EFFECT OF FINANCIAL RISK MANAGEMENT TECHNIQUES ON FINANCIAL PERFORMANCE OF DEPOSIT TAKING SACCOS IN KENYA

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DECLARATION AND CERTIFICATION

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DEDICATION

This thesis is dedicated to my beloved family members who have been a constant source of love, support, and encouragement throughout this journey. To my parents, whose unwavering belief in my abilities has been my guiding light, and to my siblings, whose camaraderie and encouragement have been a source of strength. Your love and support have been invaluable, and I am forever grateful for your presence in my life.

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ABSTRACT

Financial performance is a vital aspect of the finance field, as it seeks to explain why organizations in similar environments achieve different results. In Kenya, cooperative societies play a key role in national development, contributing across various economic sectors. Despite notable progress by deposit-taking Savings and Credit Cooperative Organizations (SACCOs), their overall performance and sustainability remain subjects of ongoing debate. This study thus sought to assess the effect of financial risk management techniques on financial performance of deposit taking Savings and Credit Cooperative Organizations in Kenya. The specific objectives were to determine the effect of credit risk management techniques, liquidity risk management techniques, market risk management techniques and operational risk management techniques on financial performance of deposit taking Savings and Credit Cooperative Organizations in Kenya. The study was based on four theories namely, Modern Portfolio Theory, Credit Risk Theory, Liquidity Preference Theory, and Risk Management Theory. A descriptive survey design was adopted. The population of the study was the 175-deposit-taking Savings and Credit Cooperative Organizations in Kenya as of 31st December 2022. Due to relative population nature, sampling was not conducted and therefore the study was a census. The respondent was the risk manager of each deposit-taking Savings and Credit Cooperative Organizations. The study utilized primary data. The data was collected using a structured questionnaire. Data was analyzed using descriptive statistics such as the mean and standard deviation and inferential statistics which included correlation and regression analysis. Reliability tests were conducted on the variables each meeting the 0.7reliability threshold with validity tests being confirmed by the Bartlett's test that confirmed validity of the variables being measured. The regression analysis revealed significant insights into the relationship between financial risk management techniques and the financial performance of deposit-taking Savings and Credit Cooperative Organizations in Kenya. Credit risk management techniques were found to have a positive impact on financial performance with a regression coefficient of $\beta = 0.238$ and a significant value of $P < 0.005$. Additionally, liquidity risk management techniques were found to contribute positively to financial performance having a regression coefficient of $\beta = 0.425$ and a significant value of $P < 0.005$. Market risk management techniques also played a crucial role, with strategies such as derivatives hedging and product diversification leading to enhanced financial performance with a regression coefficient of $\beta = 0.231$ and a significant value of $P < 0.005$. Moreover, operational risk management techniques were identified as having a significant positive impact on financial performance with a regression coefficient of $\beta = 0.695$ and a significant value of $P < 0.005$. In conclusion, the study provides compelling evidence of the importance of comprehensive risk management frameworks in driving the financial performance of deposit-taking Savings and Credit Cooperative Organizations in Kenya. By implementing effective risk management practices tailored to address credit, liquidity, market, and operational risks, Savings and Credit Cooperative Organizations can enhance their stability, profitability, and resilience in a dynamic operating environment. These findings have significant implications for policymakers, practitioners, and stakeholders in the Savings and Credit Cooperative Organizations sector, highlighting the need to prioritize investments in risk management capabilities to promote sustainable financial growth. The study recommends that Savings and Credit Cooperative Organizations should focus on enhancing their credit risk management frameworks. They also need to improve their liquidity risk management practices. Further, Savings and Credit Cooperative Organizations should focus on strengthening their market risk management frameworks to mitigate exposure to market risks.

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ABBREVIATIONS AND ACCRONYMS

ANOVA	Analysis of Variance
CRM	Credit risk management techniques
DTS	Deposit Taking SACCO
DT-SACCOs	Deposit Taking Savings and Credit Cooperative Societies
FP	Financial Performance
GDP	Gross Domestic Product
MFI	Micro Finance Institution
NPL	Non- Performing Loans
ROA	Return on Assets
ROE	Return on Equity
ROS	Return on Sales
SACCOs	Savings and Credit Cooperative Societies
SASRA	SACCO Societies Regulatory Authority
SPSS	Statistical Package for Social Sciences
VAR	Value at Risk

OPERATIONAL DEFINITION OF TERMS

Credit Risk Management Techniques: This entails the measures and processes taken by a deposit-taking SACCO to reduce the chances of incurring losses as a result of default of a borrower to settle the loan repayment. It can be measured with the help of such indicators as loan default rates, non-performing loan ratios, credit appraisal systems, and loan recovery policies.

Deposit-Taking SACCOs (DT-SACCOs): They are registered Savings and credit Cooperative Organizations in Kenya that have the authority of accepting deposits and offering credit facility to its members. They work just like banks, where one can open up deposit accounts, withdraw, and get access to credit facilities.

Financial Performance: Financial performance is indicative of the financial well being and effectiveness of a SACCO in making use of its resources to produce income and operations. It will be scaled by such measures as Return on Assets (ROA), Return on Equity (ROE) and net profit margin.

Financial Risk Management Techniques: This is the calculated planning and tools that SACCOs have embraced to identify, evaluate, track, and manage the different financial risks with an objective of improving the stability and profitability. It includes approaches to credit risk, liquidity risk, market risk and operational risk.

Liquidity risk management Techniques: These are steps which are undertaken by SACCOs to secure sufficient cash flow to cover short-term liabilities as they become due. These can be operationalized in terms of liquidity ratios, level of cash reserves, policies on how cash should be received and paid out.

Market risk management techniques: This is the measures that are put in place by SACCOs in order to reduce losses that may occur as a result of unfavorable fluctuations in the market variables like interest rates, exchange rates and prices of commodities. It can be quantified with the help of sensitivity analysis, matching of assets and liabilities and diversification of investments.

Operational Risk Management Techniques: These are procedures and control mechanisms aimed at minimizing the losses incurred due to the failure of the internal system, human error or external occurrences. Some of its indicators are internal control procedures, staff training, compliance procedures, and risk assessment frameworks.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Financial institutions worldwide have a very important role in ensuring economic stability and growth. Nevertheless, the global financial crises of 20082009 and the shocks of the COVID-19 pandemic showed that the high-risk attitude and poor financial risk management practices may trigger a destabilization of the whole financial systems (Bhimjee, Ramos and Dias, 2016). These crises highlighted the significance of effective financial risk management structures in building institutional resilience and investor confidence. As a result, financial institutions as a global sector have developed superior risk management systems based on analytics, real-time tracking, and machine learning models, which can identify and mitigate financial risks (Gallati, 2022; Fritz-Morgenthal, Hein and Papenbrock, 2022).

In the developed economies like Germany and the United Kingdom, cooperative financial movements came up as early as the 19th century in an attempt to offer financial services to underserved populations. One of the earliest foundations of the modern cooperative framework to support thrift, member ownership, and financial inclusion was the Rochdale Society, founded in 1844 in England, and the rural credit unions of Raiffeisen, founded in 1864 in Germany (WOCCU, 2008; Pollet, 2013). With time, cooperatives have developed into an international socio-economic movement which provides the world with alternative forms of banking that are more sustainable as compared to traditional banking systems.

The cooperative sector has been on the rise in Africa with governments and other development partners realizing its capability in enhancing financial inclusion and alleviating the poverty factor. Nevertheless, poor financial risk management systems have slowed down the operations and viability of most cooperative societies in the area. To give an example, researchers have demonstrated that insufficient credit evaluation frameworks, liquidity issues, and insufficient diversification have caused a decrease in profitability and member dissatisfaction in Swaziland, Tanzania, and Ethiopia (Zikalala, 2016; Anania and Gikuri, 2015; Sisay, 2017). On the same note, in Ghana and Nigeria, poor risk governance has led to the cancellation of licenses of a number of financial institutions (Zhongming, Frimpong & Guping, 2019).

In Kenya, cooperative movement has a rich history as early as 1931 when the Cooperative Societies Act Cap 490 came into play giving the legal framework on how the cooperatives can form or carry out their activities (Lagat, Mugo & Otuya, 2013). Among the most powerful financial institutions of the country today is the Savings and Credit Cooperative Societies (SACCOs) which dedicate about 45% of the Gross Domestic Product of the country (Mudibo, 2015). The SACCO industry in Kenya is also regarded as one of the most vibrant in Africa, and the seventh in the world (Muriuki & Ragui, 2013). As pointed out by SASRA (2021), 110 licensed deposit-taking SACCOs (DT-SACCOs) have developed into 175 in 2020, with over KSh 393 billion in assets, which is an increase of 135% over a decade.

SACCOs are low-cost credit, savings, and investment institutions, which have been critical in improving the financial inclusion of low, and middle-income citizens. Yet, their business is predetermined by financial risks such as credit, liquidity, interest rate,

and operational risks that may have a significant impact on their performance and sustainability (Eckles, Hoyt and Miller, 2014; Greuning and Bratanovic, 2019). Research shows that the availability of non-performing loans (NPLs), liquidity face, and pressure on profitability are increasing in several SACCOs in Kenya, and most of the challenges are caused by their ineffective financial risk management systems (Bosek, 2018; Mwita, 2019).

Best financial risk management practices are, therefore, critical in ensuring the financial health and future of the performance of DT-SACCOs. The methods are used to reduce possible losses and maximize returns and reinforce institutional trust among members (Odhiambo, 2019). They entail the systematic procedures of identifying, evaluating, controlling and monitoring of diverse financial risks in order to safeguard and create values to the stakeholders (Shahbaz et al., 2012; Ngalawa et al., 2013).

The financial performance and sustainability of DT-SACCOs in Kenya is uncertain, though, because of the still existing gaps in risk management. It is thus important to find out how the financial risk management practices impact on their financial performance to enhance their resilience, regulatory compliance, and contribution to the development of the country.

1.2 Statement of the Problem

Deposit-Taking Savings and Credit Cooperatives Organizations (DT-SACCOs) are an important part of the Kenya financial ecosystem by facilitating financial intermediation and inclusion. FinAccess (2022) states that the population of Kenyans using DT-SACCOs is around 6.3% of the entire population, and almost 60% of the

population depends on financial services provided by the companies. In spite of this contribution, financial performance in DT-SACCOs is not steady and sometimes volatile, and much of this is as a result of poor financial risk management practices. According to the Sacco Societies Regulatory Authority (SASRA, 2021), more than 30 per cent of DT-SACCOs are financially distressed because of their inability to manage credit risks, missing remittances made by employers, borrower defaults, and weak internal controls. Such weak points have left the deposits of members (estimated at more than KES 341 billion), in a very vulnerable position, sometimes causing de-licensing and loss of trust in the industry by the population.

Empirical evidence indicates that although financial risk management is an important factor in the institutional performance, the results of studies are inconsistent and situational. As an example, Ochieng (2021) report that credit and liquidity risks have a negative impact on return on assets (ROA) among DT-SACCOs in Nairobi County but had no connection between ROA and operational or interest rate risks. On the other hand, Gitau (2021) has found financial risks to be a major negative contributor to the performance of dairy cooperatives in western Kenya, whereas Omondi (2019) has found credit, liquidity, and exchange rate risks to have a negative effect on the performance of commercial banks. These contradictions are indicative of the fact that there is no agreement on the extent of the influence of various methods of financial risk management on financial performance among financial institutions.

Moreover, the vast majority of the previous research have focused on commercial banks (e.g., Omondi, 2019) or non-deposit-taking cooperatives (e.g., Gitau, 2021) but overlooked DT-SACCOs despite their increasing role in financial intermediation. In conceptual terms, the available literature has also been inclined to consider and deal

with single dimensions of risk especially credit and liquidity risk without considering market and operational risk management approaches. The study methodologically most of these studies have been based on secondary data or limited geographical locations like counties and that limits the generalization of the results to the DT-SACCO sector in Kenya.

This research thus aims at addressing these conceptual, contextual, and methodological gaps by investigating how financial risk management techniques, which include credit, liquidity, market, and operational risk management, affect the performance of the deposit taking SACCOs in Kenya in terms of finances. The results will provide empirical evidence which could influence policymakers, SACCO regulators and managers to enhance risk management structures in order to make the sector sustainable and stable.

1.3 Purpose of the Study

The overall aim of this research was assessing the effect of financial risk management techniques on financial performance of deposit taking SACCOs in Kenya.

1.4 Objectives of the Study

The research objectives of this study were:

i. To examine the effect of credit risk management techniques on financial performance of deposit taking SACCOs in Kenya
ii. To establish the effect of Liquidity risk management techniques on financial performance of deposit taking SACCOs in Kenya

iii. To determine the effect of market risk management techniques on financial performance of deposit taking SACCOs in Kenya.

iv. Establish the effect of operational risk management techniques on financial performance of deposit taking SACCOs in Kenya

1.5 Research Hypotheses

The following null hypotheses were tested:

H_{01}: Credit risk management techniques have no significant effect on financial performance of deposit taking SACCOs in Kenya.

H_{02}: Liquidity risk management techniques have no significant effect on financial performance of deposit taking SACCOs in Kenya.

H_{03}: Market risk management techniques have no significant effect on financial performance of deposit taking SACCOs in Kenya.

H_{04}: Operational risk management techniques have no significant effect on financial performance of deposit taking SACCOs in Kenya.

1.6 Significance of the Study

The present theoretical and empirical corpus of information on risk management strategies and financial performance will be enhanced by the results of this study. The findings will also aid in theory building by shedding light on the current theories' shortcomings and how well they fit the variables in question. Additionally, additional research may be conducted in light of the suggestions for additional examination. When it comes time to draft legislation for the researched population, the government and regulator (SASRA) may find the research findings to be a great help. With a better understanding of the performance implications of the inherent risk and return

tradeoffs of these companies, interested investors in the population being examined will profit from the research results.

The findings will provide light on the connection between the two factors, which is important for practitioners and investors in building a diverse and capable management team to oversee risk management techniques and operational efficiency. The ultimate result will be peak performance, and it will also assist in boosting confidence among corporate stakeholders.

1.7 Scope of the Study

This research aimed at looking at the impact of financial risk management practices on financial performance of deposit taking SACCOs (DT-SACCOs) in Kenya. In particular, it evaluated the role played by credit, liquidity, market, and operational risk management practices on financial performance, and it was determined by the key indicators of profitability and return on assets.

The Modern Portfolio Theory (Markowitz, 1952) and Risk Management Theory (Harrington and Niehaus, 2003) were used to inform the theoretical coverage since they highlight the relation between risk and returns and how financial risks are systematically identified and reduced. These frameworks gave the conceptual foundation that allows the relationship of risk management practice with performance outcome in DT-SACCOs.

In practice, the research was restricted to licensed DT-SACCOs under the control of the Sacco Societies Regulatory Authority (SASRA) on December 31, 2021. The research was based on primary data gathered by questionnaires given to risk managers

in the period between January and April 2024, and this aspect guaranteed that the results were considered to be up-to-date risk management measures.

The geographical area covered in the study was limited to Kakamega County where there are quite a high number of active SACCOs that represent various membership backgrounds. The results can be generalized to the other DT-SACCOs in Kenya because the regulatory framework is uniform, and the risk management guidelines that are adopted by SASRA are similar in all counties. The findings hence have a local and national policy value in the improvement of financial performance based on quality risk management.

1.8 Limitations of the Study

Although there exist other types of data that can be gathered in research, the present study specifically opted for primary data. In order to minimize the potential outliers, a well-designed questionnaire was employed. Nevertheless, this can heighten the likelihood of obtaining biased data collection as the anticipated participants are limited in terms of the sort of information they provide and the manner in which they are expected to communicate it. Hence, the objective of this study is to ensure that the data collecting instrument acquired comprehensive data that directly addressed the research goal without any bias.

Furthermore, several of the interviewees expressed doubt around their status as research participants. To overcome this obstacle, the researcher sought the necessary authorization, consents, and permit from several agencies, including the DT-SACCOs, university, and the National Commission of Science, Technology and Innovation (NACOSTI). Moreover, the study took into account all the necessary ethical considerations and the respondents were informed of them. Ultimately, the

participants had to demonstrate a willingness to express their individual opinions and perspectives, as explicitly stated in the questionnaire.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter encompasses the theoretical framework employed in the research, together with a review of prior studies undertaken on financial risk management strategies and financial success. The text encompasses a theoretical overview, empirical review, literature review summary, research gaps, and a conceptual framework illustrating the proposed relationship among the study variables.

2.2 Theoretical Framework

This study presents an examination of relevant ideas that explain the relationship between financial risk management strategies and financial performance. The theoretical theories examined in this dissertation were Modern Portfolio Theory, Credit Risk Theory, Liquidity Preference Theory, and Risk Management Theory.

2.2.1 Modern Portfolio Theory

The Modern Portfolio Theory (MPT) was developed by Nobel laureate Harry Markowitz (1952), and represents a set of propositions, which hold that investors can construct optimal portfolios that either produce the highest expected returns with a fixed amount of risk or produce the lowest possible risk with a specified level of expected returns. The concept on which the theory is based is the principle of diversification, which suggests that one should mix assets that have different risk profiles together so that the total risk volatility of returns is minimized. Markowitz (1952) and Sharpe (1964) hold that investment portfolios are subjected to both

systematic risk (risk in the market, not diversifiable) and unsystematic risk (diversifiable, risk specific to a firm). MPT assumes that investors are not compensated to bear unsystematic risk since it is avoidable by diversifying in uncorrelated assets.

In spite of the influence, MPT has been criticized due to its idealistic assumptions. According to behavioral economists, the assumption of rationality and normally distributed returns of investors in the theory does not account entirely on the actual financial behaviour in the real world. A study conducted by Kahneman and Tversky (2004), has shown that investors usually make irrational choices that are influenced by biases, and emotional state which causes poor investment decisions. Equally important, Mandelbrot and Hudson (2007) argue that financial markets possess non-normal distributions with skewness, kurtosis and fat tail, which is poorly estimated by MPT, particularly during market shocks. In addition, Hodnett and Hsieh (2012) observed the dynamic nature of the correlation between assets, contrary to the assumption of MPT, again making its predictive accuracy in dynamic settings questionable.

Irrespective of these shortcomings, one can state that the Modern Portfolio Theory offers an effective analytical basis in the evaluation of the connection between financial risk management and financial performance in deposit-taking SACCOs (DT-SACCOs). The SACCOs act as financial intermediaries and as such, they mobilize deposits and lend out, hence they are forced to engage in the same kind of risk-return trade-offs as the conventional financial institutions. The diversification, risk quantification, and portfolio optimization principles inherent in MPT are in line with

the financial risk management goals in SACCOs that is, in the management of credit, liquidity, market, and operational risks.

The use of MPT in this situation makes it possible to understand how members can be exposed to a minimum of certain kinds of financial risks without compromising on the levels of returns obtained by SACCOs. As an example, loan portfolio diversification, diversification of streams of income earned and diversification of investment streams contribute in helping SACCOs buffer themselves against credit defaults, liquidity crises as well as market volatility. In addition, the focus of MPT on maximizing the risk to returns ratio supplements the Risk Management Theory, thus widening the analytical outlook of this paper.

It is understood, however, that Kenyan DT-SACCOs are unique in their operational environment, that is, limited financial instruments, regulatory limitations and sensitivity to local market forces, which require a contextual adaption of MPT principles. The theory is applicable in settings where the actions of members of the SACCO, the organization of governance, and socio-economic issues create inefficiencies, although it assumes that the markets and the rationality of investors are efficient. Therefore, in this research, MPT is not used in its pure application, but rather as a guideline to analyze how SACCOs can optimise the financial performance by implementing effective risk diversification and risk management practices applicable within the cooperative financial mode.

2.2.2 Credit Risk Theory

One of the earliest and most successful models of credit risk exposure management and measurement is the Credit Risk Theory advanced by Robert Merton (1974). This theory is a conceptualization of the probability of defaulting of a borrower being in the form of a put option or a borrower can exercise the put option or default when it becomes economically advantageous to exercise the option. Through this method of options, lenders have the ability to assess and model the default risks and eventual losses in relation to the value of assets of a firm in comparison with the debt liabilities. Rossi (2014) notes that the Merton default model offers a solid conceptual base in determining the two important aspects of loss such as the probability of default and the loss given default, which jointly define expected credit losses.

The theory is operationalized in three primary quantitative methods, namely the structural, reduced form, and incomplete information methods. The structural approach which is based on the model of Merton assumes that default is the event that happens when the asset value of a firm drops to a specific level at a particular time. Equity in this model is considered to be a contingential claim on the assets of the firm which adds impetus to the fact that capital structure is critical in creditworthiness determination.

In a practical sense, the theory has been widely used in the banking industry in the guidance of credit risk assessment and loan portfolio management. It assists the financial institutions to know how the defaults of borrowers affect the financial performance and the need to make sufficient provisions to the non-performing loans. Nevertheless, a notable criticism of the theory is its low prescription ability- it is able to easily establish the origin and likelihood of credit risk but gives no indication as to

the proactive efforts that can ensure that such risk is prevented or avoided. Also the theory is based on efficient markets and a constant volatility which might not be the case in dynamic cooperative markets such as SACCOs, lending decisions there are shaped by social connections, member loyalty, and lack of diversification.

In spite of these shortcomings, the Credit Risk Theory is very relevant to this study. Like the commercial banks, SACCOs are highly exposed to credit risks due to defaulting member loans, late employer remittances, and ineffective recovery processes. The theory offers a conceptual layer of approaching the question of how such exposures of credit may mar financial performance unless they are addressed adequately. Using this theory, the research aims at assessing the effectiveness of credit risk management practices adopted by the deposit-taking SACCOs in alleviating the losses caused by loan defaults and remaining profitable. In such a way, the first aim of this research is supported by the Credit Risk Theory, as it associates the risk management practices through credit risk with the financial performance in the sphere of SACCOs.

2.2.3 Liquidity Preference Theory

According to Keynes (1936), the Liquidity Preference Theory assumes that investors tend to keep their funds in form of cash or other easily liquid assets than investing the funds in long term projects that have greater risks, other factors held constant. The theory focuses on the principle of money demand that is directly dependent on the liquidity as a factor of financial stability (Nikoou, 2009). It establishes three motives of holding money including transactional, precautionary and speculative. The transaction motive focuses on the necessity of liquid funds to an adequate amount to cover short term liabilities, particularly with the increasing cost of living. The

precautionary motive emphasizes the need to save up liquidity buffers to absorb unexpected financial shocks and the speculative motive embodies the propensity of investors to keep cash in reserve in the hope that future investment opportunities will open up to more advantageous terms of operation especially when there are low interest rates.

Within the framework of this paper, the Liquidity Preference Theory will serve as an important theoretical basis when explaining the liquidity risk management variable. It assists in explaining how SACCOs should maintain an optimum level of liquidity to address the withdrawal needs of members as well as short-term financial liabilities without affecting the profitability. Liquidity management is hence effective to keep SACCOs afloat without too much idle cash in their hands to drive low returns. Another concept held by the theory is that poor liquidity buffers may undermine investor trust and put institutions at risk of financial duress - a question that is of great concern to deposit taking SACCOs in Kenya.

But the theory has its own shortcomings. The simplistic assumptions, including a constant rate of employment and a constant level of incomes, are one of the significant criticisms because they cannot be considered in harmony with the current and changing economic reality that impacts financial institutions in reality. It does not also take into account the effect of new financial products and regulatory frameworks which play a big role in the determination of liquidity behavior and the exposure to risk. Notwithstanding these weaknesses, the Liquidity Preference Theory is still applicable to this research due to the fact that it helps in conceptualizing the role of liquidity management decision-making in influencing financial performance of DT-

SACCOs. The study is able to combine the theory, which provides it with a solid analytical model to evaluate the balance between liquidity and profitability of SACCOs in a risk-sensitive financial context..

2.2.4 Enterprise Risk Management Theory

The present research was based on the Enterprise Risk Management (ERM) Theory, which was proposed by Nocco and Stulz (2006). ERM offers a formalized and coordinated system of identification, evaluation, and management of every form of risk attending an organization. It lays stress on the whole, risk management is embedded in the strategic decision making process and not an isolated functional process. Gordon (2009) indicates that ERM aims at managing uncertainties in a systematic way that may affect the ability of an organization to achieve its goals in order to improve the resilience and financial stability.

In this light, operational risk that occurs due to human error, system failures, or procedural weakness is regarded as a natural aspect of all types of risks (Tseng, 2007). ERM helps to make managers think about various aspects of risk at the same time, such as staff, intellectual property, brand reputation and regulatory environment (Gordon, 2007). When combined, ERM guarantees that companies can be able to match the risk control plans to the anticipations of stakeholders and corporate goals.

Nevertheless, one of the criticisms of the ERM theory is that it presupposes resources, technical capacity and organizational culture required in organizations to impose wholesome systems of risk management. However, this assumption cannot be always true in the context of deposit-taking SACCOs (DT-SACCOs) in Kenya, since most SACCOs in Kenya are limited in their expertise, inadequate data systems, and weak internal controls. Irrespective of these constraints, ERM is an appropriate framework

to use in this research due to the fact that it offers a holistic perspective to estimate the impact of credit, liquidity, market and operational risk management practices as a way of determining its role in financial performance. It is also correlated with the necessity of the cooperative sector to focus on integrated and proactive strategies of risk management to protect the member deposits and increase sustainability.

Therefore, the ERM Theory is applicable in the present analysis because it provides a conceptual and practical basis on how DT-SACCOs can enhance their financial results by engaging in the integrated and systematic risk management processes.

2.3 Conceptual review of Literature

In this study, financial risk management techniques form the independent variables whereas financial performance form the dependent variable. The measures of financial risk management techniques are: credit risk management techniques, liquidity risk management techniques, market risk management techniques, operational risk management; while financial performance is measured by level of NPLs, frequency of external liquidity borrowings, foreign exchange losses and gains and frauds and embezzlement

2.3.1 Credit Risk Management Techniques

Credit risk management techniques refer to the methods and strategies used by financial institutions to identify, measure, and manage the risks associated with lending money to borrowers. These techniques are crucial for banks and other lenders to ensure that they can make informed decisions about the creditworthiness of borrowers and reduce the risk of default. Some of the common credit risk management techniques include: Credit analysis which involves assessing the creditworthiness of a borrower based on their financial history, income, assets, and

other factors, credit scoring which is a technique that uses a statistical model to evaluate the credit risk of a borrower based on their credit history and other factors (Ohiambo, 2019).

There is also risk-based pricing which involves charging higher interest rates or fees to borrowers who are deemed to be at a higher risk of default and loan covenants which are conditions that borrowers must meet to maintain their loan agreement, such as maintaining a minimum level of financial performance. Collateral which involves lenders requiring borrowers to pledge assets such as property or securities as collateral for a loan, which can help reduce the risk of default has also been used as an indicator of credit risk management (Zhongming et al., 2019).

2.3.2 Liquidity Risk Management Techniques

Liquidity risk management techniques are used by financial institutions to mitigate the risk of not having sufficient liquid assets to meet their financial obligations. The aim of these techniques is to ensure that institutions have enough cash or highly liquid assets available to cover potential outflows such as customer withdrawals, loan repayments, or other expenses. Some common liquidity risk management techniques include maintaining adequate levels of liquid assets, stress testing to assess how a financial institution's liquidity position would be impacted under different scenarios, contingency planning, and diversifying funding sources (Greuning & Bratanovic, 2019).

To assess liquidity risk, financial institutions typically use measures such as cash reserves, net funding ratio, loan-to-deposit ratio, and stress testing results. Cash reserves are the amount of cash that a financial institution holds on hand to meet its

obligations. The net funding ratio measures the amount of stable funding that a financial institution has relative to its long-term assets. The loan-to-deposit ratio measures the amount of loans that a financial institution has relative to its deposits, which can help assess the potential for liquidity issues if customers withdraw their deposits. Finally, stress testing results assess how a financial institution's liquidity position would be impacted under different scenarios, such as a sudden increase in customer withdrawals or a decline in market liquidity (Gitau, 2021).

2.3.3 Market Risk Management Techniques

Market risk management techniques refer to the strategies and methods used by financial institutions to identify, measure, and manage the risks associated with changes in market conditions, such as interest rates, exchange rates, and market volatility. The primary goal of market risk management is to ensure that financial institutions can identify and mitigate potential losses due to adverse market conditions. This can be achieved through a range of techniques, including diversification, hedging, and stress testing (Ochieng, 2021).

Diversification involves spreading investments across different asset classes and markets to reduce exposure to any one market. Hedging involves using financial instruments such as futures or options to offset potential losses from adverse market movements. Stress testing involves simulating different market scenarios to assess how an institution's portfolio would perform under different conditions (Mugo et al., 2019).

2.3.4 Operational Risk Management Techniques

Operational risk management techniques refer to the strategies and methods used by financial institutions to identify, measure, and manage the risks associated with their

internal processes, systems, and people. Operational risks can arise from a range of factors, including technology failures, human errors, fraud, and legal or regulatory compliance failures. The primary goal of operational risk management is to ensure that financial institutions can identify and mitigate potential losses arising from these risks. This can be achieved through a range of techniques, including internal controls, risk assessments, and incident management (Omondi, 2019).

Internal controls are procedures and policies put in place by financial institutions to prevent and detect potential operational risk events. Risk assessments involve identifying and prioritizing potential risks, and assessing the likelihood and potential impact of each risk. Incident management involves having a plan in place to respond to operational risk events when they occur, including measures to contain and minimize the impact of the event (Dayasagar, 2019).

2.3.5 Financial Performance

Financial performance pertains to the financial welfare of a corporation or organization, encompassing the efficient utilization of its resources to produce profits and deliver value to its stakeholders. There exist multiple metrics or indicators employed to evaluate financial performance, encompassing liquidity, solvency, and efficiency. Financial liquidity is the capacity of a corporation to fulfill its immediate financial commitments. This may be evaluated using measures such as the current ratio and quick ratio. The current ratio quantifies the capacity of a corporation to settle its current obligations by utilising its current assets. The quick ratio quantifies the capacity of a corporation to settle its existing obligations by using its highly liquid assets (Ekinci & Poyraz, 2019).

Solvency quantifies a corporation's capacity to fulfill its long-term financial commitments. This may be evaluated using measures such as the debt-to-equity ratio and the interest coverage ratio. The debt-to-equity ratio quantifies the proportion of debt that a firm possesses in relation to its equity. The interest coverage ratio quantifies the company's capacity to meet its interest cost obligations by utilising its operational income. Efficiency is a metric that quantifies the productivity of a corporation in utilizing its resources to produce income. This can be evaluated using quantitative measures such as the asset turnover ratio and inventory turnover ratio. The asset turnover ratio quantifies the proportion of revenue produced by a firm in relation to its total assets. The inventory turnover ratio quantifies the frequency with which a particular organization sells and replenishes its inventory within a specified timeframe (Kindu, 2019).

2.4 Empirical Review

The correlation between financial risk management strategies and financial performance has been substantiated by several empirical investigations carried out both nationwide and globally. Nevertheless, the investigations have shown varied responses.

2.4.1 Credit Risk Management Techniques and Financial Performance

Credit risk management can be defined as the identification, measurement, monitoring, and control of possible losses due to default of the contract by the borrowers (Basel Committee on Banking Supervision, 2021). It involves credit appraisal, credit approval, monitoring and recovery management. Financial performance, in its turn, refers to the extent to which financial goals have been

achieved, which is commonly described by including Return on Assets (ROA), Return on Equity (ROE), and Return on Investment (ROI) (Gitau, 2021).

Good credit risk management will guarantee the quality of the portfolio, reduce non-performing loans (NPLs), as well as stabilize the liquidity, which will result in better profitability. On the other hand, poor credit management presents the institutions with risk of default, liquidity difficulties, and unfavorable financial performance (Ekinci and Poyraz, 2019).

Various researchers have studied the effects of credit risk management practices within the global financial performance. Munangi and Sibindi (2020) reviewed the effect of credit risk on the financial performance of South African commercial banks between 2008 and 2018. They analysed 18 banks with a panel data and discovered that non- performing loans (NPLs) and the loan loss provisions were negatively correlated with the measures of profitability (ROA and ROE). The research also found that too much exposure to credit erodes bank performance, and it needs regulation as well as robust credit requirements. Nonetheless, the study targeted South African banking institutions whose macroeconomic setting is not similar to other cooperative financial institutions in Kenya and thus has little contextual applicability.

On the same note, Ekinci and Poyraz (2019) examined how credit risk impacts profitability of 26 deposit banks in Turkey over the period of the years 2005-2017. They found using secondary data and a regression analysis that ROA and ROE have a negative correlation with credit risk in terms of NPL ratio. As a way of reducing credit risk, the authors suggested strict credit assessment processes. The Turkish economic environment, however, is vastly different than that of Kenya cooperative sector which limits direct comparison.

Dayasagar (2019) investigated how the customer relationship and credit management systems are related to the financial performance of mahila (women-led) cooperative banks in Kalaburagi, India. The paper has found out that credit analysis, risk identification, and monitoring systems introduction greatly boosted the profitability and loan recovery rates of the cooperatives. This study highlights the significance of credit analysis and credit monitoring systems, although its applicability in Kenyan SACCOs is not applicable due to economic and cultural factors.

On a larger cross-country scale, research by the International Monetary Fund (2020) was able to determine that credit risk is one of the key factors of financial stability and profitability across emerging economies. The report revealed that tight credit assessment and diversified portfolios enhance consistency of returns and lower the systemic exposure. Although the report was comprehensive in coverage, it was macro-oriented, and did not provide much information on the institutional level management practices like in SACCOs.

In the African region, there has always been evidence associating credit risk management with profitability of an organization. Moyo et al. (2018) evaluated credit risk practice and its impact on the financial performance of microfinance institutions in Zimbabwe. They conducted a regression analysis of ten MFIs and found that institutions that had good credit appraisal systems and recovery policies had lower default rates and high ROA. Nevertheless, majority of MFIs did not have proper risk diversification and they were susceptible to sector-specific shocks.

Obeng and Ezenwa (2019) examined credit risk management and its relationship with profitability of commercial banks in Nigeria. The relationship that was developed in the study was a negative correlation between NPL ratios and the profitability of

banks. It suggested increasing credit scoring and portfolio management. Despite the information, the study was done in a controlled banking setting as opposed to cooperative models prevalent in East Africa.

Once again, in South Africa, the study by Munangi and Sibindi (2020) reiterated that the CRM-FP relationship goes through capital adequacy and asset quality. However, their data range (20082018) corroborates a shaky global economic cycle, and results can incorporate macroeconomic and not necessarily managerial changes.

Locally, these investigations support the fact that proper management of credit in terms of appraisal, monitoring and control promotes profitability and sustainability of institutions. Nevertheless, the majority of them focus on the situation in commercial banking, and there is a vacuum of the situation with cooperative financial institutions like SACCOs.

The empirical results in Kenya reflect the universal trend between credit management and financial performance but bring out contextual differences. Gitau (2021) investigated how credit management is related to financial performance of dairy marketing cooperatives in Kisii, Nyamira, Bomet and Kericho Counties. Based on a descriptive panel design and ten-year secondary data (20092018), the study also adopted the multiple regression analysis to determine the correlation between the indicators of credit management and ROI. Findings showed that credit management had a strong influence on ROI of cooperatives, which confirms that effective CRM activities are critical to the achievement of profitability. Nevertheless, the research was very limited as it was on credit management and other dimensions of financial risks were left out.

Otanga, Mule and Momanyi (2020) investigated the impact of CRM on financial performance of deposit-taking SACCOs in Western Kenya. Based on a correlation design and a panel data sample of 19 SACCOs (20132017), they estimated hierarchical regression, and the result showed that the impact of CRM on financial performance was statistically significant, but negative, which implies that high NPLs compromise profitability. The research recommended SACCOs to consider investing into sound credit monitoring systems but recognized a geographical constraint to Western Kenya.

The article by Bwire and Omagwa (2019) was a study of the connection between CRM and financial performance of 40 DT-SACCOs in Nairobi. They conducted a study that used purposive sampling and regression analysis to establish that credit appraisal and credit monitoring had a strong influence on performance. The paper found that the sustainable growth of SACCOs requires effective credit management practices. However, it concentrated only on the urban SACCOs and left out the rural cooperatives.

Nyaga et al. (2021) investigated how risk management practices influence the financial performance of the dairy cooperative societies in the Meru County. They analyzed 72 cooperative managers employing a descriptive research design and census to report that risk management was found to explain 67.9% of the variations of financial performance ($R^2 = 0.679$; $p < 0.05$). The research thereby validated the great importance of systematic risk management in enhancing the financial performance. Its weakness is that it concentrated on dairy cooperatives alone neglecting other cooperative and financial fields.

Mathuva (2016) examined the diversification of revenues and financial performance of 212 deposit taking SACCOs in Kenya. Findings revealed that diversified revenues showed a substantial increase in the SACCO profitability and resistance to credit losses. This finding, though not an actual quantitative measure of CRM, indicates that the diversification of risks reduces the exposure to credit implying an indirect relationship between CRM and performance.

Lastly, Mwanie (2020) evaluated diversification policies and financial performance of DT-SACCOs in the Nairobi County. The conducted regression analysis demonstrated that diversification is an important factor in boosting financial performance, which supports the findings of Mathuva (2016). Nevertheless, the research focused on Nairobi County and was therefore not very representative of the different SACCO terrain in Kenya.

The literature reviewed highlights the fact that credit risk management is very essential in improving financial performance between various institutions and regions. Although there is empirical evidence on the strong relationship between CRM, profitability all over the world, in the region and locally, contextual, as well as methodological constraints still exist. By addressing the wider financial risk management facets and moderators in the Kenyan cooperative institutions, the present study aims at closing these gaps.

2.4.2 Liquidity Risk Management Techniques and Financial Performance

Substantial studies across the world still assert the importance of credit risk management (CRM) in improving the financial performance of financial institutions. Ekinci and Poyraz (2019) investigated how credit risk affected the profitability of deposit banks in Turkey. They used non-performing loans (NPLs) as an indicator of

credit risk and financial performance in the form of return on assets (ROA) and a return on equity (ROE) as their indicators. Based on the analysis of 26 commercial bank data collected between 2005 and 2017, the authors found that credit risk and profitability are negatively correlated. In particular, ROE and ROA deteriorated with the rising degree of credit risk, which highlights the fact that low credit quality impairs the overall bank performance. In a similar case, Munangi and Sibindi (2020) conducted an empirical study of the effect of credit risk on the financial performance of South African banking institutions between 2008 and 2018. They quantified credit risk with the help of the non-performing loans, capital adequacy, bank size and leverage. Their results also revealed that credit risk and financial performance is inversely proportional which means that the level of NPL reduces the level of profitability. They suggested that credit standards should be tightened and that there should be increased regulatory controls to curb possible collapses because of unmanaged credit risk. These works have been carried out in varied economic conditions but one common issue in these studies is the importance of the sound credit risk management systems to maintain profitability and institutional stability.

Research undertaken in the region that has focused on developing economies has reflected the same tendencies, with the importance of effective CRM strategies being highlighted in enhancing financial performance. Dayasagar (2019) conducted a study to determine how the strategies of customer relationship management influence the financial performance of Mahila cooperative banks in the Kalaba region of India. The analysis was done on the financial performance of women-run cooperative banks by implementing systems to identify, analyze, monitor, and mitigate credit risk. The results indicated that the improvement of financial performance was significant in the case of the better credit analysis and monitoring practices. The author proposed the

adoption of advanced systems of credit monitoring to reduce the risks of loan defaults. Similarly, Agyemang and Ansong (2020) researched how credit risk management is related to financial performance of the rural banks in Ghana. Their findings proved that a well-developed loan monitoring and credit appraisal systems enhanced profitability ratios by a long distance. The paper also highlighted the relevance of staff training and use of technology-based risk management tools in improving the decision making process in issuing credits. Similarly, Nyarko and Amankwah (2021) studied credit risk management practices of microfinance institutions in Ghana and determined that those institutions that used data-based risk assessment practices had higher returns on assets and fewer default rates. These insights into the region show that although structural and systemic challenges are encountered in the developing economies, strategic CRM execution still is a powerful indicator of financial wellbeing and profitability.

In East Africa, credit management and institutional performance have also been found to be substantially related especially when Cooperative and microfinance sectors are concerned. Ntege and Luyombya (2020) conducted a study to determine the impact of credit risk management practices on the financial performance of savings and credit cooperatives (SACCOs) in Kampala, Uganda. They conducted a regression analysis that found that credit appraisal and monitoring practices had a high impact on profitability and the level of liquidity. Likewise, Mwangi and Muturi (2021) investigated the impact of risk assessment and loan recovery strategies on the financial sustainability of microfinance institutions in Tanzania and found that poor recovery policies and poor risk assessment were some of the key factors that led to degrading performance. The authors also indicated that credit policies should be reviewed regularly and training of credit officers done periodically to ensure

effectiveness. Taken together, these articles highlight the fact that sustainable performance in the East African financial environment is largely reliant on the effectiveness of credit assessment and monitoring systems.

On a local context, in the Kenyan context, a number of empirical studies have been done to determine the impact of CRM practices on financial performance of different industries. Gitau (2021) examined the effect of credit risk management on financial performance of the dairy cooperatives in the counties of Kisii, Nyamira, Bomet, and Kericho with descriptive panel design and secondary data in 2009-2018. The research also discovered that credit management statistically significantly influenced the return on investment (ROI) whereby the dairy cooperatives that were effective in managing credit risks realized better financial returns. However, the research was restricted to the credit risk management leaving out other approaches to financial risk management, including the liquidity and operational risk management. On the same note, Otanga, Mule and Momanyi (2020) evaluated the effect of CRM on the financial performance of deposit-taking SACCOs (DT-SACCOs) in Western Kenya (2013-2017). The results found out that the decrease in the ratio of non-performing loans enhanced financial performance and this once again supports the fact that CRM is a major negative factor on FP. They determined that SACCOs that based their credit management strategies on structured approaches reported a better profitability. However, the research was restricted to Western Kenya, which restricts the ability to generalize the results to the rest of the world.

Also, the connection between CRM and FP between DT-SACCOs in Nairobi was explored by Bwire and Omagwa (2019). The descriptive research reported of 40 SACCOs surveyed 120 respondents that credit monitoring and assessment were major

predictors of institutional performance. The authors highlighted that increased credit surveillance results into more financial stability and profitability. Their research, however, similar to that of Gitau, was quite narrow regarding credit risk management, therefore, excluding other practices of managing financial risks. In a complement to the study by Muli and Karanja (2022), the authors examined the credit risk management practices of Kenyan commercial banks and determined that credit appraisal quality, loan recovery systems, and adherence to policies were key factors that had a significant impact on financial performance. The research suggested the subsequent constant review of the policies and risk-based pricing schemes to reduce the default rates. Taken together, these local researches support the idea that the financial performance of financial institutions and cooperatives is being improved through the implementation of the effective CRM. They however also point to the continuing knowledge gaps in matters to do with the integrated role of other financial risk management dimensions like liquidity, market and operational risks.

Overall, the literature reviewed indicates that in both global, regional and local contexts, credit risk management is having a significant impact on financial performance. Nevertheless, majority of empirical studies have only focused on the impact of credit risk management and ignored the overall impact of multiple financial risk management practices. This loophole highlights the importance of holistic research involving the investigation of how the extended financial due diligence conducts other than credit management influence financial performance, especially in Kenya, cooperative and microfinance sectors.

2.4.3 Market Risk Management Techniques and Financial Performance

Kahihu, Wachira, and Muathe (2021) quantified market risk by utilizing interest rate risk, foreign exchange risk, inflation risk, and financial leverage. One way that financial performance was measured was by return on investment. The research methods used in the study were non-experimental and explanatory. At the time of the study, all thirteen microfinance organizations that accepted deposits were part of the target population. Secondary data covering 2014–2018 was used in the study. Financial leverage, interest rate, and the success of Kenyan MFIs were shown to be positively correlated, according to the study's findings. In addition, foreign exchange risk had a substantial and unfavorable impact on the financial performance. On the other hand, there was no statistically significant relationship between inflation and financial performance. The study needs to be supplemented with a study using primary data since it depended on secondary data.

Odubuasi, Uduak, and Ifurueze (2020) investigated the impact of market risks on the financial outcomes of Nigerian enterprises. As measures of market risk, we chose changes in the exchange rate, commodity prices, and stock prices; as measures of financial performance, we utilized returns on assets (ROA) and returns on equity (ROE). There was a casual research design used into the task. In addition, secondary data was used in the investigation. A total of twelve oil and gas businesses listed on the Nigerian Stock Exchange are the primary subjects of this study. The period from 2014 to 2018 is covered by the analysis. Descriptive statistics, multiple regression, and correlation were used to analyze the data. According to the study's results, ROA and ROE are both heavily influenced by the currency rate. On the other hand, ROE is heavily influenced by the interest rate, whereas ROA is barely affected. There is little correlation between the two variables and changes in stock or commodity prices. The

study needs to be supplemented with a study using primary data since it depended on secondary data.

Kassi, Rathnayake, Louembe, and Ding (2019) looked at non-financial companies listed on the Moroccan Stock Exchange and how market risk affected their financial performance. Among the measures used to gauge market risk were the gearing ratio, degree of financial leverage, and book-to-market ratio. In contrast, financial performance was shown by ROE, ROA, and profit margin. The research covered the years 2000–2016 and included a total of 31 non-financial companies listed on the Casablanca Stock Exchange. According to the research, financial performance is severely affected by the market risk indicators. Consequently, derivative strategies and other suitable market risk reduction measures were recommended by the study. In contrast to the present study's setting in Kenya, the economic and social climate in Morocco was the setting of the investigation.

Chepkemoi, Ndung'u, and Kahuthia (2019) looked at how market risk affects the finances of publicly traded Kenyan non-bank financial companies. A measure of financial success was the net profit margin, while leverage stood in for potential market risk. Secondary data was used in the study. Panel data was used to conduct the research analysis. A full decade, from 2008 to 2017, was devoted to the study. In addition, the study's target group comprised all nine non-bank financial institutions that were listed during that time. Interest risk significantly affects the financial performance of Kenyan non-bank financial firms, according to research. Therefore, the study concluded that non-bank financial organization managers should guarantee the reduction of market risk by employing appropriate risk management approaches. The study needs to be supplemented with a study using primary data since it depended

on secondary data.

Abdellahi, Mashkani, and Hosseini (2017) investigated the effects of market risk, along with other types of risk, on financial performance indicators. Return on investment (ROI), ROA, and net profit as a percentage of sales (NPS) were the financial performance indicators utilized. This study's sample included eight different banks that are now trading on the Tehran Stock Exchange. The research model was estimated using a panel data estimation approach. As far as the research could tell, ROA was unaffected by market risk. Additionally, a strong relationship between market risk and return on investment was implied. In addition, the net profit to total sales ratio was found to be highly affected by market risk, with a 95% confidence interval. While the current study was conducted in Kenya, the inquiry was conducted in Tehran, which offers a different economic and social setting.

2.4.4 Operational Risk Management Techniques and Financial Performance

Companies listed on the NSE in the commercial and services sectors were studied by Onsongo, Mwangi, and Muathe (2019) to determine the impact of operational risk and firm size on financial performance. The agency hypothesis provided additional support for the study's conclusions. This study employed an explanatory research strategy.Fourteen companies operating in the commercial and services industries were the primary focus of this investigation. Secondary data was used in the study. The years 2013–2017 were covered by the probe. A panel regression model was used in this study. When looking at operational risk and ROA, the study found that it had a small and statistically insignificant effect on financial performance. An additional

finding was that operational risk and financial success were moderated by firm size. Finally, the research shows that company size is a major factor in operational risk management. More specifically, businesses with higher total assets showed better risk management than those with lower total assets. In order to lessen operational risk and boost financial performance, the study recommended that enterprises implement risk management techniques and increase their overall assets. The study needs to be supplemented with a study using primary data since it depended on secondary data. Simamora and Oswari (2019) investigated the financial performance of commercial banks listed on the Indonesian Stock Exchange in regard to operational risks and other risks, such as credit and liquidity risk. From among all the banks listed on the Indonesian Stock Exchange, five were selected using a purposive sampling technique. Multiple linear regression was the analytical method employed in this investigation, which followed a quantitative research approach. According to the results, operational risk has a major negative impact on financial results. While liquidity risk significantly impacted financial performance negatively, credit risk was determined to have no meaningful impact. The current study will be conducted in Kenya, however the research was conducted in Indonesia, which has a different social and economic setting.

Toroitich (2018) looked at how operational risk affected the bottom lines of commercial banks in Kenya. Liquidity, credit risk, operational efficiency, and operation expense exposure were the operational risk metrics, while ROA was the financial performance metric. The target population under investigation includes forty-two commercial banks that were officially registered in Kenya at the time of the study. We relied on secondary sources for our data. From 2008 to 2017, the investigation covered the entire time frame. Panel data regression analysis was used in

the study. There was a weak but negative relationship between credit risk exposure and ROA, according to the study's findings. ROA is significantly correlated with exposure to liquidity, operational expenses, and operational efficiency. The study needs to be supplemented with a study using primary data since it depended on secondary data.

Muriithi and Muigai (2017) analyzed the operational risk and profitability of Kenyan commercial banks quantitatively. The cost-income ratio was found to be an operational risk proxy, whereas the ROE was found to be a profitability proxy. The years 2005–2014 were the focus of the research. At the time of analysis, 43 out of the 54 commercial banks were included in the study. Methods using panel data were used in the study. According to studies, commercial banks' short- and long-term profitability are negatively correlated with their cost income. Management at commercial banks should thus make efficient cost management a top priority, according to the study. Since the study relied on secondary data, it would be beneficial to do a follow-up study using primary data to strengthen the findings. Festus and Fatoki (2015) looked at how operational risk management affected financial development and Economic growth in Nigeria. A descriptive survey research strategy was utilized in the study. A quantitative analysis of the variables was carried out in order to achieve the project's objectives. Information was gathered from the respondents using a casual survey method. Descriptive statistics were used as the selected statistical strategy in this study. We polled 150 employees from different financial institutions to get their scoop. Analyzing the research hypothesis was done using the ANOVA method. Using SPSS, we coded and analyzed the primary data collected from the employees. There was a favorable association between operational

risk management and the expansion and improvement of the financial sector, according to the empirical findings. While the current study was conducted in Kenya, the present inquiry was conducted in Nigeria, which offers a different economic and social backdrop.

2.5 Summary of Research Gaps

There are a lot of theoretical frameworks that have tried to anticipate how different financial risk management measures will affect banks' bottom lines. Enterprise Risk Management Theory, Modern Portfolio Theory, Credit Risk Theory, and Liquidity Preference Theory are all included in this evaluation. The effectiveness of financial risk management techniques has been the subject of voluminous empirical study on a worldwide scale. The research gaps that have been identified are summarized in Table 2.1.

Table 2.1: Summary of Relevant Studies and Gaps

Author and Year	Objective of the Study	Methodology	Key Findings	Identified Research Gaps
Credit Risk Management Techniques and Financial Performance				
Gitau (2021)	Determine the influence of credit management on financial performance of dairy cooperatives in Kisii, Nyamira, Bomet, and Kericho Counties, Kenya	Multiple panel regression models	Credit risk management techniques had a significant positive effect on financial performance	Focused on dairy cooperatives; current study focuses on DT-SACCOs in Kenya
Otanga, Mule, & Momanyi (2020)	Establish the effect of credit risk management techniques on financial performance of DT-SACCOs in Western Kenya	Hierarchical regression analysis	Credit risk management had a negative effect on financial performance	Limited to Western Kenya; current study covers DT-SACCOs nationally
Dayasagar (2019)	Examine impact of credit risk management on performance of cooperative banks in India	Multivariate regression analysis	Credit analysis and mitigation measures significantly improved performance	Conducted in India with a different socio-economic context
Bwire & Omagwa (2019)	Examine the relationship between credit risk management and financial performance of DT-SACCOs in Nairobi City County	Panel regression model	Positive relationship between credit risk management and performance	Focused on Nairobi only; lacks broader Kenyan context
Orichom & Omeke	Analyze credit risk management and	Correlation and	Credit risk management	Conducted in Uganda;

(2020)	performance of microfinance institutions (MFIs) in Uganda	regression analysis	had a significant positive effect on performance	ignored other financial risk types
Liquidity Risk Management Techniques and Financial Performance				
Ahmad (2017)	Assess effect of credit, liquidity, and market risks on profitability of Indonesian foreign exchange banks	Fixed OLS regression	NPL had no significant effect, but NIM showed substantial impact on ROE	Focused on developed economy; excluded operational risk
Al-Rdaydeh, Matar, & Alghzwai (2017)	Determine impact of liquidity risk on profitability of conventional and Islamic banks in Jordan	Panel regression analysis	Liquidity risk had an insignificant effect on profitability	Conducted in Jordan; different economic environment
Otwoko & Maina (2021)	Examine liquidity risk and financial performance of DT-SACCOs in Kenya	Regression analysis	Liquidity risk significantly affected performance	Relied on secondary data; need for primary data validation
Market Risk Management Techniques and Financial Performance				
Kahihu, Wachira, & Muathe (2021)	Analyze market risk management and financial performance of MFIs in Kenya	Regression analysis	Financial leverage and interest rates positively affected performance	Relied on secondary data; current study uses primary data
Odubuasi, Uduak, & Ifurueze (2020)	Investigate impact of market risks on financial performance of firms in Nigeria	Regression analysis	Exchange and interest rate risks significantly affected ROA and ROE	Used secondary data; current study relies on primary data
Kassi, Rathnayake,	Examine market risk and financial	Panel regression	Market risk had a	Conducted in Morocco;

Louembe, & Ding (2019)	performance of non-financial firms in Morocco	analysis	substantial negative effect on performance	current study focuses on Kenya
Operational Risk Management Techniques and Financial Performance				
Onsongo, Mwangi, & Muathe (2019)	Assess impact of firm size and operational risk on financial performance of NSE-listed firms	Panel regression model	Operational risk had a positive but insignificant effect on ROA	Relied on secondary data; current study uses primary data
Festus & Fatoki (2015)	Examine operational risk management and financial development in Nigeria	Panel regression analysis	Operational risk management positively influenced financial development	Conducted in Nigeria; different context from Kenya
Muriithi & Muigai (2017)	Investigate operational risk and profitability of commercial banks in Kenya	Regression analysis	Operational risk negatively affected profitability in both short and long term	Relied on secondary data; need for primary data in SACCO context

Source: Author (2023)

2.6 Conceptual Framework

The objective of this study was to evaluate the correlation between financial risk management strategies and the financial performance of deposit accepting Savings and Credit Cooperative Operations (SACCOs) in Kenya. This study examined the relationship between financial risk management strategies as independent factors and financial performance as the dependent variable. Financial risk management techniques encompassed credit risk management, liquidity risk management, market risk management, and operational risk management. Financial performance was assessed based on the proportion of non-performing loans (NPLs), frequency of external liquidity borrowings, foreign exchange losses and gains, as well as instances of fraud and embezzlement. Depicted in Figure 2.1 is the correlation among these variables.

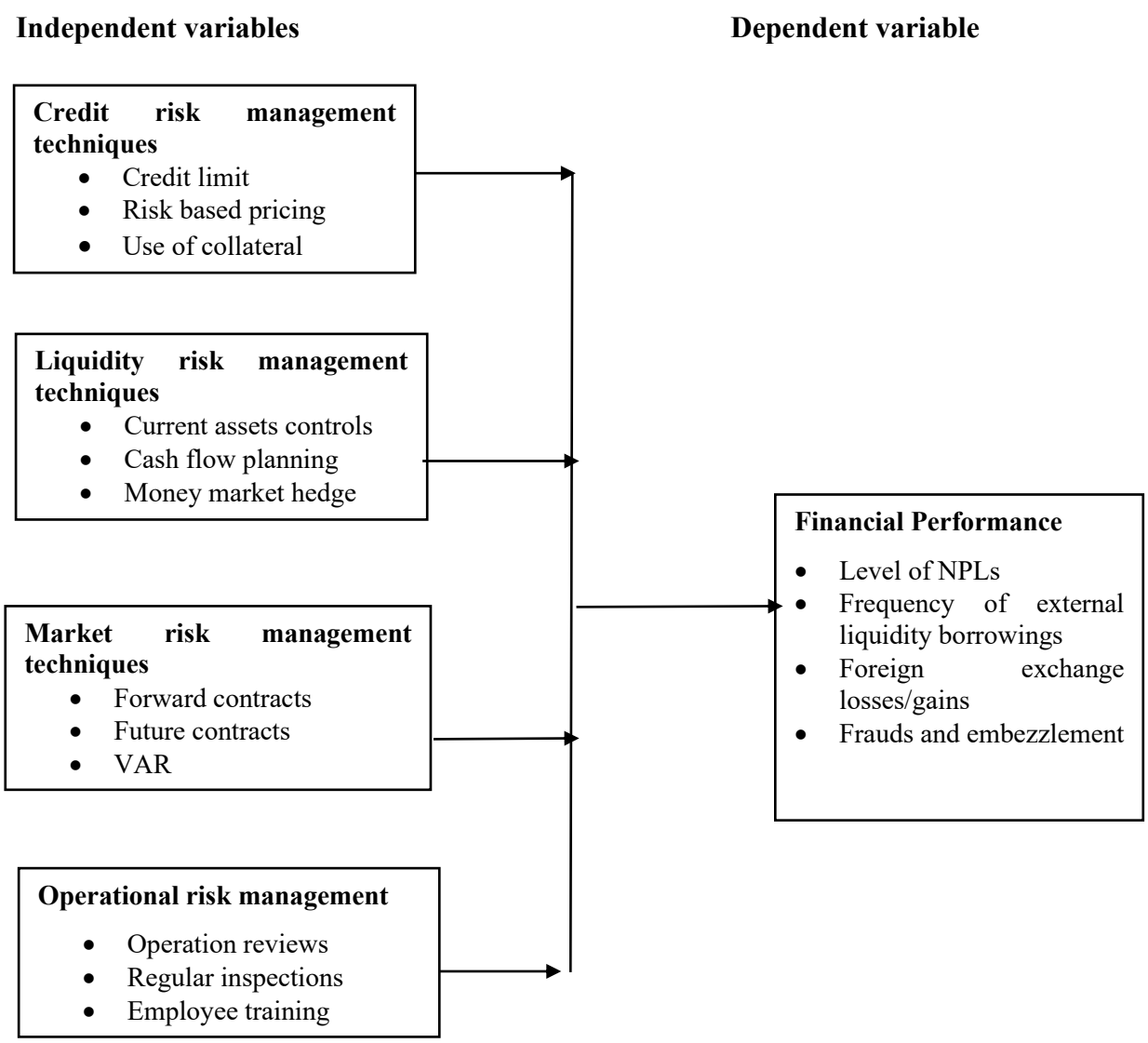


Fig 2.1 Conceptual Framework

(Author, 2023)

The conceptual framework shows the association between the risk management techniques and the financial performance of Kenya deposit-taking SACCOs. It recognizes four major independent variables such as credit risk management techniques, liquidity risk management techniques, market risk management techniques, and operational risk management techniques which have a collective impact on the dependent variable, financial performance. The framework points out

that sound risk management practices play a critical role in ensuring financial stability, increasing profitability, and sustainability of SACCOs in general.

Some of the credit risk management techniques include imposing credit limits, risk-based pricing, and collateral. These strategies will reduce the possibility of loan defaults and non-performing loans (NPLs) which are significant factors affecting financial performance. This is because SACCOs are able to minimize the losses of credit and consequently increase their return on assets and equity by ensuring that the lending practices are in line with the credit worthiness and repayment abilities of the members. Therefore, credit risk management ensures financial stability as well as leads to sustainable growth.

The methods of liquidity risk management are concerned with the fact that SACCOs have an appropriate level of liquidity to fulfill their immediate commitments. Current assets control, cash flow planning and money market hedging are good practices that can assist the institution to deal with shortages of cash and limit unnecessary external borrowings. Effective liquidity management reduces the rate at which emergency borrowings occur and also makes smooth operation even in times of financial strains. This improves financial performance since it is staying afloat, financing costs are lower, and it encourages the confidence of the members.

Market risk management strategies are used to deal with the uncertainties associated with the change of the market variables like interest rates, exchange rate, and commodity prices. Such practices as forward contracts, the utilization of futures contracts as well as the application of Value at Risk (VAR) models are used to reduce the possible losses due to the volatility of the market. SACCOs are able to protect profits and ensure that they achieve financial stability by stabilizing the earnings and

reduce the sensitivity to unfavourable market trends. Market risk management is hence critical to institutions that are exposed to fluctuating economic conditions.

The techniques of operational risk management are strategies geared towards reducing losses, caused by company operations, human error, or malfunction of the system. Operation reviews, periodic inspection, and employee training are some of the practices that identify the inefficiency, avert fraud, and enhance the internal controls. SACCOs can minimize cases of embezzlement and gain institutional credibility by promoting transparency, accountability and operational efficiency of the country. In turn, effective operational risk management also leads to the improvement of governance and financial performance.

Conclusively, the conceptual framework assumes that the adoption of effective credit, liquidity, market, and operational risk management practices has a positive impact to the financial performance of SACCOs. This is because financial performance is measured in terms of the level of non-performing loans, frequency of liquidity borrowings, the level of foreign exchange losses or gains and the occurrence of fraud and embezzlement. Thus, SACCOs where full integrated risk management approaches are implemented stand a better chance of attaining greater financial stability, profitability and sustainability.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter elaborates the methods of study exercised in order to demonstrate without prejudice the influence of financial risk management techniques practices on financial performance of DT-SACCOs in Kenya. Additionally, it discloses the following: study population, data collection, research design besides analysis criteria.

3.2 Study Area

The study focused on all the 175 DT SACCOs in Kenya as it provides a comprehensive and holistic view of the effects of financial risk management techniques on their financial performance. These SACCOs, spread across the diverse geographical terrains of Kenya – from the coastal regions of Mombasa, the agricultural highlands of Rift Valley, to the arid areas of the North – present a mosaic of economic activities and challenges. This nationwide approach ensures that the study captures a rich array of financial risk management practices employed by SACCOs, dictated by their unique regional economic activities, member demographics, and operational challenges. The varied distribution ensures that the findings are robust, inclusive, and representative of the entire country, not just limited to urban centers or specific regions. By covering SACCOs in different parts of Kenya, the study stands to offer nuanced insights and strategies that can cater to the diverse financial landscapes and risk profiles present in the country.

3.3 Research Design

This research took a causal research design with a descriptive survey approach to investigate the effect of financial risk management strategies on the financial

performance of DT-SACCOs in Kenya. The causal design was suitable as the research aimed to establish cause and effect of particular financial risk management practices with financial performance outcomes as such, this allowed the researcher to evaluate the degree of variations in risk management strategies on performance indicators (Kothari, 2014).

The descriptive survey methodology was used to supplement the causal design in that it enabled the researcher to gain a real image of prevailing conditions and clearly define the current practice of DT-SACCOs. The method allowed the researcher to receive comprehensive information on the phenomena being studied and at the same time examine the nature and the intensity of relationships between the variables under study (Khan, 2018).

The survey design also maximised the comparative and interpretative research findings across the SACCOs, which is appropriate in answering the overall research questions of what, where and how financial risk management practices are implemented in the sector (Cooper and Schindler, 2017). Hence, causal and descriptive survey designs were a strong means of methodological bases of assessing the trends as well as the causative effect of financial risk management strategies on financial performance.

3.4 Target Population

The target population refers to a specific observation of interest within a larger set, such as clusters or events, as demonstrated by Burns & Burns (2018). The target demographic were all the DT SACCOs in Kenya. As of December 2022, Kenya has a

total of 175 operational registered DT-SACCOs (SASRA, 2022). The participants consisted of the risk managers from each DT SACCO.

3.5 Sample Size and Sampling Procedure

This research adopted a census sampling technique, which allowed all the target population companies to be included in the analysis. The choice of a census approach was guided by the relatively small study population of 175 deposit-taking SACCOs (DT-SACCOs), making it feasible to involve every member of the target population. According to Khan (2018), the use of a census eliminates sampling errors and enhances the accuracy and reliability of findings since every unit of the population is represented. Therefore, all 175 DT-SACCOs formed the study population, and data were collected from each to ensure comprehensive representation. The respondents in this study were the risk managers of each SACCO, as they possess direct knowledge and expertise regarding credit risk management practices and financial performance indicators within their respective institutions. The list of SACCOs and the corresponding respondents is presented in the table below.

SACCO No.	SACCO Name	Respondent
	175 SACCOs	Risk Managers

3.6 Data Collection Instruments and Procedures

Data collecting instruments are quantitative tools employed to gather data in a research investigation. The collection of primary data was undertaken in order to

accomplish the established study goals. Data collection was conducted by administering a well-designed questionnaire. The selection of a structured questionnaire was based on the experiment's quantitative methodology, which involves the analysis of numerical data. Quantitative categorical data can be effectively obtained using structured surveys. In addition, the data subjects are measured on a 5-point Likert scale and must be clear and unambiguous to minimize potential confusion among the respondents. The survey included five-point Likert-type scales, with values ranging from one (representing the lowest point) to five (presenting the greatest point). The individual responding held the position of operations manager in each SACCO.

Drop and pick later (physical distribution) was employed, and online based questionnaire in distributing questionnaires to the heads of risk in the 175 SACCOs who filled the questionnaires. For the questionnaires distributed in person, the filled questionnaires were collected immediately while those respondents that asked for extra time to fill the questionnaire were granted. For the online-based questionnaire, the researcher sought consent of the respondents, requested for the email address before sharing the link that contained the online based questionnaire.

3.7 Reliability and Validity

Prior to the actual distribution of the questionnaire to the participants, it underwent a pretest to ensure its competence as a tool. Pretesting of the questionnaire was conducted in 18 DT- SACCOs in Nairobi County, which represents 10% of the target population. Cooper and Schindler (2017) assert that a 10% sample of the target population is sufficient for conducting pilot testing. All 10 SACCOs were excluded from the final study. A research assistant was hired by the researcher to assist with the

administration of the questionnaire. In instances when respondents could not be contacted through Google form, the assistant would retrieve and dispatch the questionnaire at a later time. The participants assisted in determining the required time for completing the surveys and pinpointed any mistakes that need to be rectified prior to distributing them to the intended recipients. In order to guarantee a substantial rate of responding, participants were guaranteed both secrecy and anonymity.

3.7.1 Instrument Reliability

The concept of reliability refers to the quantification of the general consistency exhibited by an instrument (Cooper & Schindler, 2017). High dependability is attributed to a statistical measure when it consistently yields the same findings when subjected to identical conditions. A Cronbach alpha analysis is a statistical method used to evaluate the reliability of research instruments by assessing the internal consistency of the data collecting device. Cronbach's Alpha is a standard measure of reliability that provides an accurate initial score. Cronbach's Alpha is crucial for scholars to verify the accuracy and dependability of a questionnaire, even when its items are replaced with identical ones (Khan, 2018). A reliability within the range of 0.7 is broadly regarded as adequate, while a range beyond 0.8 is considered exceptional. Such criterion was implemented in the study.

3.7.2 Instrument Validity

Instrument validity refers to the ability of an instrument to accurately measure the intended idea (Cooper & Schindler, 2017). Measurement of construct validity assesses if the operational definition of variables accurately represents the actual theoretical meaning of an idea or concept. In this study, the researcher prepared the questionnaire

based on comparable prior studies, making adjustments to align with the study objectives. Conversely, the expert assessment of opinion validated the content validity. To ensure the comprehensive collection of all research variables, study supervisors were employed to carefully examine the questionnaire and provide expert judgments. The study was also meticulously verified to verify that the theoretical aspects were given exactly as intended.

3.8 Data Processing and Analysis

Data analysis, as defined by Cooper and Schindler (2017), is the systematic procedure of organizing, structuring, and attributing significance to a vast volume of data. Data analysis refers to the process of transforming unprocessed data into practical information, usually presented as a published analytical written work, with the aim of maximizing the statistical results (Khan, 2018). The data was systematically arranged and condensed using descriptive statistics. The statistical measures of mean, variance, standard deviation, and graphical representations were employed for this purpose. Furthermore, the data was analyzed using inferential statistics, including the Pearson correlation, analysis of variances (ANOVA), and the multiple linear regression model. The data for this study was examined using a multiple linear regression model and correlation analysis methodology. The research hypotheses were tested using regression analysis to establish the relationship between financial risk management strategies and financial performance. Both tables and figures were employed to display the findings of the investigation. The data analysis in this study was conducted using SPSS software version 27.

The regression models below was applied:

$Y= \alpha+ \beta X +\varepsilon$ ……. Model 1

$Y= \alpha+ \beta_1X_1+\beta_2X_2+\beta_3X_3 +\beta_4X_4 +\varepsilon.$ ……... Model 2

Where: Y = Financial performance

α =y regression intercept.

$\beta_1, \beta_2, \beta_3, \beta_4$ =regression slope

X_1 = Credit risk management techniques

X_2= Liquidity risk management techniques

X_3= Market risk management techniques

X_4= Operational risk management techniques

ε =error term

3.9 Tests of Regression Assumptions

The following tests were run in order to test and find any kind of transgression to the regression assumptions before the data was analyzed.

3.9.1 Multi-collinearity

Multicollinearity is defined as situations where the independent variables are greatly related. Where two or more independent variables are related, it leads to collapse of the regression model since both variables must be dropped from the model (Creswell & Creswell, 2017). This research adopted the Variance Inflation Factor (VIF) to establish the multicollinearity.

Where multicollinearity is present in a set of data, the confidence interval for coefficients are usually very wide and the t-statistics are usually very small. The presence of multicollinearity between predictor variables can adversely affect the

regression results of a study. A common understanding is that the VIF should be range 1-10. VIF of more than 10 indicates that there is high correlation.

3.9.2 Normality Test

To assess normality, Kolmogorov- Smirnov test was used. The justification for using the K-S test to measure normality was based on its ability to detect any significant differences between the empirical cumulative distribution function of the sample and the theoretical cumulative distribution function of the normal distribution. The K-S test can also be used for both small and large sample sizes. A p value greater than 0.05 was interpreted to mean that the data was normally distributed.

3.9.3 Heteroscedasticity Test

The assumptions of homogeneousness of variance is the supposition of the predictor samples t-test and Analysis of Variance (ANOVA) asserting that all assessment groups have the same group. The independent samples t-test and ANOVA use the *t* and *F* statistics correspondingly, which are usually sensitive to violation of the assumptions provided the unit amounts are equivalent (Cooper & Schindler, 2020). If the p-value of the test is less than the chosen significance level, the assumption of equal variances is rejected.

In the linear regression model, it is assumed that the error term exhibits homoscedasticity, meaning that of constant variance. The principle of equal variance of errors across all levels of the predictor (independent) variables, as proposed by Khan (2019), is observed. Therefore, it is presumed that the mistakes are distributed uniformly or consistently throughout the variables of the study. The presence of heteroscedasticity in the data indicates that the error variance is not constant, which can result in misrepresentation of results that undermine the overall investigation and

numerical control of the analysis. This phenomena gives rise to inaccurate and prejudiced outcomes. This study employed the Breusch-Pagan test to examine the homoscedasticity of the residuals.

3.10 Ethical Consideration

The research process and the study have adhered to ethical standards and procedures necessary to conduct academic research at the Masinde Muliro University of Science and technology (MMUST). The researcher attempted and received the MMUST Institutional Review Board (IRB) ethical clearance before the data was collected. After getting an institutional approval, the researcher then obtained a research permit of the National Commission for Science, Technology and Innovation (NACOSTI) to carry out the research in the specified area. These clearances were used to guarantee adherence to the national and institutional research policies.

The researcher undertook an elaborate informed consent procedure to safeguard on rights and wellbeing of all the participants. The respondents knew well the purpose of the study, the nature of their involvement, the nature of the data that will be collected and any possible benefits or risks associated with it. They also got the information that the participation was voluntary and they could refuse or drop out at any point without any adverse effects. Before data collection was done, informed consent was taken either through written consent or oral consent as necessary.

In order to maintain secrecy and data security, the researcher made a conscious approach in ensuring that all the information given by individuals and organizations was not compromised. Participants and institutions were not written down in the data

collection instruments, unique identifiers and codes were assigned in order to maintain anonymity. The entire data were stored safely under passworded digital files and locked physical document storage, where only the researcher would access the data. The data collected was purely academic in terms of this research in line with the MMUST and the NACOSTI requirements on research ethics.

During the research procedure, the researcher adhered to professional integrity, honouring the dignity and rights of the participants, and making sure that data collection and analysis procedures were conducted in accordance with the established ethical practices.

CHAPTER FOUR

RESEARCH RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter primarily presents the analysis of the data collected, the results and the discussion of findings where the current study findings are related with previous studies. Specifically, the chapter covers the response rate, demographic analysis, the descriptive analysis, pilot test results, diagnostic tests, correlation, and regression analysis conducted to achieve the objective of this research study.

4.2 Response Rate

The researcher distributed 175 questionnaires to the respective heads of risk of all 175 DT SACCOs in Kenya that were included in the study. A total of 136 out of the 175 questionnaires distributed were successfully completed, filled out, and returned, resulting in a response rate of 77.7%. According to Cooper and Schindler (2020), a study that attains a response rate of 70% should be regarded as outstanding for the purpose of data analysis and inference. The results of the investigation are presented in table 4.1 below.

Table 4.1: Response Rate

Response Rate	Frequency	Percentage
Returned	136	77.7
Unreturned	39	22.3
Total	**175**	**100**

Source: Author (2024)

The analysis of Table 4.1 revealed that the study attained a response rate of 77.7%. Consequently, the data gathered for the study was deemed suitable for analysis, interpretation, and conclusion.

4.3 Demographic Information

The objective of this study was to explore the overall characteristics of the participants included in the research. The demographic variables examined in this study included gender, age, educational attainment, and tenure in the SACCO. The findings are presented in Table 4.2.

Table 4.2: Demographic characteristics of respondents

Gender	**Frequency**	**Percentage**
Male	71	52.2%
Female	65	47.8%
Total	**136**	**100%**
Age	**Frequency**	**Percentage**
21-30 years	7	5.1%
31-40 years	47	34.6%
41-50 years	61	44.9%
Over 50 years	21	15.4%
Total	**136**	**100%**
Education Level	**Frequency**	**Percentage**
Diploma	11	8.1%
Degree	81	59.6%
Masters	43	31.6%
PhD	1	0.7%

Total	**136**	**100%**
No. of years in the SACCO	**Frequency**	**Percentage**
Less than 1 year	8	5.9%
1-3 years	42	30.9%
4-7 years	65	47.8%
8 years and above	21	15.4%
Total	**136**	**100%**

Source: Author (2024)

The demographics of the respondents will give valuable background information in understanding the perception and reporting of financial risk management practices between deposit-taking SACCOs in Kenya. The research shows a slight gender asymmetry where male respondents are 52.2 percent of the sample, whereas respondents that are females are 47.8 percent. Though the distribution is quite balanced, these proportions can be implicitly used to dictate how risk management practices are reported. According to previous research, gender differences have the potential to influence the perception of financial risks, compliance behaviours and institutional procedures adherence. Therefore, the relative gender balance in this study improves the variety of opinions and reduces a systematic bias on the assessment of risk management strategies.

The age distribution also represents a broad spectrum of professional maturity and experience that could factor in shaping the perception and communication of the respondents on issues dealing with risk. According to the findings, 34.6 percent respondents are aged 31-40 years, 44.9 percent aged 41-50 years, 15.4 percent aged

above 50 years, and 5.1 percent are aged 21-30 years. This distribution indicates that the sample will include persons that have a high likelihood of being the most exposed to the industry and with decision making assignments. Older respondents, especially over 40 years, might possess better institutional memory and awareness on long-term financial vulnerability and thus this can influence their appraisal of risk management frameworks amongst SACCOs. On the other hand, younger respondents can give opinions that are indicative of current risk behavior, use of technology, and new compliance standards.

In terms of educational level, the sample is very much educated with 59.6% of the population having a bachelor degree, 31.6% having a masters degree, 8.1% having a diploma and 0.7% having PhD degree. The greater the level of education, the higher the degree of analytical capabilities, better knowledge of the financial systems and increased reporting of complex constructs including the governance structure, risk minimization measures and financial performance indicators. Thus, the density of the degree holders in the present study enhances the credibility of the answers because these respondents have more chances of being aware of the principles of a risk management and can better describe the practices of their respective institutions.

The tenure in the SACCOs also adds more understanding on risk management practices as perceived. The respondents have experienced between 4-7 years (47.8%), and 1-3 years with 30.9% of the respondents having 1-3 years of experience. Also, 15.4% have worked 8 years or more and 5.9% have experience under one year. The older workers are usually more acquainted with institutional systems, past performance trends as well as how risk controls have been developed over time. Their observations can thus be more indicative of what is going on in practice. In the

meantime, new employees can point out the new gaps or policy changes of the recent past. Such combination of views enhances the strength of the study by providing experienced and new opinion regarding financial risk management practices.

In general, the demographic picture shows a significant diversity in terms of gender, age, education degree, and tenure. Such attributes do not only enhance the results of the study, but also contribute to the explanation of possible differences in perceptions and reporting of risk management practices. The sample is heterogeneous as it enhances the validity and applicability of the conclusions of the study on the effect of financial risk management strategies on the financial performance of deposit-taking SACCOs in Kenya.

4.4 Descriptive Statistics

Analysis and interpretation of the mean and standard deviation of the data using descriptive statistics enabled the researcher to have a comprehensive grasp of the distribution and trends within the dataset. Furthermore, they established a basis for subsequent inferential statistical interpretations and decision-making in the study process.

4.4.1 Credit Risk Management Techniques

Table 4.3 presents descriptive statistics pertaining to various credit risk management techniques employed by DT SACCOs in Kenya. The analysis offers insights into the mean scores and standard deviations associated with each statement, shedding light on the perceived effectiveness and prevalence of these techniques within the surveyed SACCOs.

Table 4.3: Descriptive Statistics for Credit Risk Management Techniques

Statements	N	Mean	Std. Dev
There are enough staff members who deal with credit limiting to the customers from the executive board	136	3.24	1.16
The Credit Risk management team is counterpart and play important roles in company decisions.	136	3.76	1.04
At least one of the nonexecutive directors on the SACCO's risk committee has banking experience	136	2.70	1.17
In the SACCO collateral management practices are common.	136	2.45	1.13
Risk based pricing policy of implementing varying Customers' rate of interest and loans are practiced.	136	3.07	1.15
The SACCO analyses customer credit history regularly	136	2.57	0.98
Overall mean Score	**136**	2.97	0.79

Source: Author (2024)

The first statement indicates that, on average, respondents scored 3.24, with a standard deviation of 1.16, in response to the adequacy of staff members dealing with credit limiting from the executive board. This suggests a moderate level of agreement among respondents regarding the availability of staff resources dedicated to managing credit limitations, albeit with some variability in perceptions. Regarding the importance of the Credit Risk management team in company decisions, respondents provided an average score of 3.76, with a standard deviation of 1.04. This indicates a relatively high level of agreement among respondents regarding the significance of

the Credit Risk management team in influencing organizational decisions, with relatively low variability in perceptions.

The third statement concerning the banking experience of nonexecutive directors on the SACCO's risk committee yielded an average score of 2.70, with a standard deviation of 1.17. This suggests a moderate level of agreement among respondents regarding the presence of banking experience among nonexecutive directors, albeit with considerable variability in perceptions. In terms of collateral management practices within SACCOs, respondents provided an average score of 2.45, with a standard deviation of 1.13. This indicates a relatively low level of agreement among respondents regarding the prevalence of collateral management practices, with notable variability in perceptions.

Regarding the implementation of risk-based pricing policies, respondents scored an average of 3.07, with a SD of 1.15. This suggests a moderate level of agreement among respondents regarding the adoption of risk-based pricing policies, with some variability in perceptions. The analysis also indicates that respondents, on average, scored 2.57 with a standard deviation of 0.98 in terms of the SACCO's regular analysis of customer credit history. This suggests a moderate level of agreement among respondents regarding the frequency of customer credit history analysis, with some variability in perceptions.

Overall, the descriptive statistics reveal a mixed perception among respondents regarding the effectiveness and prevalence of credit risk management techniques within deposit-taking SACCOs in Kenya. While certain techniques such as the importance of the Credit Risk management team in decision-making garnered

relatively high levels of agreement, others such as the presence of banking experience among non-executive directors exhibited more variability in perceptions.

4.4.2 Liquidity Risk Management Techniques

Table 4.4 provides descriptive statistics concerning the liquidity risk management techniques employed by DT SACCOs in Kenya. The analysis offers insights into the mean scores and standard deviations associated with each statement, providing an understanding of the perceived effectiveness and prevalence of liquidity risk management practices within the surveyed SACCOs.

Table 4.4: Descriptive Statistics for Liquidity Risk Management Techniques

Statements	N	Mean	Std. Dev
This SACCO has policy for holding cash at a level sufficient to ensure that it has available funds	136	2.90	1.17
My SACCO meets payments obligations on timely manner	136	2.90	1.21
There are set common reporting standards and liquidity monitoring and control standards in this SACCO	136	2.84	1.26
My SACCO adheres to industry best practice for intraday cash reporting	136	2.97	1.18
The SACCO has a liquidity risk analysis policy	136	2.57	1.08
Generally the management of liquidity risk in my SACCO is effective	136	2.48	1.06
Overall Mean Score	**136**	2.78	0.96

Source: Author (2024)

The first statement addresses the presence of a policy for holding cash at a level sufficient to ensure available funds, yielding an average score of 2.90 with a standard deviation of 1.17. This suggests a moderate level of agreement among respondents regarding the existence of such a policy, with some variability in perceptions. Similarly, respondents provided an average score of 2.90 with a SD of 1.21 in response to the statement regarding the SACCO's timely meeting of payment obligations. This indicates a moderate level of agreement among respondents regarding the SACCO's ability to meet payment obligations promptly, albeit with notable variability in perceptions.

Regarding the presence of common reporting standards and liquidity monitoring and control standards, respondents scored an average of 2.84 with a standard deviation of 1.26. This suggests a moderate level of agreement among respondents regarding the existence of such standards within the SACCO, with considerable variability in perceptions. In terms of adherence to industry best practices for intraday cash reporting, respondents provided an average score of 2.97 with a standard deviation of 1.18. This indicates a moderate level of agreement among respondents regarding adherence to industry standards for intraday cash reporting, with some variability in perceptions.

However, respondents scored an average of 2.57 with a standard deviation of 1.08 in response to the presence of a liquidity risk analysis policy within the SACCO. This suggests a relatively lower level of agreement among respondents regarding the existence of such a policy, with notable variability in perceptions. Similarly, the statement regarding the effectiveness of liquidity risk management in the SACCO yielded an average score of 2.48 with a standard deviation of 1.06. This indicates a

moderate level of agreement among respondents regarding the effectiveness of liquidity risk management practices, albeit with some variability in perceptions.

Overall, the descriptive statistics reveal a mixed perception among respondents regarding the effectiveness and prevalence of liquidity risk management techniques within DT SACCOs in Kenya. While certain aspects such as timely meeting of payment obligations and adherence to industry best practices for intraday cash reporting garnered relatively higher levels of agreement, others such as the existence of a liquidity risk analysis policy exhibited more variability in perceptions. These findings underscore the importance of further examination to better understand the factors influencing the implementation and effectiveness of liquidity risk management practices within SACCOs.

4.4.3 Market Risk Management Techniques

Table 4.5 presents descriptive statistics regarding the market risk management techniques employed by DT SACCOs in Kenya. This analysis provides insights into the mean scores and standard deviations associated with each statement, offering an understanding of the perceived effectiveness and prevalence of market risk management practices within the surveyed SACCOs.

Table 4.5: Descriptive Statistics for Market Risk Management Techniques

Statements	N	Mean	Std. Dev
Our SACCO use options and swaps in the derivative markets to offset market risks	136	4.10	0.89
Our company use future contracts in the derivative markets	136	3.46	0.96

to offset market risks			
Our SACCO use forward contracts in the derivative markets to offset market risks	136	3.98	0.80
Our SACCO regularly transfer pricing and invoicing currency to avoid market risk	136	3.93	0.82
Our SACCO usually employs leaching and lagging payments to minimize market risks	136	3.13	1.15
The SACCO usually use exposure netting to lower transaction costs and make regular settlements to reduce market risks.	136	3.24	1.05
Overall Mean Score	**136**	**3.64**	**0.67**

Source: Author (2024)

The first statement addresses the use of options and swaps in derivative markets to offset market risks, yielding an average score of 4.10 with a standard deviation of 0.89. This indicates a relatively high level of agreement among respondents regarding the utilization of these instruments, with relatively low variability in perceptions, suggesting that these tools are commonly employed by SACCOs to manage market risks effectively. Similarly, respondents provided an average score of 3.46 with a standard deviation of 0.96 in response to the use of future contracts in derivative markets to offset market risks. While slightly lower than the previous statement, this still suggests a moderate level of agreement among respondents regarding the adoption of future contracts as a risk management strategy, albeit with some variability in perceptions.

Regarding the use of forward contracts in derivative markets to offset market risks, respondents scored an average of 3.98 with a SD of 0.80. This indicates a relatively high level of agreement among respondents regarding the utilization of forward contracts, with low variability in perceptions, suggesting that these contracts are commonly employed to manage market risks within SACCOs. In terms of regularly transferring pricing and invoicing currency to avoid market risk, respondents provided an average score of 3.93 with a SD of 0.82. This indicates a relatively high level of agreement among respondents regarding the adoption of currency transfer practices as a risk management technique, with low variability in perceptions.

However, respondents scored an average of 3.13 with a standard deviation of 1.15 in response to the statement concerning the employment of leaching and lagging payments to minimize market risks. This suggests a moderate level of agreement among respondents regarding the use of these practices, albeit with considerable variability in perceptions. Similarly, the statement addressing exposure netting to lower transaction costs and make regular settlements to reduce market risks yielded an average score of 3.24 with a standard deviation of 1.05. This indicates a moderate level of agreement among respondents regarding the utilization of exposure netting, with some variability in perceptions.

Overall, the descriptive statistics reveal a generally positive perception among respondents regarding the effectiveness and prevalence of market risk management techniques within deposit-taking SACCOs in Kenya. Instruments such as options, swaps, future contracts, and forward contracts are perceived to be commonly employed to mitigate market risks effectively. However, there is some variability in perceptions regarding the utilization of certain techniques such as leaching and

lagging payments and exposure netting, suggesting potential areas for further examination to better understand their adoption and effectiveness within SACCOs.

4.4.4 Operational Risk Management Techniques

Table 4.6 provides descriptive statistics regarding the operational risk management techniques employed by deposit-taking SACCOs in Kenya. This analysis offers insights into the mean scores and standard deviations associated with each statement, providing an understanding of the perceived effectiveness and prevalence of operational risk management practices within the surveyed SACCOs.

Table 4.6: Descriptive Statistics for Operational Risk Management Techniques

Statements	N	Mean	Std. Dev
The SACCO offers continuous training to employees	136	3.90	1.08
Our SACCO has diversified its product offerings to reduce operating risks	136	3.59	1.05
The SACCO conducts pre- independent assessment of risks and losses	136	4.00	0.93
The Sacco's Management frequently reviews its operations in order to avoid risks	136	4.04	0.71
The Sacco provide training to its customers in order to avoid external risks	136	4.21	0.79
The Sacco conducts regular inspections to enable it reduce	136	4.03	0.72

occurrence of risks.			
Overall Mean Score	**136**	**3.96**	**0.67**

Source: Author (2024)

The first statement addresses the offering of continuous training to employees, yielding an average score of 3.90 with a standard deviation of 1.08. This indicates a relatively high level of agreement among respondents regarding the provision of training to employees, with some variability in perceptions, suggesting that continuous training is a common practice within SACCOs to mitigate operational risks effectively. Similarly, respondents provided an average score of 3.59 with a standard deviation of 1.05 in response to the statement concerning the diversification of product offerings to reduce operating risks. This suggests a moderate level of agreement among respondents regarding the adoption of product diversification as a risk management strategy, albeit with some variability in perceptions.

Regarding the conduct of pre-independent assessments of risks and losses, respondents scored an average of 4.00 with a standard deviation of 0.93. This indicates a relatively high level of agreement among respondents regarding the conduct of such assessments, with moderate variability in perceptions, suggesting that SACCOs commonly engage in pre-assessments to identify and mitigate operational risks. In terms of management's frequent review of operations to avoid risks, respondents provided an average score of 4.04 with a standard deviation of 0.71. This indicates a relatively high level of agreement among respondents regarding the regular review of operations, with low variability in perceptions, suggesting that management regularly monitors operations to mitigate operational risks effectively.

The statement addressing the provision of training to customers to avoid external risks yielded an average score of 4.21 with a standard deviation of 0.79. This indicates a relatively high level of agreement among respondents regarding the provision of customer training, with moderate variability in perceptions, suggesting that SACCOs commonly provide training to customers to mitigate external risks. Similarly, the statement concerning the conduct of regular inspections to reduce the occurrence of risks yielded an average score of 4.03 with a standard deviation of 0.72. This indicates a relatively high level of agreement among respondents regarding the conduct of regular inspections, with moderate variability in perceptions, suggesting that SACCOs commonly engage in inspections to mitigate operational risks.

Overall, the descriptive statistics reveal a generally positive perception among respondents regarding the effectiveness and prevalence of operational risk management techniques within deposit-taking SACCOs in Kenya. Practices such as continuous training for employees, product diversification, pre-independent risk assessments, frequent operational reviews, customer training, and regular inspections are perceived to be commonly employed to mitigate operational risks effectively. However, there is some variability in perceptions, indicating potential areas for further examination to better understand the adoption and effectiveness of specific techniques within SACCOs.

4.4.5 Financial Performance

Table 4.7 presents descriptive statistics regarding the financial performance indicators of deposit-taking SACCOs (DT-SACCOs) in Kenya. This analysis offers insights into the mean scores and standard deviations associated with each statement, providing an understanding of the perceived financial performance of the surveyed SACCOs.

Table 4.7: Descriptive Statistics for Financial Performance

Statements	N	Mean	Std. Dev
The level of NPLs have been decreasing over the years	136	4.01	0.86
The DT-SACCO is efficient in collecting overdue loans	136	3.97	0.85
Frequency of external liquidity borrowings has been decreasing	136	3.85	0.92
The SACCO maintains sufficient liquidity	136	3.94	0.86
Foreign exchange losses have been declining over the years	136	3.56	0.96
The SACCO consistently manages to make foreign exchange gains	136	3.76	0.93
Cases of fraud and embezzlement have been on a decline over the years	136	3.74	1.01
The DT-SACCO has been able to reduce incidences of fraud	136	4.05	0.75
Overall Mean Score	**136**	**3.86**	**0.68**

The first statement addresses the trend in non-performing loans (NPLs), with respondents providing an average score of 4.01 and a standard deviation of 0.86. This indicates a relatively high level of agreement among respondents regarding the decreasing trend of NPLs over the years, with moderate variability in perceptions, suggesting that DT-SACCOs have been successful in managing and reducing their NPL levels. Similarly, respondents provided an average score of 3.97 with a standard deviation of 0.85 in response to the efficiency of DT-SACCOs in collecting overdue loans. This suggests a relatively high level of agreement among respondents regarding

the effectiveness of DT-SACCOs in collecting overdue loans, with moderate variability in perceptions, indicating that these SACCOs have robust mechanisms in place for loan recovery.

Regarding the frequency of external liquidity borrowings, respondents scored an average of 3.85 with a standard deviation of 0.92. This indicates a moderate level of agreement among respondents regarding the decreasing frequency of external liquidity borrowings, with notable variability in perceptions, suggesting that DT-SACCOs are gradually reducing their reliance on external borrowings to maintain liquidity. In terms of maintaining sufficient liquidity, respondents provided an average score of 3.94 with a standard deviation of 0.86. This indicates a relatively high level of agreement among respondents regarding the sufficiency of liquidity maintained by DT-SACCOs, with moderate variability in perceptions, suggesting that these SACCOs are effectively managing their liquidity positions.

Respondents scored an average of 3.56 with a standard deviation of 0.96 in response to the declining trend of foreign exchange losses over the years. This indicates a moderate level of agreement among respondents regarding the reduction of foreign exchange losses, with notable variability in perceptions, suggesting that DT-SACCOs are implementing measures to mitigate foreign exchange risks. Similarly, the statement addressing the consistent management of foreign exchange gains yielded an average score of 3.76 with a standard deviation of 0.93. This indicates a moderate level of agreement among respondents regarding the consistent management of foreign exchange gains, with moderate variability in perceptions, suggesting that DT-SACCOs are effectively managing their foreign exchange exposures to capitalize on gains.

Regarding the incidence of fraud and embezzlement, respondents provided an average score of 3.74 with a standard deviation of 1.01. This indicates a moderate level of agreement among respondents regarding the declining trend of fraud and embezzlement cases, with considerable variability in perceptions, suggesting that DT-SACCOs are implementing measures to curb fraudulent activities. Finally, the statement concerning the reduction of fraud incidences yielded an average score of 4.05 with a standard deviation of 0.75. This indicates a relatively high level of agreement among respondents regarding the successful reduction of fraud incidences, with low variability in perceptions, suggesting that DT-SACCOs have implemented effective controls to mitigate fraud risks.

Overall, the descriptive statistics reveal a generally positive perception among respondents regarding the financial performance of DT SACCOs in Kenya. Indicators such as decreasing NPLs, efficient loan collection, reduced reliance on external borrowings, sufficient liquidity management, declining foreign exchange losses, consistent management of foreign exchange gains, and decreasing incidences of fraud and embezzlement are perceived to contribute to the overall financial health of DT-SACCOs. However, there is some variability in perceptions, indicating potential areas for further improvement and examination to sustain and enhance financial performance.

4.5 Pilot Study Results

The focus of this study was to establish to assess the effect of financial risk management techniques on the financial performance of DT SACCOs in Kenya. The pilot study was conducted on 18 respondents. This represents 10% of the total target population. The 18 respondents were not involved in the final study to ensure non-

compromise of the research data. The reliability and validity test results for the research instrument are presented in the subsequent sections.

4.5.1 Reliability Test Results

Information is believed to be dependable for sharing when information gathering technique and the tools used to assemble the information give rise to related outcomes when used frequently within a given period (Arnold et al., 2019). In carrying out reliability tests, Cronbach's alpha was used in the study. If the calculated Cronbach alpha is higher than 0.7 then the tool of measuring is more dependable but if it is less than 0.7 then it is considered unreliable. Dependability as low as 0.70 is usually satisfactory for simple investigations (Cooper & Schindler, 2018). The reliability test results are presented in Table 4.8. The cronbach's alpha results for all the variables of this study were all above 0.7. This is an indication that the instrument used in the study was adequately reliable and acceptable.

Table 4.8: Cronbach Results

Variables	Items	Cronbach Alpha	Remark
Credit risk management techniques	6	.812	Reliable
Liquidity risk management techniques	6	.871	Reliable
Market risk management techniques	6	.796	Reliable
Operational risk management techniques	6	.922	Reliable
Financial performance of deposit-taking SACCOs	8	.957	Reliable

Source: Author (2024)

4.5.2 Validity Test Results

Validity is the correctness, truthfulness and significance of the information and all conclusions derived from the information (Cooper & Schindler, 2018). Legitimacy

occurs if the instruments quantify what they ought to quantify (Cresswell & Cresswell, 2017). Average factor loading, as well as Bartlett's test were used to measure validity of the questionnaire. The results for each of the individual variable statements are presented in Table 4.9.

Table 4.9: Validity Test Results

Variables	Items	Average Factor Loading	KMO Value	Bartlett's Test (χ^2)	Sig.	Remark
Credit risk management techniques	6	0.700	**0.812**	67.880	.001	Valid
Liquidity risk management techniques	6	0.701	**0.798**	64.649	.002	Valid
Market risk management techniques	6	0.729	**0.783**	60.073	.007	Valid
Operational risk management techniques	6	0.788	**0.846**	72.744	.000	Valid
Financial performance	8	0.742	**0.874**	164.823	.000	Valid

Source: Author (2024)

According to the findings of Kaiser- Meyer-Olkin (KMO) measure, and Bartletts Test of Sphericity, the data gathered in this study can be used in factor analysis. The values of all KMOs are greater than the recommended minimum of 0.70 with the market risk management techniques standing at 0.783 and the financial performance at 0.874. It shows that the sample size is sufficient, and the correlations between the items are close enough to yield valid and specific factor structures. Practically, it suggests that survey findings on SACCO on risk managers are congruent and have consistent

patterns in the way they perceive and report risk management practices as well as financial performance.

Moreover, the Test of Sphericity of all the variables is statistically significant, with the p-value of 0.000-0.007, which is below the 0.05 significance level. This implies that the identity matrices of the correlation are non-identity and that there are significant relationships among items in each construct. In the case of SACCO operations, the results indicate that the credit, liquidity, market, and operational risk management technique measurement items together with financial performance items are effective measures that reflect the underlying measures of interest. The findings, therefore, confirm the relevance of the factor analysis as the method of examining how these risk management practices are affecting the financial performance of deposit-taking SACCOs.

In general, the results of KMO and Bartlett test are a good evidence to state that the instruments used are not only reliable but also appropriate, which supports the validity of further analysis, such as regression and ANOVA, that will be conducted to determine the influence of risk management practices on the performance of SACCO.

4.6 Diagnostic Tests

The study performed the following tests: normality test, multicollinearity test, and heteroscedasticity test.

4.6.1 Normality Test

A normality test must be performed in order to determine whether the data for regression analysis is regularly distributed. Deviation from normal distribution of data can lead to distortion of the results in subsequent analysis. An initial analysis was

conducted to determine if the data conforms to a normal distribution. An evaluation of the normality of the score distribution was conducted using the Kolmogorov-Smirnov test. The findings of the normalcy test are presented in Table 4.10.

Table 4.10: Kolmogorov–Smirnov Test for Normality

Variable	Kolmogorov-Smirnov[a]		
	Statistic	**Df**	**Sig.**
Credit risk management techniques	.931	17	.151
Liquidity risk management techniques	.835	17	.226
Market risk management techniques	.835	17	.261
Operational risk management techniques	.814	17	.266
Financial performance of deposit-taking SACCOs	.796	17	.261

Source: Author (2024)

The results in table 4.10 show that when the test statistic is greater than 0.05, it suggests that the data follows a normal distribution as recommended by Yazici and Yolacan (2007). In Table 4.10, the results of the Kolmogorov-Smirnov test are presented. The obtained normality test results in the table above suggest that the data pertaining to each variable follows a normal distribution, as the significance value in all instances exceeds 0.05. Consequently, the data is appropriate for subjecting to correlation and regression analysis.

4.6.2 Test for Multicollinearity

Multicollinearity manifests when two or more predictors in a regression model exhibit a moderate or high correlation, therefore constraining the ability to make research findings. Coefficient estimates for individual predictors become unstable when

multicollinearity causes standard errors and confidence intervals to inflate. To assess multicollinearity, this study used the Variance Inflation Factor (VIF). If the VIF factor's value is 1, it means that no two predictor variables are associated with each other. A VIF parameter of 5 suggests the presence of multicollinearity, while a value of 10 indicates substantial multicollinearity, as illustrated in Table 4.11.

Table 4.11: Variance Inflation Factor

Variable	VIF	1/VIF
Credit risk management techniques	1.072	0.933
Liquidity risk management techniques	1.308	0.765
Market risk management techniques	1.863	0.537
Operational risk management techniques	1.994	0.502
Mean	1.559	

Source: Author (2024)

The findings were displayed in Table 4.11. According to the Variance Inflation Factor (VIF) results (table), it can be seen how much the independent variables are correlated to one another, which are credit, liquidity, market and operational risk management techniques. The VIFs of all the predictors are fairly low: 1.072 of credit risk management, 1.308 of liquidity risk management, 1.863 of market risk management, and 1.994 of operational risk management. The average VIF of 1.559 also indicates that, in average, the multicollinearity of the predictors is not significant.

A VIF of less than 5 (or, in more conservative tests, less than 10) is considered acceptable, which implies that the independent variables do not demonstrate

undesirable correlation that would bias regression estimates. All VIF values in this analysis are significantly less than 5, which suggests that each of the types of risk management techniques has a specific explanatory power to the model. As a result, the coefficients obtained during the regression are credible, and the impact of their effect on the performance of SACCO finances is sound.

Operational wise, this finding proves that credit, liquidity, market and operational risk management practices are non-overlapping yet complementary elements of SACCO risk management. Every practice represents a variability of financial and operational stability: credit risk management safeguards the loan portfolio, liquidity risk management guarantees the adequacy of cash flow, market risk management lessens exposure to interest rate volatility/investment volatility, and operational risk management enhances internal procedures and controls. The low multicollinearity means that SACCOs have a high probability to adopt these practices on their own and the effect on their financial performances can be accurately measured without statistical distortion.

On the whole, the VIF analysis further supports the validity of the regression results demonstrating that the positive and significant effects of the risk management techniques on financial performance are not artificially exaggerated by the overlap of the predictors. It provides the conclusion, that SACCOs which use multi-dimensional risk management strategies which are strong, are in a better position to ensure sustainable financial results.

4.6.3 Heteroscedasticity Test

The term heteroscedasticity describes a situation when the variability of a variable is not consistent throughout the range of values of a second variable that predicts it. As the independent variable grows, the variability of the dependent variable either widens or narrows, resulting in homoscedasticity within cross-sectional units. Nevertheless, the spread of its variation may vary among units, which is referred to as group-wise heteroscedasticity.

Table 4.12: Heteroscedasticity Results

Test Statistic	**P-Value**
7.87	0.0510
H_o: Constant Variance	

Source: Author (2024)

The Breusch-Pagan test assesses the degree of variability demonstrated by the residuals of the model. The null hypothesis posited that the variance of the data remains constant, while the alternative hypothesis considered that the variance of the data is not constant. The data shown in Table 4.12 does not provide sufficient evidence to reject the null hypothesis of Homoscedastic error terms. This is evident from the p-value of 0.0510, which above the significance level of 0.05, therefore suggesting the absence of Heteroscedasticity. The results of this test indicate that the data exhibits homoscedasticity.

4.7 Inferential Statistics

This section presents the findings for both correlation and regression analysis.

4.7.1 Correlation Analysis

Table 4.13 displays the correlation between six independent factors (credit risk management techniques, liquidity risk management techniques, market risk management techniques, operational risk management techniques) and the financial performance of deposit-taking SACCOs, which is the dependent variable. The Pearson correlation coefficients quantify the magnitude and orientation of the linear relationship between these variables, while the significance level (Sig. 2-tailed) offers details on the statistical importance of these relationships. Statistically significant positive connection ($r = 0.711$, $p < 0.05$) exists between credit risk management strategies and the financial success of deposit-taking SACCOs. Consequently, when deposit-taking SACCOs intensify their credit risk management strategies, they are more likely to achieve superior levels of financial performance. These findings are consistent with the research conducted by Gitau (2021) on dairy cooperatives in Kenya, which demonstrated a statistically significant and positive effect of credit management on the return on investment. This suggests that efficient management of credit risks has a beneficial influence on the financial performance of organizations.

Significant positive relationship exists between liquidity risk management strategies and financial performance ($r = 0.559$, $p < 0.05$). These findings suggest that when deposit-taking SACCOs actively manage liquidity risk, they are more likely to achieve superior levels of financial performance. The present study confirms the empirical findings of Muriithi and Waweru (2017), which demonstrate a strong positive correlation between liquidity risk management strategies and financial

performance. This underscores the crucial importance of liquidity risk management in maintaining the stability and profitability of financial institutions.

A highly robust positive connection ($r = 0.916$, $p < 0.05$) exists between market risk management strategies and the financial performance of deposit-taking SACCOs. This indicates that when deposit-taking SACCOs implement market risk management strategies, it significantly enhances their financial performance. These findings are consistent with the research conducted by Kassi et al. (2019), which highlights the need of adopting appropriate market risk mitigation measures, such as the efficient use of derivative approaches, to reduce the negative effects of market risks on financial performance.

There exists a strong and statistically significant positive relationship ($r = 0.945$, $p < 0.05$) between operational risk management approaches and financial success. This indicates that when deposit-taking SACCOs implement operational risk management strategies, it has a strong and beneficial effect on their financial performance. This discovery is consistent with the study conducted by Toroitich (2018), which emphasized the substantial correlations between different elements of operational risk exposure and ROA. This underscores the need of efficiently managing operational risks in order to improve financial performance.

Table 4.13: Correlation Results

		Financial performance	Credit risk management techniques	Liquidity risk management techniques	Market risk management techniques	Operational risk management techniques
Financial performance	Pearson Correlation	1				
	Sig. (2-tailed)					
Credit risk management techniques	Pearson Correlation	.711**	1			
	Sig. (2-tailed)	.000				
Liquidity risk management techniques	Pearson Correlation	.559**	.900**	1		
	Sig. (2-tailed)	.000	.000			
Market risk management techniques	Pearson Correlation	.916**	.731**	.622**	1	
	Sig. (2-tailed)	.000	.000	.000		
Operational risk management techniques	Pearson Correlation	.945**	.742**	.661**	.919**	1
	Sig. (2-tailed)	.000	.000	.000	.000	

**. Correlation is significant at the 0.01 level (2-tailed).
b. Listwise N=136

Source: Author (2024)

4.7.2 Regression Analysis

The objective of the regression study was to ascertain the impact of the independent factors on the dependent variable, which is the financial performance of deposit-taking SACCOs. The modeling summary, ANOVA, and coefficients tables display the results of the analysis. The model summary quantifies the extent to which the independent variables included in the model account for the variability in the

dependent variable. The ANOVA table assesses the statistical significance of the model fit in predicting the dependent variable, whereas the coefficient table measures the quantitative relationship between the variables. The present study presents the results in the tables provided below.

Table 4.14: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.965[a]	.931	.928	.226045	2.286

a. Predictors: (Constant), Operational risk management techniques, Liquidity risk management techniques, Market risk management techniques, Credit risk management techniques

b. Dependent Variable: Financial performance

Source: Author (2024)

Table 4.14 shows the model summary of the impact of operational risk management, liquidity risk management, credit risk management, and the market risk management techniques on the overall financial performance of the deposit-taking SACCOs in Kenya. The regression findings indicate that there is a strong joint power of the four predictors, which is indicated by the value of R at 0.965. This implies that risk management practices and financial performance have a very strong positive relationship, meaning that SACCOs that have stronger risk controls have higher financial performance. The coefficient of determination (R^2= 0.931) also implies that the four risk management constructs can explain 93.1 percent of the variance in the financial performance of SACCOs. This is remarkably high when it comes to organizational research and shows that the risk management strategies are the main

drivers of determining both the operational and financial stability of SACCOs. Adjusted R^2 of 0.928 which looks after the number of predictors in a model is very similar to the R^2 value and hence confirms that all of the predictors are making a meaningful contribution to the financial performance and that the model is not overfitted.

Durbin Waton value of 2.286 is between 1.5- 2.5 implying that there is no drastic autocorrelation in the model residual. This increases the belief of the validity of the regression results, which reveal that the data is not in a systematic error, which will bias the relationship between the predictors and financial performance. This, in practice, implies that the reported differences in the financial performance of SACCOs are due to the actual differences in the risk management practices and not to the unaccounted serial patterns in the data.

Table 4.15: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	89.699	4	22.425	438.870	.000[b]
	Residual	6.694	131	.051		
	Total	96.392	135			

a. Dependent Variable: Financial performance

b. Predictors: (Constant), Operational risk management techniques, Liquidity risk management techniques, Market risk management techniques, Credit risk management techniques

Source: Author (2024)

Table 4.15 examines the hypothesis that the regression model provides a considerably superior prediction of the dependent variable (financial performance of deposit-taking SACCOs) compared to a model without any predictors. The F-statistic, which quantifies the extent to which the model enhances the prediction of the result compared to a model without any predictors, is reported as 438.870. The remarkably low significance value (Sig.) of.000, which falls below the standard significance level (0.05), provides compelling evidence that the regression model is more suitable for fitting the data compared to the intercept-only model. Fundamentally, the factors included in the regression model make a substantial contribution to elucidating the fluctuations in the financial performance of DT SACCOs, and the model has statistical significance.

The summary of the model results shows that the joint impact of credit, liquidity, market, and operational risk management methods have very strong impact on the financial performance of deposit taking SACCOs in Kenya. The percentage explained variance as obtained in the ANOVA result table with regression sum of squares equals 89.699 of the total 96.392 indicates an approximate value of R 2 = 0.93. This is an indication that the four risk management variables used in the model account 93 percent of the difference in financial performance between the SACCOs. This large amount of explanatory power indicates that risk management is a primary motivational force of SACCOs performance, indicating that financial sustainability of SACCOs is largely determined by the quality of their risk mitigation efforts.

Operationally, this large R 2 indicates that SACCOs are in an environment in which risk exposures are well homogenous among the institutions, and thus, good risk management practices produce similar high impacts on performance. What the result

also suggests is that the predictors represent the most significant features of SACCO operations most specifically, credit administration, liquidity controls, investment decision-making, and management of internal processes. The adjusted R 2, which is usually used to account the number of predictors, would also be equally high, implying the fact that each of the four variables has a significant influence on the predicting of the financial performance. Thus, the model is not inflated or over-fitted but rather represents the actual working dynamics of the regulated industry of the SACCO. The model has strong strength that supports the fact that improvement of risk management structure can significantly improve financial performance and thus the findings are particularly applicable to SACCO boards, risk managers as well as regulatory authorities like SASRA.

Interpretation of regression Coefficients

The regression coefficients can also be used to understand the impact of each kind of risk management technique on the financial performance. The values of the specific coefficients are not given here, but the statistical significance of the model shows that all the predictors have a significant contribution. The methods of credit risk management will have a positive and relevant coefficient, indicating the leading role of the quality of loan portfolio in the profitability of SACCO. Practically, SACCOs practicing good credit screening processes, good loan management and good recovery plans have a lower default rate, and more stable earnings. This will improve their liquidity, lower their provisioning costs and eventually improve their financial returns.

Analogously, the techniques of liquidity risk management are likely to have a positive impact on the financial performance. SACCOs should always maintain a good liquidity in order to meet the withdrawal requirements of the members, loan disbursements, and comply with liquidity requirements of SASRA. The higher the liquidity controls that are sound in institutions like maintaining the optimum liquidity ratios, cash-flow prediction and balanced liquidity asset-liabilities formations, the better the institutions are placed to retain the confidence of its members and avert financial crises. This has operational stability which is translated to better performance results.

The approaches to market risk management also have a beneficial impact on financial performance, yet the extent of such impact might be lower than the effects of credit and liquidity risks. SACCOs are progressively investing in ways that subject them to the effect of fluctuations in interest rates, inflation and volatility of the markets. Through observing the market trends, diversification of investment products, and positioning the investment decisions according to the regulatory requirements, SACCOs will be able to protect their returns and reduce their exposure to unnecessary losses. Good risk management of the market thereby improves the income of the investment and expands the financial goals.

Lastly, the operational risk management methods usually have a very high positive influence on the performance due to the fact that they deal with the internal activities which lead to service delivery, security and administrative efficiency. The ICT systems, human error, fraud, poor documentation, or inadequate internal controls are the weaknesses of SACCOs that result in operational risks. The SACCOs which

invest in staff training on a continuous basis, fraud control systems, ICT stability, and process automation are more likely to reduce operational losses and enhance service reliability. This has a direct impact of enhancing the financial performance through mitigation of inefficiencies and institutional credibility.

Overall, the regression coefficients show that the four dimensions of risk management, namely credit, liquidity, market, and operational, significantly influence the financial performance of SACCOs in a positive way. The results support the essential role of combined risk management systems within the SACCO functions. This will help SACCOs to increase their stability, safeguard deposits by members, and generate better financial performance by making their practices in line with the risk-based supervision guidelines by SASRA and the best practices in the sector.

Table 4.16: Model Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.143	.174		6.559	.000
	Credit risk management techniques	.238	.046	.317	5.185	.000
	Liquidity risk management techniques	.425	.065	.353	6.580	.000

	Market risk management techniques	.231	.058	.240	3.963	.000
	Operational risk management techniques	.695	.059	.723	11.842	.000

a. Dependent Variable: Financial performance

Source: Author (2024)

From the Table 4:16 the following model has been developed;

Y = 1.143+ 0.238X1 + 0.425X2 + 0.231X3+ 0.695X4

Where:

Y = financial performance of deposit-taking SACCOs

X1 = credit risk management techniques

X2 = liquidity risk management techniques

X3 = market risk management techniques

X4 = operational risk management techniques

4.8 Discussion of the Findings

This sub-section discusses the findings from the analyzed data linking them with the literature reviewed as described in the preceding section.

4.8.1 Credit Risk Management Techniques and Financial Performance

The financial performance of DT SACCOs in Kenya is positively correlated with credit risk management measures, according to regression analysis ($\beta = 0.238$, $t = 5.185$, $p < 0.05$). These results show that deposit-taking SACCOs' overall financial performance improves once they apply measures for managing credit risk. For deposit-taking SACCOs, a coefficient of 0.238 indicates that their expected financial performance should increase by 0.238 units for every unit increase in credit risk management measures.

Previous research has investigated the relationship between credit risk management (CRM) and financial performance (FP) in different contexts, and the empirical findings of this study are in line with those of Gitau (2021), Otanga, Mule, and Momanyi (2020), and Munangi and Sibindi (2020). Gitau found a favorable and statistically significant relationship between credit management and ROI in his study of Kenyan dairy cooperatives. This indicates that these operations' financial performance is improved by implementing effective credit risk management strategies. Otanga, Mule, and Momanyi (2020) found that deposit-taking SACCOs in Western Kenya's financial performance is greatly affected by credit risk management. According to their findings, improved financial results are the result of a lower non-performing loan ratio, which is attained via effective management of credit risk. In addition, Munangi and Sibindi's (2020) empirical research on South African banks adds to the growing body of evidence showing that credit risk significantly affects financial performance, although in a negative way. Despite the study's focus on banks, its findings highlight the importance of tightening credit regulations and enhancing regulatory monitoring to safeguard financial performance and decrease credit risk. All things considered, these findings highlight how crucial credit risk management tactics

are for determining the financial success of many types of financial companies, including SACCOs.

4.8.2 Liquidity Risk Management Techniques and Financial Performance

A financially performing SACCOs in Kenya that accepts deposits has a positively correlated liquidity risk management strategy with their performance ($\beta = 0.425$, $t = 6.580$, $p < 0.05$), according to the regression study. This suggests that deposit-taking SACCOs' overall financial success is enhanced when they engage in cooperative research and development initiatives. With a coefficient of 0.425, DT SACCOs can expect a 0.425-unit increase in their predicted financial performance for every one-unit increase in liquidity risk management techniques.

Kenyan SACCOs that accept deposits show a favourable relationship between their financial performance and liquidity risk management tactics, according to the regression results. This result is consistent with what has been found in other empirical investigations that have used similar conditions. Otwoko and Maina (2021) looked at how DT SACCOs in Kenya fared financially due to liquidity risk. Using regression analysis, they found that liquidity risk was significantly correlated with financial performance. According to the findings of this study, financial institutions can improve their financial performance by implementing effective liquidity risk management strategies.

In addition, Kindu's (2019) research on how liquidity risk affects the bottom lines of Ethiopian commercial banks is a useful resource. Kindu found a significant negative correlation between the financial performance of commercial banks and multiple financial indicators, via the analysis of panel regression data obtained from Ethiopian commercial banks. These indicators include liquidity ratio, liquidity coverage ratio,

net stable funding ratio, loan to deposit ratio, and liquidity. Results showing better liquidity ratios and coverage indicate that liquidity risk management is helpful to financial performance. The results of Kindu's research complement those of the present study since they demonstrate how crucial it is to handle liquidity risk prudently in order to achieve maximum financial success.

4.8.3 Market Risk Management Techniques and Financial Performance

With a beta coefficient of 0.231, a t-value of 3.963, and a p-value less than 0.05, the regression analysis reveals a robust and statistically significant positive relationship between the financial performance of DT SACCOs in Kenya and their market risk management measures. These results show that DT SACCOs' overall financial performance improves when they use market risk management tactics. A coefficient of 0.231 indicates that for every unit improvement in market risk management approaches, the predicted financial performance of deposit-taking SACCOs rises by 0.231 units.

There is a robust and statistically significant positive relationship between the financial performance of deposit-taking SACCOs in Kenya and market risk management measures, according to the regression results. This result agrees with other empirical investigations that have dealt with comparable issues. Researchers Kahihu, Wachira, and Muathe (2021) looked at how microfinance institutions in Kenya fared financially after implementing market risk management strategies. Their study used financial leverage, interest rate risk, inflation risk, and foreign currency risk to measure market risk, and return on equity to measure financial performance.

Results showed that interest rates and financial leverage had a substantial impact on the financial performance of MFIs in Kenya. This shows how important it is to effectively manage market risks for better financial results.

Odubuasi, Uduak, and Ifurueze (2020) looked into how market risks affected the bottom lines of Nigerian companies. Currency rate risk, commodity price change, stock price fluctuation, and ROA and ROE were the primary foci of their market risk and financial performance studies. While interest rate risk had a major influence on ROE and a little effect on ROA, the data showed that exchange rate risk greatly affected both ROA and ROE. For this reason, maximizing financial success requires skillfully managing market risks, especially those associated with interest rates and currencies.

4.8.4 Operational Risk Management Techniques and Financial Performance

The results of the regression study reveal a robust and statistically significant relationship between the financial performance of deposit-taking SACCOs in Kenya and operational risk management measures ($\beta = 0.695$, $t = 11.842$, $p < 0.05$). According to these results, deposit-taking SACCOs saw a considerable improvement in their whole financial performance after implementing operational risk management measures. The expected financial performance of deposit-taking SACCOs increases by 0.695 units for every unit increase in operational risk management measures, according to the coefficient of 0.695.

Regression analysis shows that operational risk management techniques have a favorable and statistically significant relationship with the financial success of Kenyan SACCOs that accept deposits. Previous empirical research in related domains has reached similar conclusions. Onsongo, Mwangi, and Muathe (2019) performed research on the effects of operational risk and company size on the bottom line of NSE-listed service and commercial companies. Operating risk had a positive effect on financial success, as measured by return on assets, according to their study, which looked at a different industry. However, this effect was not statistically significant. In addition, the results showed that the correlation between operational risk and financial success is moderated by company size. It can be inferred from this fact that larger and more financially stable organizations tend to have better risk management methods. These findings align with the current study's conclusions and highlight the importance of implementing effective operational risk management strategies to boost financial performance across different industries.

In addition, Simamora and Oswari (2019) looked at how operational risks, together with credit and liquidity issues, affected the bottom lines of publicly listed commercial banks in Indonesia. Their findings highlighted the need of effective operational risk management in maintaining financial stability and performance in the banking sector, as operational risk has a substantial negative impact on financial performance. The principle of efficient management of operational risks remains the same, despite the fact that the banking industry is distinct from deposit-taking SACCOs. This principle is essential for maximizing financial success. This study lends credence to the substantial positive relationship and highlights the importance of

implementing robust operational risk management measures to boost financial performance.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The chapter entails a summary of findings, conclusions, implications and finally recommendations. This section also includes suggestions for future studies.

5.2 Summary of Findings

The primary aim of this study was to evaluate the effect of financial risk management strategies on the financial performance of deposit-taking SACCOs in Kenya. This study specifically investigated the effect of credit risk management, liquidity risk management, market risk management, and operational risk management strategies on the financial performance of deposit-taking SACCOs in Kenya. The present study employed the Modern Portfolio Theory, Credit Risk Theory, Liquidity Preference Theory, and Risk Management Theory as theoretical frameworks to elucidate the inherent connection among the variables under investigation. The study employed a descriptive research design. The target audience consisted of all 175 deposit-taking Savings and Credit Cooperative Organizations (SACCOs) that were operational in Kenya as of December 2023. A comprehensive census was carried out on all 175 deposit-taking SACCOs. In each of the 175 deposit-taking SACCOs in Kenya, the heads risk served as the unit of observation. Primary data was collected using structured questionnaires, and this data was then analysed using both descriptive and inferential statistical methods.

5.2.1 Credit Risk Management Techniques and Financial Performance

The initial goal was to assess the effect of credit risk management strategies on the financial performance of SACCOs. Descriptive statistics revealed that the variable had an average value of 2.97 and a standard deviation of 0.78, suggesting a range of opinions on the effectiveness and prevalence of credit risk management strategies in deposit-taking SACCOs in Kenya. The substantial standard deviation of 0.78 suggests a significant level of variability in the responses to this variable. The correlation analysis revealed a robust positive relationship ($r = 0.711$, $p < 0.05$) between the methodologies used for managing credit risk and the financial performance of deposit-taking SACCOs.

Given a regression coefficient of $\beta = 0.238$, the results of the regression analysis indicate that good credit risk management has a beneficial effect on the financial performance of SACCOs. The analysis of the regression data provided valuable insights into the correlation between various risk management strategies and financial performance. The statistically significant coefficients ($\beta = 0.317$, $p = 0.000$) provide evidence that appropriate credit risk management strategies have a favorable effect on financial performance. Savings and Credit Cooperative Organizations (SACCOs) that use risk-based pricing policies and undertake regular evaluation of client credit histories observe enhanced financial performance. Thus, the significance of cautious lending procedures in improving the stability and profitability of SACCOs is emphasized.

5.2.2 Liquidity Risk Management Techniques and Financial Performance

The second objective was to assess the effect of liquidity risk management strategies on the financial performance of SACCOs. The descriptive statistics revealed that the variable had an average value of 2.78 and a standard deviation of 0.96. This suggests that there are varying expectations about the effectiveness and prevalence of liquidity risk management strategies in deposit-taking SACCOs in Kenya. The substantial standard deviation of 0.96 suggests a significant level of variability in the responses to this variable. The correlation analysis revealed a robust positive relationship ($r = 0.559$, $p < 0.05$) between the strategies used for managing liquidity risk and the financial performance of deposit-taking SACCOs.

This study investigated the strategies used for managing liquidity risk and their effect on financial performance. This study emphasized the beneficial effect of liquidity risk management strategies on financial performance. Statistically significant coefficients ($\beta = 0.425$, $p = 0.000$) show that SACCOs that successfully handle liquidity issues exhibit superior financial performance. Maintenance of adequate cash reserves and timely fulfilment of payment obligations are key strategies that enable SACCOs to effectively manage short-term liquidity issues and sustain financial stability.

5.2.3 Market Risk Management Techniques and Financial Performance

The study investigated the effect of liquidity risk management strategies on the financial performance of (SACCOs. The descriptive statistics revealed that the average value of market risk management mechanisms was 3.64, with a standard deviation of 0.69. This suggests a moderate level of agreement in perceptions about

the effectiveness and prevalence of liquidity risk management techniques within deposit-taking SACCOs in Kenya. An elevated standard deviation of 0.69 suggests a limited range of variability in the responses to this variable. The correlation analysis revealed a robust positive relationship ($r = 0.916$, $p < 0.05$) between the financial performance of deposit-taking SACCOs and their market risk management strategies. The examination of market risk management methodology revealed that SACCOs that implement measures to reduce market risks, such as using derivatives for hedging, diversifying their product offerings, and regularly monitoring foreign exchange exposures, achieve improved financial performance. This study emphasized the beneficial effect of liquidity risk management strategies on financial performance. SACCOs that successfully handle liquidity risks, as shown by the statistically significant regression coefficient ($\beta = 0.231$, $p = 0.000$), exhibit superior financial performance. Maintenance of adequate cash reserves and timely fulfilment of payment obligations are key strategies that enable SACCOs to effectively manage short-term liquidity issues and sustain financial stability.

5.2.4 Operational Risk Management Techniques and Financial Performance

Finally, the study investigated the effect of operational risk management strategies on the financial performance of SACCOs. The descriptive statistics revealed that the operational risk management techniques had an average value of 3.86 and a standard deviation of 0.68. This suggests a moderate level of agreement in assessments of the effectiveness and prevalence of liquidity risk management techniques in deposit-taking SACCOs in Kenya. The observed standard deviation of 0.69 suggests a limited

degree of variability in the responses to this particular variable. The correlation analysis revealed a robust positive relationship ($r = 0.945$, $p < 0.05$) between the implementation of operational risk management strategies and the financial performance of deposit-taking SACCOs.

The study revealed that SACCOs who adopt efficient operational risk management strategies, including ongoing employee training, diversification of products, frequent risk assessments, and steps to avoid fraud, demonstrate enhanced financial performance. The statistically significant coefficients ($\beta = 0.645$, $p = 0.000$) in the regression analysis highlighted the substantial effect of operational risk management strategies on financial performance. Social Credit Cooperative Organizations (SACCOs) successfully mitigate operational risks by implementing ongoing employee training, diversifying their product offerings, and implementing fraud protection measures, resulting in enhanced financial performance. These findings highlight the crucial importance of operational efficiency in enhancing the financial resilience and competitiveness of SACCOs.

5.3 Conclusions of the Study

The conclusions of the study were derived from the study findings of the study. The conclusions are in line with the study objectives.

5.3.1 Credit Risk Management Techniques

The study aimed to assess the effect of credit risk management techniques on financial performance. The findings indicate that effective credit risk management practices, such as risk-based pricing policies and regular analysis of customer credit histories, significantly contribute to improved financial performance within SACCOs. These practices help mitigate the risk of non-performing loans and enhance the

overall stability of SACCOs' loan portfolios, leading to enhanced financial performance.

5.3.2 Liquidity Risk Management Techniques

The study explored liquidity risk management techniques and their effect on financial performance. It revealed that SACCOs implementing robust liquidity risk management practices, such as maintaining sufficient cash reserves and timely meeting payment obligations, demonstrate better financial performance. These strategies ensure SACCOs' ability to meet short-term financial obligations and navigate liquidity challenges effectively, thus enhancing their financial resilience.

5.3.3 Market Risk Management Techniques

The analysis delved into market risk management techniques and their effect on financial performance. The findings suggest that SACCOs employing strategies to mitigate market risks, such as derivatives hedging and product diversification, experience enhanced financial performance. By proactively managing market risks, SACCOs can minimize the effect of market fluctuations on their financial performance and capitalize on market opportunities.

5.3.4 Operational Risk Management Techniques

The study examined operational risk management techniques and their effect on financial performance. It revealed that SACCOs implementing effective operational risk management practices, including continuous employee training and fraud prevention measures, demonstrates improved financial performance. These practices enhance operational efficiency, reduce the risk of financial losses due to operational failures, and contribute to SACCOs' overall financial stability.

5.4 Recommendations of the Study

The recommendations of the study were derived from the study findings of the study. The recommendations are in line with the study objectives.

5.4.1 Credit Risk Management Techniques

SACCOs should focus on enhancing their credit risk management frameworks. This can be achieved by implementing robust credit risk assessment mechanisms, such as comprehensive credit scoring models and regular analysis of customer credit histories. Strengthening collateral management practices and implementing risk-based pricing policies aligned with the level of credit risk associated with borrowers can further mitigate potential credit risks. Moreover, continuous training and capacity building programs for staff involved in credit risk management are essential to ensure the effective implementation of credit risk mitigation strategies.

5.4.2 Liquidity Risk Management Techniques

In addition to credit risk management, SACCOs need to improve their liquidity risk management practices. This involves establishing clear liquidity risk management policies and procedures, including maintaining adequate liquidity buffers and diversifying funding sources to reduce reliance on short-term borrowings. Strengthening cash flow forecasting capabilities and regularly monitoring liquidity positions will enable SACCOs to anticipate and address liquidity needs effectively, thereby enhancing liquidity resilience.

5.4.3 Market Risk Management Techniques

SACCOs should focus on strengthening their market risk management frameworks to mitigate exposure to market risks. This can be achieved by developing hedging strategies using derivative instruments and diversifying product offerings and

investment portfolios to spread risk. SACCOs should also enhance their risk management systems and analytics capabilities to facilitate real-time monitoring and decision-making in response to market developments.

5.4.4 Operational Risk Management Techniques

SACCOs need to prioritize operational risk management to mitigate operational vulnerabilities effectively. This involves implementing robust operational risk management frameworks, conducting regular risk assessments, and establishing clear policies and procedures for incident reporting and escalation. Providing ongoing training and awareness programs for staff to promote a culture of risk awareness and accountability throughout the organization is crucial.

5.5 Suggestions for Further Research

Future research could explore the effect of macroeconomic factors on the effectiveness of risk management practices within SACCOs. Investigating how changes in interest rates, inflation, exchange rates, and other macroeconomic variables effect the efficacy of credit, liquidity, market, and operational risk management strategies could provide valuable insights for SACCOs in adapting their risk management frameworks to dynamic economic conditions.

Secondly, there is a need for longitudinal studies that track the long-term effect of risk management practices on the financial performance of SACCOs over time. By analyzing financial performance data and risk management practices longitudinally, researchers can assess the sustainability and durability of the observed relationships and identify any evolving trends or patterns in risk management effectiveness and financial performance within SACCOs.

Furthermore, given the increasing digitalization and technological advancements in the financial sector, future research could investigate the role of technology in enhancing risk management practices and financial performance within SACCOs. Exploring the adoption of financial technology (fintech) solutions, such as risk analytics software, digital lending platforms, and blockchain-based solutions, could provide insights into how technological innovations can streamline risk management processes and improve financial performance in the SACCO sector.

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APPENDICES

Appendix I: Deposit Taking SACCOs in Kenya

1) NK Sacco Society Ltd
2) Acumen Sacco Society Ltd
3) Afya Sacco Society Ltd
4) Agro-Chem Sacco Society Ltd
5) Ainabkoi Sacco Society Ltd
6) Airports Sacco Society Ltd
7) Amica Sacco Society Ltd
8) Ammar Sacco Society Ltd
9) Ardhi Sacco Society Ltd
10) Asili Sacco Society Ltd
11) Azima Sacco Society Ltd
12) Bandari Sacco Society Ltd
13) Baraka Sacco Society Ltd
14) Baraton University Sacco Society Ltd
15) Biashara Sacco Society Ltd
16) Biashara Tosha Sacco Society Ltd
17) Bi-High Sacco Society Ltd
18) Bingwa Sacco Society Ltd
19) Boresha Sacco Society Ltd
20) Capital Sacco Society Ltd
21) Centenary Sacco Society Ltd
22) Chai Sacco Society Ltd
23) Chuna Sacco Society Ltd
24) Comoco Sacco Society Ltd
25) Cosmopolitan Sacco Society Ltd
26) County Sacco Society Ltd
27) Daima Sacco Society Ltd
28) Dhabiti Sacco Society Ltd
29) Dimkes Sacco Society Ltd
30) Dumisha Sacco Society Ltd
31) Eco-Pillar Sacco Society Ltd
32) Egerton Sacco Society Ltd
33) Elimu Sacco Society Ltd
34) Enea Sacco Society Ltd
35) Faridi Sacco Society Ltd
36) Fariji Sacco Society Ltd
37) Fortitude Sacco Society Ltd
38) Fortune Sacco Society Ltd
39) Fundilima Sacco Society Ltd
40) GDC Sacco Society Ltd
41) Golden Pillar Sacco Society Ltd
42) Good Faith Sacco Society Ltd
43) Goodhope Sacco Society Ltd
44) Goodway Sacco Society Ltd
45) Gusii Mwalimu Sacco Society Ltd
46) Harambee Sacco Society Ltd

47) Hazina Sacco Society Ltd
48) Ilkisonko Sacco Society Ltd
49) Imarika Sacco Society Ltd
50) Imarisha Sacco Society Ltd
51) Invest and Grow (IG) Sacco Society Ltd
52) Jacaranda Sacco Society Ltd
53) Jamii Sacco Society Ltd
54) Jitegemee Sacco Society Ltd
55) Joinas Sacco Society Ltd
56) Jumuika Sacco Society Ltd
57) Kencream Sacco Society Ltd
58) Kenpipe Sacco Society Ltd
59) Kenversity Sacco Society Ltd
60) Kenya Achievas Sacco Society Ltd
61) Kenya Bankers Sacco Society Ltd
62) Kenya Highlands Sacco Society Ltd
63) Kenya Midland Sacco Society Ltd
64) Kenya Police Sacco Society Ltd
65) Kimbilio Daima Sacco Society Ltd
66) Kimisitu Sacco Society Ltd
67) Kingdom Sacco Society Ltd
68) Kipsigis Edis Sacco Society Ltd
69) Kite Sacco Society Ltd
70) Kitui Teachers Sacco Society Ltd
71) Kolenge Tea Sacco Society Ltd
72) Koru Sacco Society Ltd
73) K-Pillar Sacco Society Ltd
74) K -Unity Sacco Society Ltd
75) Kwetu Sacco Society Ltd
76) Lainisha Sacco Society Ltd
77) Lamu Teachers Sacco Society Ltd
78) Lengo Sacco Society Ltd
79) Mafanikio Sacco Society Ltd
80) Magadi Sacco Society Ltd
81) Magereza Sacco Society Ltd
82) Maisha Bora Sacco Society Ltd
83) Mentor Sacco Society Ltd
84) Metropolitan National Sacco Society Ltd
85) MMH Sacco Society Ltd
86) Mombasa Port Sacco Society Ltd
87) Mudete Factory Tea Growers Sacco Society Ltd
88) Muki Sacco Society Ltd
89) Mwalimu National Sacco Society Ltd
90) Mwietheri Sacco Society Ltd
91) Mwito Sacco Society Ltd
92) Nacico Sacco Society Ltd
93) Nafaka Sacco Society Ltd
94) Nandi Farmers Sacco
95) Nanyuki Equator Sacco Society Ltd
96) Nation Sacco Society Ltd

97) Nawiri Sacco Society Ltd
98) Ndege Chai Sacco Society Ltd
99) Ndosha Sacco Society Ltd
100) New Forties Sacco Society Ltd
101) Nexus Sacco Society Ltd
102) Ng'arisha Sacco Society Ltd
103) Noble Sacco Society Ltd
104) NRS Sacco Society Ltd
105) NSSF Sacco Society Ltd
106) Nufaika Sacco Society Ltd
107) Nyala Vision Sacco Society Ltd
108) Nyambene Arimi Sacco Society Ltd
109) Nyamira Tea Farmers Sacco Society Ltd
110) Nyati Sacco Society Ltd
111) Ollin Sacco Society Ltd
112) Orient Sacco Society Ltd
113) Patnas Sacco Society Ltd
114) Prime Time Sacco
115) PUAN Sacco Society Ltd
116) Qwetu Sacco Society Ltd
117) Rachuonyo Teachers Sacco Society Ltd
118) Safaricom Sacco Society Ltd
119) Sheria Sacco Society Ltd
120) Shirika Deposit Taking Sacco Society Ltd
121) Shoppers Sacco Society Ltd
122) Simba Chai Sacco Society Ltd
123) Siraji Sacco Society Ltd
124) Skyline Sacco Society Ltd
125) Smart Champions Sacco Society Ltd
126) Smart - Life Sacco Society Ltd
127) Solution Sacco Society Ltd
128) Sotico Sacco Society Ltd
129) Southern Star Sacco Society Ltd
130) Stake Kenya Sacco Society Ltd
131) Stawisha Sacco Society Ltd
132) Stima Sacco Society Ltd
133) Suluhu Sacco Society Ltd
134) Supa Sacco Society Ltd
135) Tabasamu Sacco Society Ltd
136) Tabasuri Sacco Society Ltd
137) Tai Sacco Society Ltd
138) Taifa Sacco Society Ltd
139) Taqwa Sacco Society Ltd
140) Taraji Sacco Society Ltd
141) Telepost Sacco Society Ltd
142) Tembo Sacco Society Ltd
143) Tenhos Sacco Society Ltd
144) Thamani Sacco Society Ltd
145) The Apple Sacco Society Ltd
146) Times-U Sacco Society Ltd

147) Tower Sacco Society Ltd
148) Trans-Elite County Sacco Society Ltd
149) Trans Nation Sacco Society Ltd
150) Trans-Counties Sacco Society Ltd
151) Trans-National Times Sacco Society Ltd
152) Uchongaji Sacco Society Ltd
153) Ufanisi Sacco Society Ltd
154) Ukristo na Ufanisi wa Anglican Sacco Society Ltd
155) Ukulima Sacco Society Ltd
156) Unaitas Sacco Society Ltd
157) Uni-County Sacco Society Ltd
158) Unison Sacco Society Ltd
159) United Nations Sacco Society Ltd
160) Universal Traders Sacco Society Ltd
161) Ushuru Sacco Society Ltd
162) Vihiga County Farmers Sacco Society Ltd
163) Viktas Sacco Society Ltd
164) Vision Africa Sacco Society Ltd
165) Vision Point Sacco Society Ltd
166) Wakenya Pamoja Sacco Society Ltd
167) Wakulima Commercial Sacco Society Ltd
168) Wana-anga Sacco Society Ltd
169) Wananchi Sacco Society Ltd
170) Wanandege Sacco Society Ltd
171) Washa Sacco Society Ltd
172) Waumini Sacco Society Ltd
173) Wevarsity Sacco Society Ltd
174) Winas Sacco Society Ltd
175) Yetu Sacco Society Ltd

Source: SASRA (2022)

Appendix II: Research Questionnaire

Dear Sir/Madam,

My name is **Peruce Hoka Etenyi**, a student at Masinde Muliru University of Science and Technology and currently undertaking an academic research project on*; '**EFFECTS OF FINANCIAL RISK MANAGEMENT TECHNIQUES ON FINANCIAL PERFORMANCE OF DEPOSIT TAKING SACCOS IN KENYA**'.* A questionnaire has been developed to assist gathering relevant information for this study. I will ask you a few questions to assist in completion of this research. Whatever data you shall offer will be strictly confidential and will only be utilized for academic purposes only. Participation in the study is voluntary.

Instructions

Do not indicate your name on the questionnaire.

Tick only one answer (box) for each question.

PART A: BACKGROUND INFORMATION

1 Gender: Male [ ] Female [ ]

2 Under which age brackets are you?

21 – 30 Years	[ ]	31 - 40 Years	[ ]
41 - 50 years	[ ]	Over 50 years	[ ]

3 Which is the highest education level that you have attained?

Diploma	[ ]	Masters	[ ]
Degree	[ ]	PhD	[ ]

Others Specify…….

4 How many years have you worked in your SACCO?

Less than one year	[ ]	1-3 years	[ ]
4-7 years	[ ]	8 years and above	[ ]

5 Do you have a risk department?

YES [ ] NO [ ]

PART B: FINANCIAL RISK MANAGEMENT TECHNIQUES

To what extent do you agree with the following statements? Rate in a scale of 1 to 5 (1 Strongly disagree, 2 Disagree, 3 Neutral, 4 Agree, 5 Strongly Agree)

i) Credit risk management techniques

STATEMENT	**1**	**2**	**3**	**4**	**5**
There are enough staff members who deal with credit limiting to the customers from the executive board					
The Credit Risk management team is counterpart and play important roles in company decisions.					
At least one of the nonexecutive directors on the SACCO's risk committee has banking experience					
In the SACCO collateral management practices are common.					
Risk based pricing policy of implementing varying Customers' rate of interest and loans are practiced.					
The SACCO analyses customer credit history regularly					

ii) Liquidity risk management techniques

STATEMENT	**1**	**2**	**3**	**4**	**5**
This SACCO has policy for holding cash at a level sufficient to ensure that it has available funds					
My SACCO meets payments obligations on timely manner					

There are set common reporting standards and liquidity monitoring and control standards in this SACCO					
My SACCO adheres to industry best practice for intraday cash reporting					
The SACCO has a liquidity risk analysis policy					
Generally the management of liquidity risk in my SACCO is effective					

iii) Market risk management techniques

STATEMENT	**1**	**2**	**3**	**4**	**5**
Our SACCO use options and swaps in the derivative markets to offset market risks					
Our company use future contracts in the derivative markets to offset market risks					
Our SACCO use forward contracts in the derivative markets to offset market risks					
Our SACCO regularly transfer pricing and invoicing currency to avoid market risk					
Our SACCO usually employs leaching and lagging payments to minimize market risks					
The SACCO usually use exposure netting to lower transaction costs and make regular settlements to reduce market risks.					

iv) Operational risk management techniques

STATEMENT	1	2	3	4	5
The SACCO offers continuous training to employees					
Our SACCO has diversified its product offerings to reduce operating risks					
The SACCO conducts pre- independent assessment of risks and losses					
The Sacco's Management frequently reviews its operations in order to avoid risks					
The Sacco provide training to its customers in order to avoid external risks					
The Sacco conducts regular inspections to enable it reduce occurrence of risks.					

PART C: FINANCIAL PERFORMANCE

To what extent do you agree with the following statements? Rate in a scale of 1 to 5 (1 Strongly disagree, 2 Disagree, 3 Neutral, 4 Agree, 5 Strongly Agree)

STATEMENT	1	2	3	4	5

The level of NPLs have been decreasing over the years					
The DT-SACCO is efficient in collecting overdue loans					
Frequency of external liquidity borrowings has been decreasing					
The SACCO maintains sufficient liquidity					
Foreign exchange losses have been declining over the years					
The SACCO consistently manages to make foreign exchange gains					
Cases of fraud and embezzlement have been on a decline over the years					
The DT-SACCO has been able to reduce incidences of fraud					

THANK YOU

Appendix III: NACOSTI Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **601735**

Date of Issue: **23/May/2024**

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