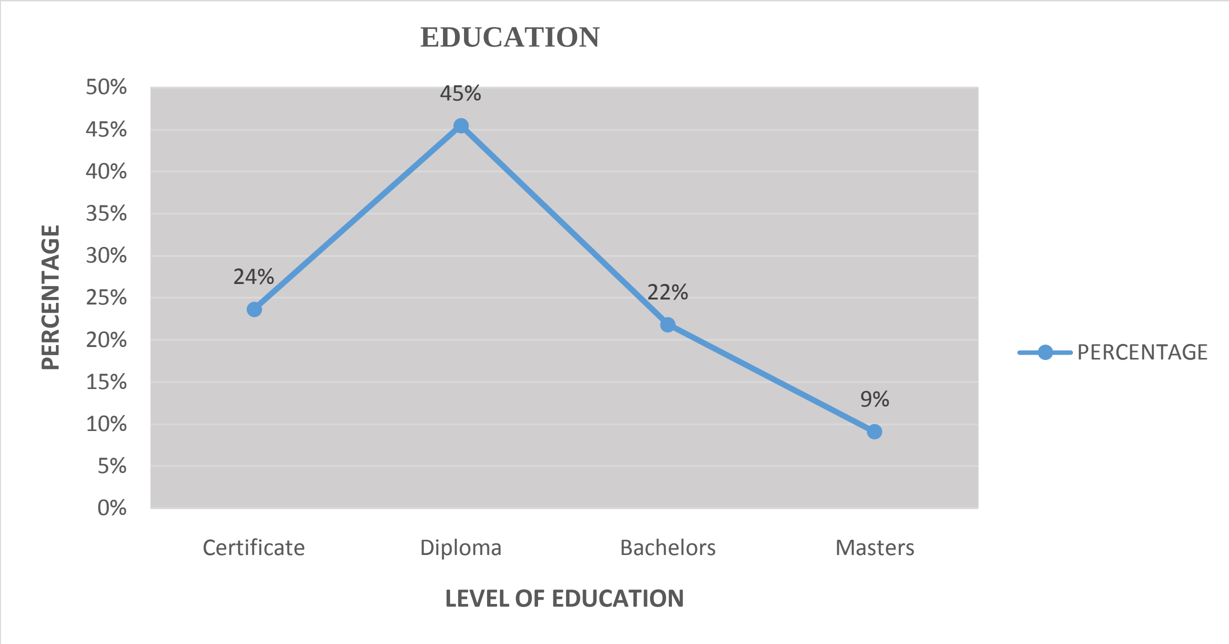


Figure 4.3 Level of education graph

Source: Author (2024)

The results of the education distribution help highlight important elements that can inform SACCOs about the effectiveness of the fraud mitigation approaches that could be deployed. From the survey, 45% of the respondents had a diploma as their highest level of education this maybe adequate for SACCO staff to acquire basic technical requirements for positions within the SACCO particularly in the finance, accounting and credit departments. This level of education can be sufficient for the formulation and comprehension of unexceptional fraud preventive measures, for example, internal control and transaction monitoring. However, the lower percentages of managers with a bachelor's degree (22 percent) and a master's degree (9 percent) indicate that specialized financial knowledge that is necessary for embracing enhanced fraud plans, detecting intricate scams, and adopting more intricate fraud prevention mechanisms is relatively limited. This educational gap may impact the ability of the SACCOs to deploy and employ high-level fraud detection technologies optimally. Employees without at least a diploma certificate also emerged as a potential issue because 24% of staff may not fully comprehend sophisticated fraud combating measures requiring further training. On the other hand, the 9% of the people who had master's degree could be a main force in the development and implementation of better fraud prevention frameworks in the organization. Greater education means greater understanding of risks and finance that are crucial in improving fraud prevention measures within an organization. Hence, the distribution of educational levels in the context of SACCOs indicates that while there is some knowledge base for fundamental antifraud measures, one might get an impression that there is a continual need to enhance professional practice and recruit more (or at least the most) educated personnel to ensure that these countermeasures are optimized to the fullest.

4.2.4Work Duration

This was grouped into two categories of those who have worked for less than 10years and above 10years. The findings are shown below.

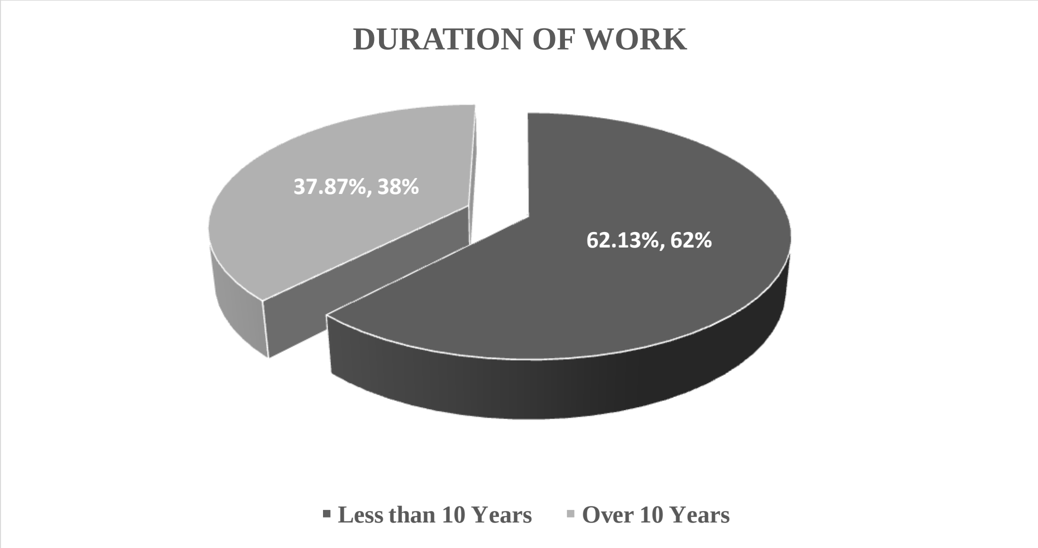


Figure 4.4 Work Duration Pie Chart

Source: Author (2024)

The demographic results about the nature of work experience among the respondents offer a viable perception of the success of models in preventing fraud in SACCOs. Out of the total respondents, 62.13% of the respondents have less than 10 years of experience which implies that a significant percentage of the employees may be inexperienced in the manufacturing industry. The demographic configuration of such candidates indicates that such individuals may be primed to introduce new more of perspectives and are likely to be acquainted with the modern ways of combating fraud. As such, their inexperience might also be an indication that they may not easily distinguish sophisticated acts of fraud or may not manage to implement efficient measures optimally. Consequently, training and development activities are important to improve their capacity in managing proper antifraud measures.

On the other hand, 37.87% of the respondents with more than 10 years of experience are experienced personnel with vast information concerning the various challenges and practices in the industry. They can play a crucial role in developing sound fraud prevention measures since they are probably familiar with past fraud experiences and the significance of adequate controls. New hires with the incorporation of experienced staff result in having a desirable workforce that incorporates new ideas but these are done with precaution with existing staff skills and experience. This blend is crucial in improving the efficiency of the strategies to combat fraud in SACCOs since it cultivates the sharing of knowledge and drives the organizational culture of continual enhancement of the strategies used in combating fraud.

4.2.5 Fraud Prevention Measures

Figure 4. 5 pertains to remarks made on aspects describing fraud prevention and the internal control procedures in SACCOs. As indicated in Figure 4.5 below, the majority of the respondents concur/strongly concur the measures of fraud control have minimized fraudulent incidences and losses, with more than 80% agreeing. It is argued that organizational culture and leadership are critical in this process as well as particular approaches like internal controls and employees' training. Most respondents have concurred with the notion that internal controls are in place with a view of protecting assets, but there is equally an equal division or split in the sentiments of the sample about the effects of changes in regulations. The respondents show high level of support towards having guidelines for employees' conduct and compliance audits, and the trainings and information systems are also perceived to be used in improving internal controls to a great extent.

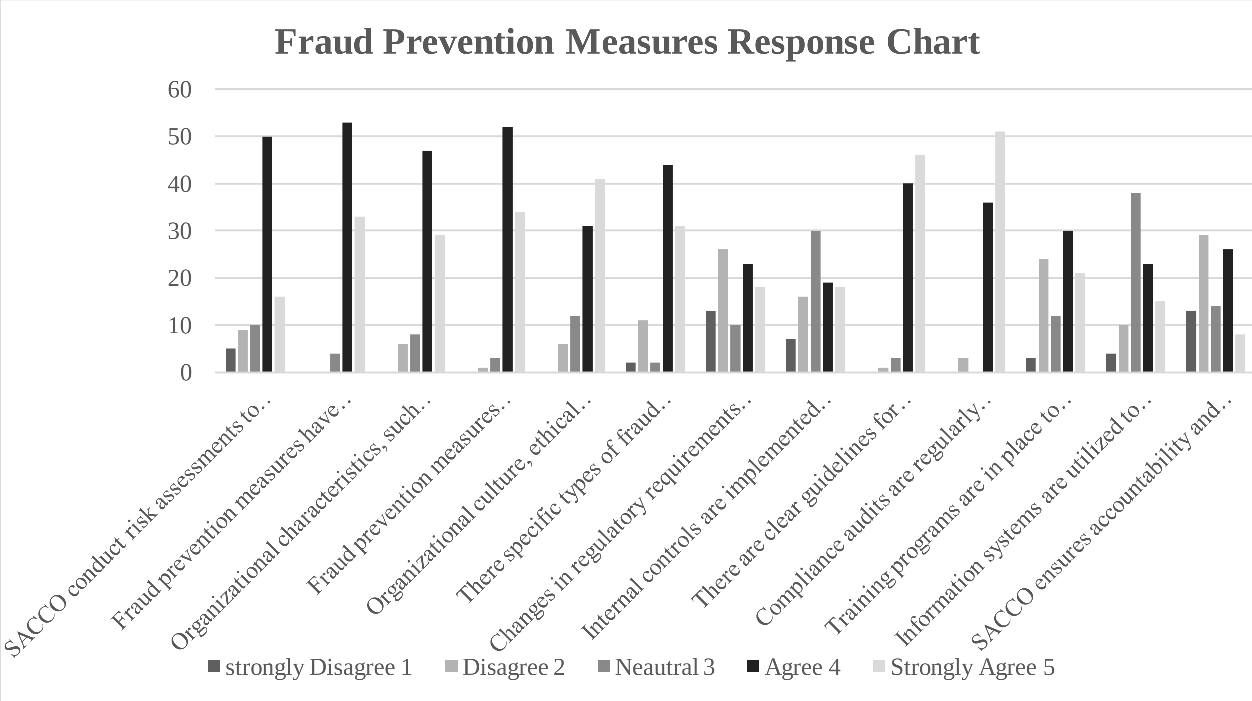


Figure 4.5 Fraud Prevention Measures Response Chart

Source: Author (2024)

When faced with the question, "Fraud prevention measures help in minimizing the extent of financial losses arising from fraud," all the respondents agreed in the same proportion with the highest value showing agreement of similar sentiments. Of the 90 respondents who answered this statement, 52 persons, strongly agreed with the statement while 34 persons agreed fully.

4.2.6 Fraud Detection Technologies

Figure 4. 6 addresses the adoption of fraud detection technologies and their effects on the financial performance of the SACCOs. The majority of respondents concur that there is real-time monitoring of activities regarding the financial transactions in their organization whereby there is impressive positivity in acknowledging the measures to ensure security and confidentiality of data collected through the systems. Some also recognize the possibility of synchronizing real-time monitoring with other financial systems. However, there is more disparity when it comes to the practicability of training and the supervision of activity in social media.

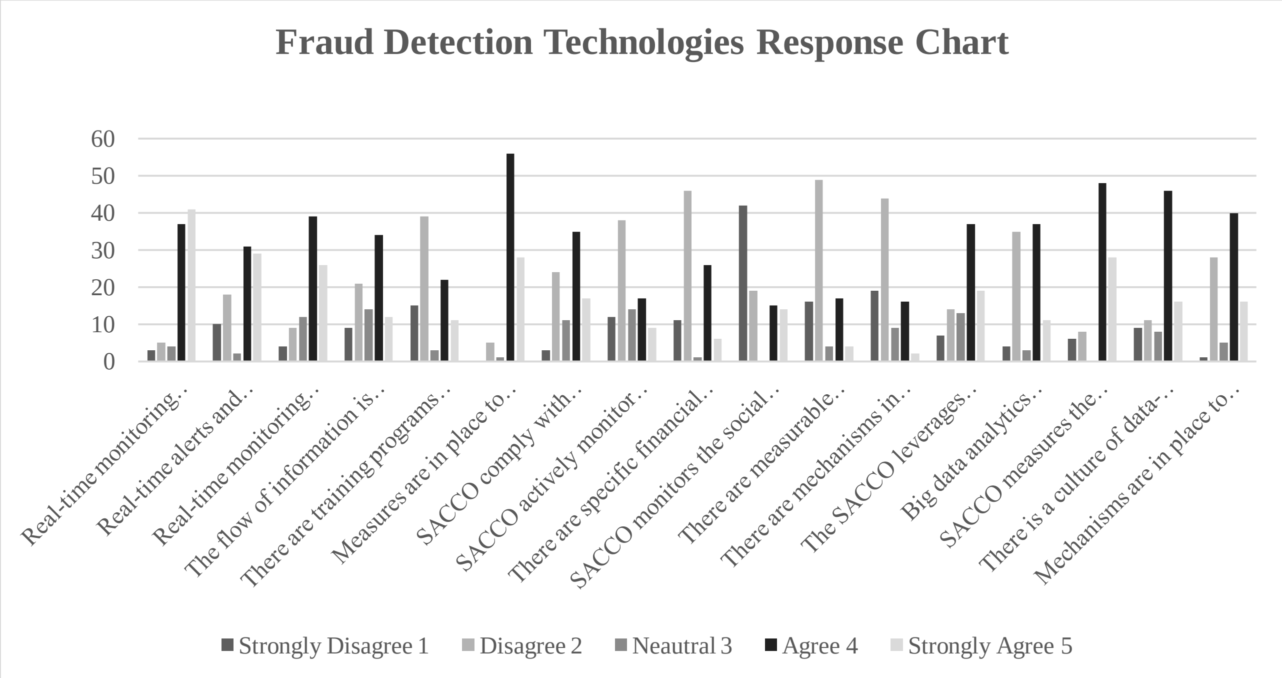


Figure 4.6 Fraud Detection Technologies Response Chart

Source: Author (2024)

The question that garnered the highest consensus among respondents is: "Effective measures are being taken to safeguard and secure gathered and processed data in the real-time monitoring systems" for which 84 respondents agreed (56) and strongly agreed (28). This implies a lot of confidence in security measures of the SACCO's real-time monitoring and surveillance.

What the chart indicating various methodologies and technologies related with fraud detection exhibits is that there is no great deal of consensus on how good or bad any particular measure is. Real-time monitoring, real-time alerts, and information flow received a heterogeneous response but most of the participants considered it as implemented or strongly implemented. While 47% of total respondents are proactively using real-time fraud detection technologies, 22% disagreed or were neutral about its utilization for their organizations. The mixed results could mean that although some organizations are using these tools, disputing organizations may yet encounter issues in implementing them. Even responses related to training programs and measures installed to minimize fraud were also mixed. A fair number of respondents agreed about the availability of training programs as well as the extent of compliance with financial monitoring, however, there was a relatively large portion of the respondents that rendered themselves neutral or disagree. This means that while some organizations invest in training and monitoring their employees, others may be severely lacking in implementing thorough and varied anti-fraud mechanisms. The MIDs for more sophisticated types of fraud prevention solutions including the utilization of predictive analytics and implementing a data-driven structure were rated moderately. Still, the responses collected revealed that there are relatively many participants who disagreed or had a neutral attitude towards these measures, which most likely indicates the lack of implementation of the advanced technologies. The overall responses indicate that whereas some organisations are moving towards the use of highly complex technologies for fraud identification, other companies have not incorporated these measures in their entirety hence providing only general eradication of findings with variability in the results of fraud identification between various organizations.

4.2.7 Internal Control Measures

Figure 4. 7 denotes the participants' feedback on statements regarding policies, procedures, and controls exercised in SACCOs. In general, the majority of the respondents agree or strongly agree with the assertion that documented policies exist in the organization with 86 out of 90 respondents testifying to the existence of segregation of duties and many also concurring that these policies are in tune with the SACCO's strategic direction. Peculiarly, the segregation of duties in respondents' opinions has a positive effect on organizations' financial performance, but there are definite concerns regarding the accessibility of these policies and other monitoring mechanisms. A considerable proportion of respondents believe that security processes are good with guidelines established for budgeting. However, there is

controversy as to how prior experiences are incorporated into future work. Issues such as access control and surveillance are accepted and even encouraged, but some issues have to be revised in particular, such as surveillance and monitoring systems.

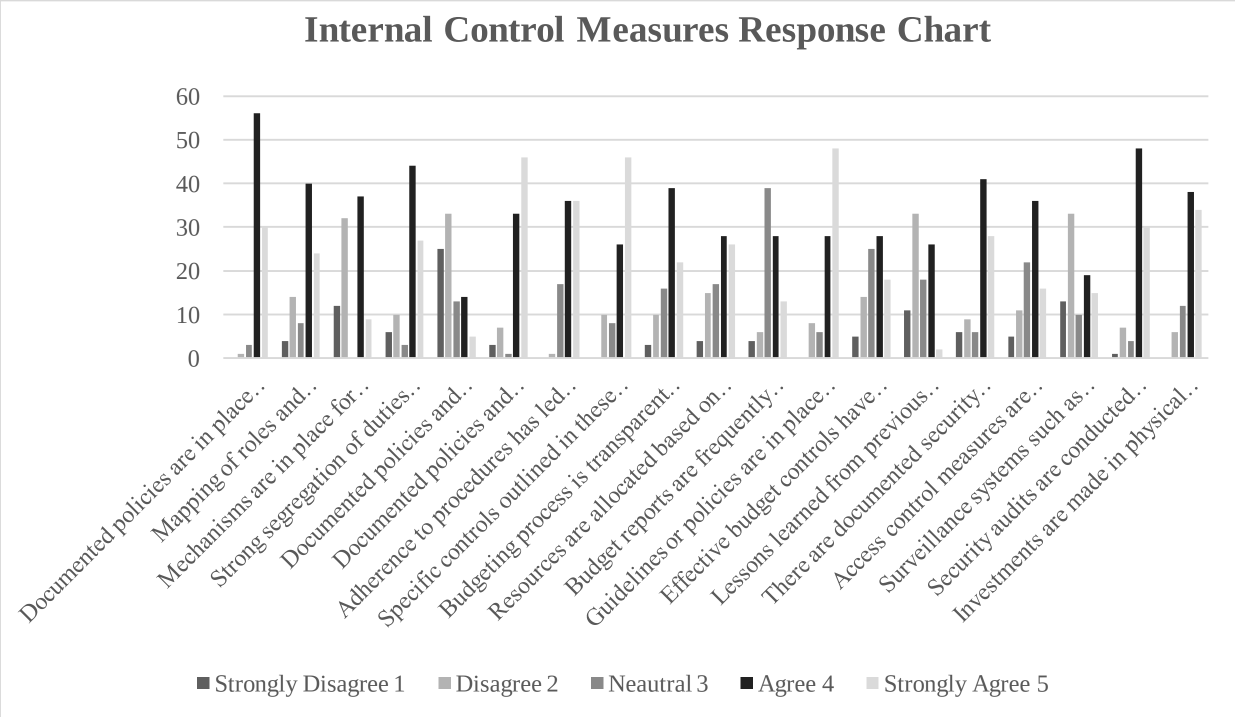


Figure 4.7 Internal Control Measures Response Chart

Source: Author (2024)

In the chart created with the responses from the questionnaires, the question with similar responses is, "Documented policies are in place and procedures outlining segregation of duties and responsibilities within the SACCO. Among the respondents, 56 agreed while 30 strongly agreed. From this, it can be inferred that most respondents agree that documented policies and procedures on segregation of duties is a practice well in place in the SACCO.

This chart etches and categorizes the results from the internal control measures and presents how much the participants are in support of each method. There is a particularly high degree of consensus with get well or basic control questions like 'documented policies are in place' and 'there is a strong separation of duties.' This is evidenced by the fact that these categories of internal control activities attracted many respondents who agreed or strongly agreed with those statements being that these basic internal control measures are currently implemented and policed in the researched organizations. There is, however, a greater range in the answers concerning such practices as 'resources are provided depending upon the budget' and 'guidelines/policies are often updated. In these areas, responses were more evenly distributed between "neither agree nor disagree," "disagree," and "agree" responses, suggesting that there is equal opposition and support to or perception of these internal control practices within organizations. The results are divided, which means that some organizations might have systematically developed budgeting and policy revision plans while others might not. Finally, a significant variation can be observed in the answers of the respondents concerning hi-tech solutions which include "surveillance systems are in place" and "physical security investments are made". Despite this, a good percentage of the participants concurred with these statements, though others either disagreed or were undecided. This suggests that there is a chasm in the application of enhanced security and system-based controls pointing towards the fact that such security controls might not be as uniformly used by all organizations as basic internal control measures.

4.3 Descriptive Statistics

Table 4.2 Statistics Summary

Variables	Observations	Mean	Std. Deviation	Min.	Max.
Fraud prevention measures	90	4.3111	0.5929	2	5

Fraud detection technologies	90	4.188	0.7172	2	5
Internal control	90	4.2777	0.5811	2	5
Financial performance	90	4.0111	0.9539	1	5

Source: Author (2024)

The information presents the results of a global perception of fraud indicating that fraud prevention received the highest mean score of 4.3111, technological tools for fraud detection received a mean score of 4.188 mean scores for internal control received 4.2777. These high mean values can be interpreted to mean that these measures are being put to use in organizations. If these practices were implemented poorly, we would have noted lower mean scores. The results highlighted in the study suggest a high level of organizational commitment towards managing fraud. This consistent application has reinforced a key message, which is that fraud prevention and detection are necessary parts of the internal control frameworks within these organisations. However, the moderate standard deviations of these variables are suggestive of the fact that application across organizations is not uniform. The mean scores being relatively high and the variability moderate indicate that not all organizations implement these fraud management practices optimally. This might be due to factors such as organization size, available resources, or organizational sector that affect the way these steps are carried out. However, the overall commitment to practicing fraud prevention and detection is apparent, as all the participants have emphasized the relevant fraud management. However, concerning the results obtained, financial performance with a slightly lower mean of 4.0111 demonstrates a higher variability with a standard deviation of 0.9539. This wider spread implies that the effect of fraud-related measures on the financial performance of the organization is not only smaller but also less consistent. From this, two broad findings arise: first, there is a proportionate implementation of various fraud prevention and detection measures in organizations; second, the impact of these measures on financial performance is somewhat variable. However, the wider spread of the responses might mean that factors other than fraud control, such as the markets, efficiency, or financial plans, affect financial results. This variability shows that it is hard to justify fraud management practices directed toward specific financial outcomes.

Table 4.3 Correlation Analysis

	Prevention measures	Detection technologies	Internal control	Financial performance
Prevention measures	1.0000			
Detection technologies	-0.0341	1.0000		
Internal control	0.1051	-0.1003	1.0000	
Financial performance	0.2048	-0.2166	-0.0462	1.0000

Source: Author (2024)

Indeed, as presented in Table 4.3 below, multicollinearity coefficients show low levels of dependency among the independent variables. The results for the current study on the relationship between fraud prevention measures on internal controls, fraud detection technologies, and financial performance are presented as follows: Fraud prevention measures correlate with internal control at +0.1051 and with financial performance at +0.2048 although there seems to be a negative correlation between fraud prevention measures and fraud detection technologies at -0.0341. Technologies used in fraud detection show weak negative link between internal control Systems (-0.1003) and company performance (-0.2166). As earlier noted, internal controls evidenced an insignificant negative relationship with financial performance (-0.0462). These low correlation values indicate that none of these variables tends to influence another highly and thus there is no problem of multicollinearity in this set of data.

4.4 Regression Analysis

This analysis reveals the correlation between each of the independent variables and the one dependent variable which is financial performance. The degree of relationship is made more concise and clearer. Through examination of coefficients related to the specific variables lodged in this research, namely; measures against fraud, detection technologies, and internal controls, the research provides an index to the degree to which each or any of the variables nurtures or hampers financial performance. The coefficients suggest how much change in each of the variables will affect financial consequences; it thereby helps organisations to allocate these strategies correspondingly given their efficiencies in financial results.

Furthermore, it helps to minimize commonality which is a problem of high co-linearity whereby independent variables are closely related hence results can be skewed. In that regard, the analysis helps to avoid the mistake of overestimating the correlation between some of the variables and the measure of financial performance, thus making the model more valid and reliable. Model fitness is then checked to evaluate how effectively these measures of fraud are associated with variations in financial health. It makes it possible to achieve an assessment of each or any variable whether singularly or in combination with the others to arrive at an overall assessment of the impact of fraud prevention, detection and technologies, and internal controls fraud on an organization's financial performance.

Table 4.6 Regression Analysis Results

Financial performance	Co-efficient	Std error	T-statistics	95% conf. interval
Prevention measures	0.2877	0.3937	1.9800	0.0870
Detection technologies	0.1834	0.1923	1.9500	0.4739
Internal control	0.0928	0.1581	1.5900	0.4138
Constant	2.0317	1.8733	1.0800	5.8347
P- Value	0.0341			

Source: Author (2024)

From above Table 4.6, the regression analysis results indicate that the variable Prevention Measures have a positive impact on financial performance. This is justified by the coefficient of 0.2877 and a T-statistic of 1.9800, which is above the critical value of 1.96 at the 5% significance level. This shows that prevention measures are statistically significant and the effect on financial performance is reliable. The 95% confidence interval of 0.0870 does not include zero, which further justifies the significance of prevention measures on financial performance.

Detection Technologies has a coefficient of0.1834 with a T-statistic of 1.9500. This is slightly below the critical value, making its significance marginal. Internal control has the smallest effect with a coefficient of 0.0928 and a T-statistic of 1.59, indicating that it is not statistically significant. The overall model is significant with a P-value of 0.0341, indicating that the independent variables combined have a significant effect on financial performance.

4.4.1Fraud Prevention Measures and Financial Performance

Table 4.7 Regression Coefficients and Statistical Significancefor Fraud Prevention on F.P

Financial performance	Coef.	Std. Err.	t	p>I t I	Interval
Fraud prevention	0.2877	0.3937	0.73	0.4700	0.0040
_cons	5.43	0.7304	7.44	0.000	6.8834

Source: Author (2024)

β1 = 0. 2877: This coefficient shows that the level of fraud prevention has a direct positive relationship with financial performance and for every one unit change in fraud prevention measures the financial performance is expected to improve by 0. 2877 units it can generate based on the assumption that the other variables such as fraud detection technologies and internal controls are held constant. Thus, the results imply that efforts to establish higher levels of fraud prevention measures are positively related to financial performance and is an area organizations should focus on to enhance their financial performance.

The empirical review pointed out that risk assessment, transaction monitoring, and auditing are some of the effective measures that organizations can use to curb some of fraud activities and these have been supported by Hubbard (2014), Albrecht (2016), and Beasley (2016). These views in scholarly works are echoed in the study since more than 80% of the respondents affirmed that these measures have brought down cases of fraud incidents and associated losses. This goes further in support of the literature on the efficiency of more than one method in controlling fraud, which is the reason for the layered system. Other of the respondents also highlighted the importance of internal controls which is in harmony with the COSO framework that focuses on risk assessment to develop effective internal controls for aspects defending organizational resources. Additionally, the review highlights the importance of organizational culture and leadership in the management of fraud work (Hazen, 2017). There was consensus when responding to issues of guidelines for employee conduct, compliance audits, and training related to internal controls improvement programs. Although there was a somewhat divided view on aspects of regulation changes they indicated that internal controls and organizational practice are imperative but external facets such as regulation may elicit equivocal reactions from organizations. Taken collectively, the available studies point to a high level of validity of the theoretical premise that fraud preventive mechanisms, including audit and training, actually help a firm to curtail fraud-related losses.

4.4.2Fraud Detection Technologiesand Financial Performance

Table 4.8 Regression Coefficients and Statistical Significance for Fraud Detection on F.P

Financial performance	Coef.	Std. Err.	t	p>I t I	Interval
Fraud Detection	0.1834	0.1923	0.95	0.347	0.0129
_cons	5.2176	0.5881	8.87	0.000	6.3864

Source: Author (2024)

β2 = 0. 1834: The coefficient for fraud detection technologies indicate that when these technologies are increased by one unit, then .1834 up increase in its financial performance when the factors that cause fraud prevention measures and internal control factors have been controlled. This mean that, though the technologies employed in fraud detection enhance the company's financial performance, the impact value is slightly lower than that of the fraud prevention measures. It brings out the need to embrace proper technologies that would enable early detection of frauds to be of paramount importance in asserting financial performance.

In the empirical review, Metcalfe (2007) outlines that organizations have shifted towards more sophisticated technologies including real-time alerts, monitoring of social networks, and the use of big data for detection of fraudulent activities. These technologies help organizations to be on the alert and minimize the effects of fraud in the workplace. However, the results presented here reveal that by enhancing fraud detection technologies the impact is relatively low in terms of its contribution to the financial performance, with an increase of 18.34% change in financial performance with a one-unit change in the fraud detection efforts. This conforms with current literature that acknowledge the usefulness of detection technologies but recommend that they function optimally in combination with other forms of fraud-fighting approaches (Ahmed & Umar, 2019). On the other hand, the analysis shows that the antifraud controls are more closely associated with financial performance, which improves by 28% for each unit increase in measures. This goes in line with the idea presented in the current body of literature that pays much attention to the importance of fraud prevention as a powerful driver of financial performance and as a means to minimize risk (Nyanzu&Antwi, 2020). As for internal controls, it is also useful to note they are also beneficial but significantly less so with a 9 percent improvement in performance compared to overall preventive measures, backed by detection technologies and sound internal controls to gain optimum results. The following research outcomes support the idea of having a more assertive and multilayer fraud management tactics advantageous for organizations.

4.4.3 Internal Control Measuresand Financial Performance

Table 4.9 Regression Coefficients and Statistical Significance for Internal Control on F.P

Financial performance	Coef.	Std. Err.	t	p>I t I	Interval
Internal control	0.0928	0.1581	0.59	0.561	0.2715
_cons	4.3353	0.7545	5.75	0.000	5.8348

Source: Author (2024)

β3 = 0. 0928: The coefficient of Internal control measures indicates that if internal control measures increase by one unit, then financial performance will also increase by 0.0928. This translates to an increase in financial performance by 0.0928 units assuming other factors namely, fraud prevention and detection are kept constant.

The study reveals that out of the three antecedents, fraud prevention measures, fraud detection technologies, and internal controls, fraud prevention measures have a higher positive correlation with financial performance. With a coefficient of 0.2877, fraud prevention measures mean that with a one-unit increase in the measures, there shall be a 28% improvement in financial performance. This impact is more damaging than with fraud detection technologies, which exhibit an 18. 34% of an increase in financial performance for each unit increase and Internal controls which, has a comparatively smaller effect of 9% as the analysis reveals.The results also indicate that efficient fraud prevention measures are key to improving on financial performance, which is a logical reason why organizations should endeavor to put them in place to get the desired returns on their investments.

Concerning the empirical review, internal control measures are viewed as a central part of risk management and governance systems in an organization (2021). Another area called Account management or control addresses key aspects like separation of duty, dual control, and policy documentation all to reduce fraud and operational discrepancies by implementing systematic controls. The remaining controls of budget controls, as well as physical security controls, also increase the level of protection for organizational assets to avoid wastage of resources or loss. These controls not only help protect operations but also form a solid ground for stewardship and key value drivers. In support of this view, the study demonstrates that internal control measures influence financial performance and, to a lesser extent, fraud prevention measures. A coefficient of 0.0928 means that for every increase of one unit in internal controls there is a corresponding 9% increase in financial performance. This implies that though internal controls are important ingredients in the operational integrity and risk management framework, their impact on the financials is not as significant as that of fraud prevention controls. This is in line with more recent works by Soh and Martinov-Bennie (2018) which approve the complementary role of internal controls in increasing organizational performance but point out that their effectiveness is highest when supplemented with preventive measures against fraud. Moreover, the study shows that the efficacy of anti-fraud controls is positively related to financial performance and of a 28 percent increase with a unit increase of fraud measures. This supposes that boards of organizations should pay special attention to prophylactic measures, including risk evaluation and internal control, to achieve the best performance. This is further supported by fraud detection technologies where performance increases by 18.34%, to help organizations rapidly mitigate and respond to fraud. Altogether these findings suggest that internal controls should complement the more effective fraud prevention and detection measures to contribute effectively to organizational success (Hussain, Rigoni, & Orij, 2018).

4.5 Equation Summary and Findings Discussions

The overall equation representing the relationship between financial performance (Y) and the influencing factors is given by:

$$Y = 2.0317 + 0.2877X1 + 0.1834X2 + 0.0928X3 + \varepsilon$$

Where …

Y represents the financial performance.

X1 represents fraud prevention measures.

X2 represents fraud detection technologies.

X3 represents internal control measures.

ε represents the error term, capturing other factors not included in the model.

The coefficient of 0.2877 shows that fraud prevention measures have the strongest influence on financial performance. A unit increase in the implementation or effectiveness of fraud prevention measures results in a 0.2877 improvement in financial performance, highlighting the critical role that proactive approaches like employee vetting, policy enforcement, and regular audits play in safeguarding SACCOs' finances. This suggests that prioritizing fraud prevention is essential for maintaining a healthy financial position.

The coefficient of 0.1834 reflects the impact of fraud detection technologies on financial performance. A unit improvement in fraud detection, such as adopting better software, data analytics, or surveillance systems, is associated with a 0.1834 increase in financial performance. While still significant, the impact of detection is less than that of prevention, suggesting that while identifying fraud early is important, it may not be as cost-effective or beneficial as preventing fraud in the first place.

The coefficient of 0.0928 represents the effect of internal control measures on financial performance. A unit increase in the strength or effectiveness of internal controls, such as segregation of duties, checks and balances, and approval hierarchies, leads to a 0.0928 increase in financial performance. Though positive, the relatively smaller impact indicates that while internal controls are important, they may not be as influential in boosting financial outcomes as other fraud mitigation strategies, potentially because controls often address broader operational risks rather than being focused solely on fraud.

Finally, ϵ\epsilonϵ represents the error term, capturing other factors affecting financial performance that are not included in the model. These could include economic conditions, managerial competence, market dynamics, or external regulatory influences. The presence of ϵ\epsilonϵ highlights the fact that while fraud prevention, detection, and internal controls are crucial, other unmeasured factors also play a role in determining the financial performance of SACCOs.

V. SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a summary of the findings, along with the conclusions and recommendations derived from the study's results. It also identifies areas for further research to address additional gaps in the existing literature within this field of study.

5.2 Summary of Findings

Internal control measures are viewed as a central part of an organization's risk management and governance systems (2021). Another area called Account management or control addresses key aspects like separation of duty, dual control, and policy documentation all to reduce fraud and operational discrepancies by implementing systematic controls. The remaining controls of budget controls, as well as physical security controls, also increase the level of protection for organizational assets to avoid wastage of resources or loss. These controls help protect operations and form a solid ground for stewardship and key value drivers. In support of this view, the study demonstrates that internal control measures influence financial performance and fraud prevention measures to a lesser extent. A coefficient of 0.0928 means that in every increase of one unit in internal controls there is a corresponding 9% increase in financial performance. This implies that though internal controls are important ingredients in the operational integrity and risk management framework, their impact on the financials is not as significant as that of fraud prevention controls. This is in line with more recent works by Soh and Martinov-Bennie (2018) which approve the complementary role of internal controls in increasing organizational performance but point out that their effectiveness is highest when supplemented with preventive measures against fraud.

In addition, the study shows that the efficacy of anti-fraud controls is positively related to financial performance and of a 28 percent increase with a unit increase of fraud measures. This supposes that boards of organizations should pay special attention to prophylactic measures, including risk evaluation and internal control, to achieve the best performance. This is further supported by fraud detection technologies where performance increases by 18.34%, to help organizations rapidly mitigate and respond to fraud. Altogether these findings suggest that internal controls should complement the more effective fraud prevention and detection measures to contribute effectively to organizational success as also found out by (Hussain, Rigoni, &Orij, 2018).

The regression analysis identifies the correlation between three Fraud prevention and controls, namely Prevention Measures, Detection Technologies, and Internal Control with the financial performance. The findings established that there was a significant relationship between Prevention Measures and financial performance with a given coefficient of 0. 2877, and the value of t-statistic is 1. 98 which is greater than the critical value of 1.96. Further, there is no overlapping of zero to the confidence interval of 0. 0870, thus proving the accuracy of this result. It is followed by Detection Technologies which has a coefficient of 0. 1834 and T-statistic is 1 with T-critical is equal to 2. The index of self-organizing maps, SOM, at level 1.95, was statistically close to the level of significance, thus making it almost statistically significant. Internal control was ranked the lowest on the relationship with financial performance with a coefficient of 0. P< 0.5 with 0.928 and T-statistic of 1. Out of those, 1.59 failed to meet the criterion related to statistical significance. However, the total model is meaningful with a P-value of 0.0341 which show that there is significant relationship between the independent variables and the financial performance.

5.3 Conclusion

The research points out internal control measures as an element of an organization's risk management and corporate governance and involves areas such as separation of duties, dual control, and policy writing as well as documentation. These controls are important for preserving the operational integrity and assets. Their contribution to the financial results is rather moderate, adding 9 % in the overall performance for each unit. This implies that although internal controls are integral tools required in efficient operations besides risk management, their effectiveness is best enhanced by more robust anti-fraud techniques. Similar to earlier studies done by Soh and Martinov-Bennie (2018), internal controls by themselves cannot significantly contribute to financial performance but are an important foundation to a comprehensive anti-fraud program. The results also strengthen the emphasis on performing fraud prevention activities, which show the highest positive links with financial outcomes, increasing by 28 percent for each unit of improvement. Detection technologies are a little less important compared to the technologies used for preventing fraud. However, they also importantly contribute up to 18.34 % to raise the ratio of financial performance by offering faster methods to detect and stop fraud. These findings indicate that it is critical for organisations to invest on fraud prevention as a main approach, followed by the detection tools and controls to enhance the financial position. In sum, the general adoption internal controls along with appropriate fraud prevention and detection mechanisms guarantees improvement of the organization as evidenced by the meaningful total model P-value of. 0341.

5.4 Recommendations

Therefore, if there is a desire to better the financial returns, then SACCOs and other related financial institutions should focus on the improvement of the Prevention Measures that they have been found to have an effect on. This could be done through enhancing investment on risk assessments and fraud awareness. While the Detection Technologies revealed only meager importance for the algorithm, they are used for first-stage fraud identification, and endeavors should be made to enhance and incorporate these systems for better support in fraud prevention. Also, based on the result of Internal Controls that have a little effect; it is essential to reconsider current practices to enhance them according to contemporary goals. To conclude, it may be said that the problem of fraud prevention and detection requires an integrated approach that implies the use of prevention measures, modern technologies, and internal controls to maximize financial performance.

Possible further studies could look at deeper implementation of the scientific technologies into the existing fraud detection and prevention systems more precisely detection technologies as they have been confirmed to have only marginal significance. Furthermore, research could examine the relationship that organizational culture, employee training as well as leadership has on internal control systems since they did not have a significant influence on the financial performance in this research. In addition, it could investigate the extent to which the fraud prevention measures are implemented in organizations' corporate governance system to determine the extent that this combination has a positive impact on the financial performance of the company and decreasing the rate of fraud related activities in financial institutions

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