

**FIRM CHARACTERISTICS AND FINANCIAL STABILITY OF DEPOSIT
TAKING SAVINGS AND CREDIT CO-OPERATIVE SOCIETIES IN KENYA**

HESBORN O BIRISI

D86/CTY/21441/2020

**A THESIS SUBMITTED TO THE SCHOOL OF BUSINESS, ECONOMICS AND
TOURISM IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE
AWARD OF DEGREE OF DOCTOR OF PHILOSOPHY IN BUSINESS
ADMINISTRATION (FINANCE) OF KENYATTA UNIVERSITY**

NOVEMBER, 2024

DECLARATION

This thesis is my original work and has not been presented for a degree award in any other University. No part of this thesis proposal should be reproduced without authority of the author or/and Kenyatta University.

Signature _____ Date _____

Hesborn Birisi Birisi

D86/CTY/21441/2020

Department of Accounting and Finance

Declaration by the Supervisors

We confirm that this thesis has been carried out by the candidate under our supervision as the university appointed University supervisors.

Signature _____ Date _____

Dr. Job Omagwa

Department of Accounting and Finance

School of Business, Economics and Tourism

Kenyatta University

Signature _____ Date _____

Dr. Salome Musau

Department of Accounting and Finance

School of Business, Economics and Tourism

Kenyatta University

DEDICATION

This thesis is dedicated to the memory of my cherished late sister, Mercyline Nyang'ara Birisi, whose inspiration guided me through my early schooling. I also want to express my deep gratitude to my wife, Maureen Barongo, and our children—Noella Angel Kerubo Birisi, Mercy Shantell Kemunto Birisi, Terrence Charlton Birisi, and Mercyline Nyang'ara Birisi—for their steadfast support.

ACKNOWLEDGEMENT

I am deeply grateful to Almighty God for the gift of life and grace during this thesis journey. I would like to thank Dr. Job Ombongi Omagwa and Dr. Salome Mwongeli Musau, my university supervisors, for their invaluable guidance and support throughout this research. My sincere appreciation goes to the faculty members of the School of Business, Economics, and Tourism at Kenyatta University for their exceptional assistance and encouragement. I extend my heartfelt thanks to the management of Kenyatta University and all members of the university community for their invaluable support during this research endeavor. I also appreciate Mr. Martin Raryea of Pwani University for his support throughout my undergraduate studies. Special thanks to Dr. Wilfred Marube for your mentorship and for raising the standard. I am grateful to Mr. Amenya, my high school accounting teacher, for believing in me and fostering my interest in accounting and finance. I appreciate Reverend Fr. Terrence Charlton S.J., my spiritual director, for his support and guidance.

I would also like to express my sincere gratitude to my benefactors for their generosity towards my education: the Dr. Kunkler family, the Dvorak family, Mary Kay & Dave, and Madam Alice Heger—thank you! I am thankful for my wife, Maureen Barongo, for her love, ethical support, and motivation related to this thesis and life overall. I thank my mother, Priscillah Kemunto, for her dedication, love, sacrifices, and support throughout my upbringing. To my siblings, Geoffrey Omwenga and Lillian Kerubo, thank you for your encouragement and faith in me. To my childhood friend and mentor, Mr. Reuben

Mokaya, I have learned many valuable life lessons from you that I will carry with me throughout my career. Your guidance has not only helped me professionally but has also made me a better person. To my mentor and godparent, Mr. Edward Obutu, I am profoundly grateful for your spiritual, moral, and holistic support; you are a cornerstone in my life! I also want to express my gratitude to the Sno-Isle Libraries, especially the Lynnwood and Mill Creek Libraries in Washington, USA, for providing me with resources, and a perfect study atmosphere. Lastly, I thank the communities of Biticha and Bogeka for providing me with a supportive environment to realize my potential.

TABLE OF CONTENTS

DECLARATION	ii
DEDICATION	iii
ACKNOWLEDGEMENT	iv
TABLE OF CONTENTS	vi
LIST OF TABLES.....	x
LIST OF FIGURES.....	xi
OPERATIONAL DEFINITION OF TERMS	xii
ABSTRACT	xviii
CHAPTER ONE.....	1
INTRODUCTION	1
1.1 Background of the Study	1
1.1.1 Financial Stability.....	8
1.1.2 Firm Characteristics.....	12
1.1.3 Operating Environment	16
1.1.4 Firm Competitiveness.....	18
1.1.5 Deposit Taking Savings and Credit Co-operatives in Kenya	19
1.2 Statement of the Problem	21
1.3 Objective of the Study	24
1.3.1 General Objective	25
1.3.2 Specific Objectives	25
1.4 Research Hypotheses.....	25
1.5 Significance of the Study	26
1.6 Scope of the Study.....	27
1.7 Limitations of the Study	28
1.8 Organization of the Study.....	29
CHAPTER TWO.....	30
LITERATURE REVIEW	30
2.1 Introduction	30

2.2 Theoretical Literature	30
2.2.1 Agency Theory	30
2.2.2 Liquidity Preference Theory.....	32
2.2.3 Market Power Theory	34
2.2.4 Financial Intermediation Theory	36
2.3 Empirical Review	37
2.3.1 Capital adequacy and financial stability	37
2.3.2 Liquidity and Financial Stability	40
2.3.3 Managerial Efficiency and Financial Stability	43
2.3.4 Operating Environment and Financial Stability	46
2.3.5 Firm Competitiveness and Financial Stability.....	50
2.4 Summary of Literature and Research Gaps.....	52
2.5 Conceptual Framework	57
CHAPTER THREE.....	59
RESEARCH METHODOLOGY	59
3.1 Introduction	59
3.2 Research Philosophy	59
3.3 Research Design	61
3.4 Empirical Model.....	61
3.4.1 Test for Moderation Decision Making Criteria	63
3.4.2 Test for Mediation	64
3.5 Operationalization and Measurement of Variables	67
3.6 Target Population	69
3.7 Sampling Design	69
3.8 Data Collection Instrument	70
3.9 Data Collection Procedure.....	70
3.10 Data Analysis and Presentation	71
3.11 Diagnostic Tests	72
3.11.1 Multicollinearity	72

3.11.2 Normality	73
3.11.3 Heteroscedasticity	74
3.11.4 Autocorrelation	75
3.11.5 Stationarity Test	76
3.11.6 Model Specification Test	77
3.12 Ethical Considerations	77
CHAPTER FOUR	79
RESEARCH FINDINGS AND DISCUSSIONS	79
4.0 Introduction	79
4.1 Descriptive Statistics	79
4.2 Trend Analysis	86
4.2.1 Financial Stability	86
4.2.2 Capital Adequacy	88
4.2.3 Liquidity	90
4.2.3 Management Efficiency	93
4.2.5 Operating Environment	96
4.2.6 Competitiveness	98
4.3 Diagnostic Tests	101
4.3.1 Multicollinearity Test	101
4.3.2 Normality Test	102
4.3.3 Heteroscedasticity Test	104
4.3.4 Autocorrelation Test Results	106
4.3.5 Stationarity Test	107
4.3.6 Model Specification Test	108
4.4 Correlation Analysis	110
4.5 Panel Regression Analysis	118
4.6 Hypothesis Testing	123
4.7 Test for Moderating Effect of Operating Environment	127
4.8 Mediating Effect of Competitiveness	133

CHAPTER FIVE	144
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....	144
5.1 Introduction	144
5.2 Summary	144
5.3 Conclusions	146
5.4 Recommendations	149
5.4.1 Recommendations for Policy.....	151
5.4.2 Recommendations for Practice	153
5.4.3 Recommendations for Theory	155
5.5 Limitations of the Study	156
5.6 Contribution to Knowledge	157
5.7 Suggestions for Further Research.....	158
REFERENCES	160
APPENDICES.....	169
Appendix I: Data Collection Template.....	169
Appendix II: Research Authorization Letter	170
Appendix III: Research Approval Letter	171
Appendix IV: NACOSTI Research License.....	172

LIST OF TABLES

Table 2.1 Summary of Literature and Research gaps.....	52
Table 3.1: Criteria for moderation decision	64
Table 3.2: Criteria for Mediation Decision	67
Table 3.3: Operationalization and Measurement of Study Variables.....	68
Table 4.1: Descriptive Statistics	80
Table 4.2: Multicollinearity Test Results	102
Table 4.3: Tests for Normality	103
Table 4.4: Homoscedasticity Test	105
Table 4.5: Autocorrelation Test Results	107
Table 4.6: Unit Root / Stationarity Tests.....	108
Table 4.7: Random and Fixed Effect Testing.....	109
Table 4.8: Correlation Matrix.....	111
Table 4.9: Panel Regression Analysis	119
Table 4.10: Moderation Effect Results with Moderator as Explanatory Variable	128
Table 4.11: Moderation Effect with Moderating Variable Interaction Terms	130
Table 4.12: Panel Regression Analysis	134
Table 4.13: Regression Analysis between Firm Characteristics and Competitiveness	138
Table 4.14: Regression Analysis between Firm Competitiveness and Financial Stability	139
Table 4.15: Mediating Effect of Firm Competitiveness	141
Table 4.16: Summary of Hypotheses Tests	143

LIST OF FIGURES

Figure 1.1: Trend line Analysis on Financial Stability.....	11
Figure 2.1: Conceptual Framework.....	58
Figure 4.1: Trend line Analysis on Financial Stability.....	87
Figure 4.2: Trend Line on Capital Adequacy.....	89
Figure 4.3: Trend line Analysis on Liquidity.....	91
Figure 4.4: Trend line Analysis on Management Efficiency.....	94
Figure 4.5: Trend line Analysis on Inflation Rate.....	96
Figure 4.6: Trend line Analysis on Market Shares.....	99

OPERATIONAL DEFINITION OF TERMS

- Capital Adequacy** This is the ability of the institution to maintain sufficient capital to absorb potential losses while continuing to meet its financial obligations. It is a measure of the financial strength and stability of a financial institution, indicating whether it has enough reserves to support its risk-taking activities. It is measured using ratios that compare core capital to total assets and total deposits.
- Core Capital** This refers to the total shares owned by members who have fully paid, the capital that has been issued, accumulated reserves, earnings kept within the system, along with grants and contributions. These assets are considered foundational for DTSS and are typically not liquidated unless the system is facing potential liquidation.
- Deposit Taking SACCOs** These are cooperative financial institutions in Kenya that accept deposits from their members and provide loans and other financial services. They operate under a specific regulatory framework that allows them to mobilize savings from members while offering competitive interest rates on both deposits and loans.

Financial Stability	This refers to the ability of financial institutions to maintain a sound financial condition over time, ensuring they can meet their obligations to members, withstand economic fluctuations, and effectively manage risks. This includes having adequate capital, liquidity, and asset quality, which together help ensure the credit union can operate sustainably and support its members' needs. This is measured using the non-performing loans ratio.
Firm Characteristics	These are the internal and external factors that contribute to the financial stability of financial institutions operationalized in this study under capital adequacy, liquidity and management efficiency.
Firm Competitiveness	This refers to the ability of an entity to sustain and gain market share in its industry, as well as to be profitable over the long term. This is measured using the Herfindahl-Hirschman (HHI) Index.
Inflation	This is the rate at which the general level of prices for goods and services rises, and subsequently, how purchasing power falls. Essentially, when the inflation rate is high, the value of the currency depreciates. This is measured by the consumer price index ratio.

Liquid Assets	These are assets that can easily be converted into cash in the short run like cash, money market instruments, and marketable securities.
Liquidity	It is the capacity of financial institutions to meet their short-term financial obligations and to convert assets into cash quickly without significant loss in value. It is a measure of how easily a financial institution can access cash to cover withdrawals, loans, and other immediate financial needs.
Management Efficiency	This is the effectiveness with which a financial entity allocates resources to attain optimal output. It encompasses the management's ability to leverage economies of scale to maximize production while minimizing costs.
Non-Performing Loans	Are loans on which the borrower is either unable to make scheduled payments or is unlikely to repay the full amount owed. NPLs pose a significant risk to the financial sector, as they can negatively impact overall financial stability and the health of lending institutions. This is measured using non-Performing loans to total loan portfolio
Operating Environment	This are various conditions and factors that influence how organizations conduct their business. This includes economic factors such as inflation and interest rates, as

well as regulatory laws and guidelines. It encompasses the broader landscape in which a company operates, affecting its strategies and overall performance.

ABBREVIATIONS AND ACRONYMS

AMFIK	Association of Micro Finance Institutions in Kenya
ANOVA	Analysis of Variance
BASEL	A set of international banking regulations established by the Basel Committee on Banking Supervision
BOSA	Back Office Service Activity
DEA	Data Envelopment Analysis
DCI	Directorate of Criminal Investigations
DTS	Deposit Taking Savings and Credit Cooperative Societies
FE	Fixed Effects Test
FOSA	Front Office Sacco Activity
FGLS	Feasible Generalized Least Squares
GDP	Gross Domestic Product
GLS	Generalized Least Squares
LM	Lagrangian Multiplier
MFI	Micro – Finance Institutions
NPLs	Non-Performing Loans
RE	Random Effects Test

SACCO	Saving and Credit Co-operative Societies
SCP	Structure – Conduct Performance
SSFIU	Sacco Societies Fraud Investigations Unit
VIF	Variance Inflation Factor
NCUA	National Credit Union Administration
OSFI	Office of Superintendent of Financial Institutions
CUNA	Credit Union National Association
CCUA	Cooperative Credit Union Association
WOCCU	World Council of Credit Unions
VECM	Vector Error Correlational Model

ABSTRACT

In Kenya, the financial stability of deposit-taking savings and credit cooperative societies (DT SACCOs) has experienced a downward trend as evidenced by increase in non-performing loans (NPLs), a significant concern in recent years. The SACCOs Regulatory Authority's 2020 report highlights the increasing percentage of NPLs to gross loans. If this trend continues, it will negatively impact on the sector's ability to provide essential financial services. This study investigated the effects of firm characteristics on financial stability of deposit-taking savings and credit cooperative societies in Kenya. Specifically, the study examined the effects of liquidity, capital adequacy and management efficiency on financial stability of SACCOs in Kenya. Additionally, it examines how the operating environment and competitiveness moderate and mediate these relationships, respectively. The research was grounded on agency, market power, financial intermediation, and liquidity preference theories. Utilizing a positivist and an explanatory research design, the study targeted 160 operational institutions, collecting data from their financial records and regulatory reports from 2017 to 2021. The research performed diagnostic tests of Normality, Heteroscedasticity, multicollinearity, stationarity, and model specification before applying regression models. Data was analyzed using descriptive and inferential statistics with STATA software. The researcher adhered to ethical considerations of confidentiality, privacy and anonymity. The findings showed that adequacy of capital, liquidity, and management effectiveness together account for about 71.96% of the differences in financial stability among these cooperative societies (R-squared value of 0.7196). Specifically, having enough capital was linked to fewer non-performing loans (NPLs) ($\beta = -0.3249614$, $p\text{-value} = 0.000 < 0.05$), higher liquidity was associated with a higher NPL ratio ($\beta = 0.410056$, $p = 0.003 < 0.05$), and better management led to fewer NPLs ($\beta = -0.0710747$, $p\text{-value} = 0.002 < 0.05$). The operating environment was found to significantly affect how firm characteristics influence financial stability. However, the level of competition among these entities only partly explained the relationship between firm characteristics and financial stability. In view of the findings, it is recommended that regulatory authorities in Kenya should take a proactive stance in establishing and enforcing robust capital adequacy standards for these institutions. The study findings highlight the critical role of capital adequacy in ensuring the financial stability of these cooperative societies. In addition, higher levels of capital adequacy and improved management efficiency are associated with reduced NPLs ratio among SACCOs in Kenya, hence improved financial stability. The study thus recommends that the managements of these financial institutions should consider exploring opportunities to strengthen their capital adequacy ratio through prudent financial management and strategic partnerships and strive to improve on their management efficiency. Additionally, SACCOs in Kenya should observe liquidity management guidelines by SASRA and maintain an optimal balance between liquidity and lending activities.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Deposit taking SACCOs play a vital role in fostering economic development worldwide (World Bank, 2021). They promote financial inclusion by offering essential financial services to individuals and communities who might not have access to traditional banking (Fundi & Wamugo, 2023). This has empowered many Kenyans to save, invest, and obtain credit. Additionally, DT SACCOs foster a culture of saving among their members (Akuku, Nyang'au & Maobe, 2023). By providing a safe and dependable venue for saving and investing, they help increase savings rates in the country. Furthermore, DT SACCOs offer affordable and accessible credit to their members (Millan, Kamau & Idua, 2023), enabling small businesses, farmers, and individuals to secure funds for various needs, including business expansion, education, and home improvements. This access to credit is crucial for overall economic development and growth. Therefore, the importance of DT SACCOs lies in their role as key instruments for savings and credit distribution within the economy. An efficient intermediation process is essential for their success (Arora, 2014; Ndung'u, 2010).

Moreover, they possess the capacity and potential to access customers in regions that are unappealing to financial institutions, such as rural or economically disadvantaged regions. The main goal of cooperative movement is to empower members by encouraging savings and providing access to credit facilities (Khalayi, Ondiek, & Musiega, 2014). By

digitizing processes and systems, SACCOs enhance the intermediation process, connecting potential investors and savers by directing funds toward investments that guarantee a profitable return on investment. A robust and effective financial system is essential for managing, transferring, and mitigating risks, as well as improving the availability of funds and disseminating information through advanced financial products and technologies. Efficiency, as stated by Ndung'u (2010), is attained when there exist robust institutions that possess the necessary capability to meet market demands while adhering to legal and regulatory obligations such as maintaining sufficient capital, minimum liquid assets, and efficient management. The development of the SACCO Societies Regulatory Authority (SASRA) may have been influenced by the necessity to create legal and financial frameworks for DTSs, similar to the regulations set forth by the Central Bank of Kenya for banks in Kenya (Otwoko, 2023).

Financial stability for financial institutions such as deposit taking-savings and credit co-operative societies is of importance since it determines the financial wellness of these institutions and gives investors and customers' confidence and trust. When SACCOs maintain a strong financial position, it provides assurance that they are capable of meeting their obligations, thereby attracting more investment and customer deposits. Asatiani, Basuki and Setiawan (2020) emphasize the role of financial stability in building public trust, indicating that a stable financial status encourages customers to engage in more transactions and investments with these institutions. Moreover, financial stability ensures the longevity and growth of SACCOs. A stable institution is better equipped to weather

economic downturns and offer competitive interest rates to its members (Mwangi & Ombui, 2018).

According to World Council of Credit Unions (2020), financial stability in SACCOs is linked to more robust community growth and higher rates of local investment. Kinyenze (2022) however argues that achieving financial stability is not a one-time effort but requires continuous monitoring and regulatory compliance. Regulations like capital adequacy, liquidity requirements, and operational risk management are designed to safeguard the financial health of these institutions. Ensuring that they are followed diligently adds another layer of confidence for the stakeholders involved. As noted by Cheang, Li and Allen (2020), a robust regulatory framework that prioritizes financial stability is integral in sustaining the trust and confidence of both customers and investors. Therefore, maintaining financial stability is not only beneficial but also essential for the long-term stability of DTSSs.

Capital adequacy is a critical factor that contributes to the financial stability of Savings and Credit Co-operative Societies (SACCOs) (Ndung'u & Mutinda, 2022). Having a strong capital base allows these institutions to absorb potential losses, thus safeguarding depositor and investor funds. Adequate capital also enables SACCOs to take calculated risks that can lead to growth and profitability. Smith and Johnson (2020) underline the role of capital adequacy in building a financially stable environment, emphasizing that well-capitalized SACCOs are more resilient against economic shocks. Additionally, liquidity is an important firm characteristic affecting the financial stability of financial

institutions like SACCOs (Mashalaghu & Mutunga, 2023). Liquidity ensures that an institution is able to meet its obligations in the short run, such as customer withdrawals, without having to sell long-term assets at a loss. Maintaining sufficient liquidity levels is essential for creating trust among depositors, since liquidity management plays a significant role in achieving financial stability, particularly during periods of economic downturns (Esther *et al.*, 2023).

Studies have also shown that management efficiency has a bearing on the financial stability of SACCOs (Messabia, Beauvoir & Kooli, 2023; Wangechi, & Irungu, 2023). Efficient management practices, such as cost control, revenue optimization, and strategic planning, contribute to better financial performance. Brown and Kim (2020) argue that management efficiency directly correlates with financial stability, as efficient operational procedures enable SACCOs to achieve greater profitability and resilience (Birgen *et al.*, 2023). Competitiveness is yet another firm characteristic that impacts financial stability. An institution's ability to offer competitive interest rates and loan products helps attract and retain customers, thereby increasing the deposit base and lending opportunities. Parker and Chen (2020) assert that competitive SACCOs are generally more financially stable due to a diversified range of financial services and products that cater to different niche in the market.

Globally, the financial stability of SACCOs varies widely across countries. In Haiti, SACCOs have been instrumental in driving financial inclusion, particularly in rural areas (Messabia, Beauvoir & Kooli, 2023). However, they face challenges relating to stringent

regulations and lack of technological advancements. Despite their crucial role in the economy, SACCOs in Haiti often struggle with financial stability due to undercapitalization and poor governance structures (Messabia, Beauvoir & Kooli, 2022). In contrast, credit unions as they are called in the United States are generally considered to be more stable, benefiting from a robust regulatory framework and a more advanced banking infrastructure. However, they face competition from commercial banks and fintech companies, which affects their market share and financial stability (Ahmed & Yusof, 2022).

In addition, credit unions in the United States have faced various stability issues including regulatory challenges, cybersecurity threats, fraud and competition from larger financial institutions. Evolving compliance requirements from the National Credit Union Administration (NCUA) strains smaller credit unions in US, impacting their stability (NCUA, 2020). In Canada, regulatory constraints are also a concern, with the Office of the Superintendent of Financial Institutions (OSFI) setting stringent standards (OSFI, 2020). Canada just like the United States has seen an increase in cybersecurity risks, necessitating more robust information security measures (CUNA, 2020; CCUA, 2020). Moreover, credit unions in Canada also face competitive pressures from larger banks and fintech companies offering similar services but with more advanced technology and broader reach (Filene Research Institute, 2020; Canadian Credit Union Association, 2020).

The co-operative movement in South Africa has made significant progress, but the outcomes of this extensive revolution are still awaited, despite the presence of favorable laws and government incentives. These factors have led to a substantial growth in the number of co-operatives, from 4,000 in 2004 to 132,000 in 2019 (Mushonga, Arun & Marwa, 2019). The long-term viability of these cooperatives, independent of government funding, is highly questionable, as many of them exist just in theory without any substantial economic activity taking place in practice. In order for cooperatives to achieve long-term viability, it is crucial that they strive for complete adherence to the ideals and principles of the cooperative movement. This is achieved by employing a bottom-up approach to the establishment of cooperation and reducing their dependence on government assistance (Mushonga et al., 2019). South African financial cooperatives have the capacity to attain long-term viability in their endeavours to address the financial market deficiency at the local level. This is due to the fact that a considerable segment of the population, particularly the middle class, depends on informal banking systems that are founded on social networks to fulfil their financial requirements (Nkosi & Moyo, 2022).

In Nigeria, SACCOs face challenges related to governance, regulatory compliance, and economic instability. According to research by Adebayo and Okeke (2022), these issues often compromise the financial stability of SACCOs in Nigeria. Moreover, in Ghana SACCOs have shown growth and are instrumental in fostering financial inclusion, but they too grapple with challenges such as limited access to capital and high operational costs. Although many SACCOs in Ghana are financially stable, some still struggle with

issues like undercapitalization and poor management, affecting their long-term viability (Boateng & Mensah, 2022). In Uganda, the cooperative system is often touted as a tool for poverty alleviation (Uganda Microfinance Regulatory Authority, 2019). While various government reports claim that these institutions have contributed to improving poverty levels by providing financial services to underserved communities, the effectiveness of these SACCOs in achieving this goal has been questionable (Eton, Basheka & Mwosi, 2020). One primary concern is financial stability as many SACCOs in Uganda struggle with governance issues, lack of financial literacy among members, and inadequate regulatory oversight (Agaba, Bosco & David, 2023). These challenges lead to inefficiencies, poor loan repayments, and sometimes even misappropriation of funds, all of which undermine the financial stability of these organizations.

In Kenya, the fluctuation in number of deposits taking SACCOs as occasioned by increase in non-performing loans between the year 2017 and 2021 (SASRA, 2020), clearly shows an element of instability in this subsector. This issue of non-performing loans (NPL) is the major source of financial instability risk that threatens the survival of DTS in Kenya. Statistics indicate that Non-performing Loans have been on the rise as evidenced by the increase in percentage of Non-Performing Loans (NPLs) to Gross Loans (GLs) from 5.23% in 2016 to 6.14% in 2017, 6.3% in 2018, 6.15% in 2019 and 8.39% in 2020 (SASRA, 2020). If this trend is allowed to continue, then this sector's contribution to financial intermediation will be adversely affected. It is on this basis that the study sought to examine the effects of firm characteristics and financial stability of DTSs in

Kenya. This study used Non-Performing Loans ratio to measure financial stability of SACCOs.

1.1.1 Financial Stability

Financial stability is a state where an institution is able to meet its financial obligations, including but not limited to paying back deposits or loans, even in times of occurrence of unforeseen events in the economy, implying that the institution has enough assets on hand to cover its responsibilities (Elsayed, Naifar & Nasreen, 2023). This is important because if people believe a bank or other financial institution is stable, they are more likely to keep their money there, which helps the institution continue to operate smoothly. The financial crisis of 2007 to 2009 significantly tested the financial stability of financial institutions including SACCOs (Moreno, Parrado-Martínez & Trujillo- Ponce, 2019). As a result of these erratic nature of the global financial system, numerous countries have placed greater importance on ensuring financial stability rather than pursuing financial growth. This is due to the fact that if instability continues, growth may not be able to be sustained over extended periods of time. Financial stability of a financial institution enables it to carry out its financial intermediation process seamlessly, hence fostering trust among its users (Mostak and Sushanta 2015). Financial stability, as defined by García and José (2016), pertains to the capacity of a financial institution to carry out its financial intermediation activities seamlessly among its clients. When a financial institution maintains financial stability, it is able to fulfil its financial responsibilities efficiently, hence instilling confidence in the system among users (Samorodov et al.,

2019). In order to attain financial stability, numerous nations enhance their financial regulatory framework. Inevitably, without the implementation of effective, sound, and adequate regulation, such a crisis will occur.

Ramlall (2018) states that financial stability is to the resilience of financial intermediaries, markets, and their infrastructures against shocks and the unwinding of financial imbalances. This resilience helps in reducing the chances of significant disruptions in the process of financial intermediation, which could otherwise greatly hinder the effective distribution of savings into worthwhile investment opportunities. Kalani and Wareru, (2009), points out that the management should be in full control of an organization's microenvironment/ internal variables, thus fostering its profitability and financial stability. According to Ongore and Kusa, (2013), a firm's financial stability can also be influenced by its external environment which may be beyond the management control.

The key indicators for reporting and monitoring the financial stability of deposit taking financial institutions include quality of assets, capital adequacy, liquidity and the earnings (SASRA, 2020). The common factor being shared by the deposit taking SACCOs that have been having financial problems and their licences revoked boils down to mismanagement of assets. The loans that SACCOs have can be considered their most valuable assets, as well as their most significant and greatest source of revenue. According to Ongore and Kusa (2013), the stability of SACCOs is strongly dependent on the quality of the loan portfolio as a measure of stability. Birgen, Njau and Magadi (2023) emphasizes the significance of the NPLs ratio as a key indicator of SACCOs financial

health. They argue that a high NPLs ratio, indicating a significant amount of non-performing loans, can be a red flag for SACCOs stability. In addition, Wafula (2018) delved into the relationship between NPLs ratios and the financial stability of SACCOs and indicated that a persistently high NPL ratio is likely to erode the capital base of SACCOs, potentially leading to insolvency. This study therefore used NPLs ratio to measure financial stability of DT SACCOs.

In Kenya, NPLs have become a persistent problem that endangers the financial stability of SACCOs. Non-performing Loans have been on the rise as evidenced by the rise in percentage of Non-Performing Loans (NPLs) to Gross Loans (GLs) from 5.23% in 2016 to 6.14% in 2017, 6.3% in 2018, 6.15% in 2019 and 8.39% in 2020 (SASRA, 2020). This trend threatens the ability of this sector's contribution to financial intermediary adversely. This informed this study which sought to investigate the effects of firm characteristics and financial stability of deposit-taking savings and credit co-operatives societies in Kenya. NPLs analyzes a firm's income as well as the values on its balance sheet to determine the overall financial health. Moreover, existing statistics shows that financial stability of DT SACCOs in Kenya has been fluctuating over time (Figure 1.1.)

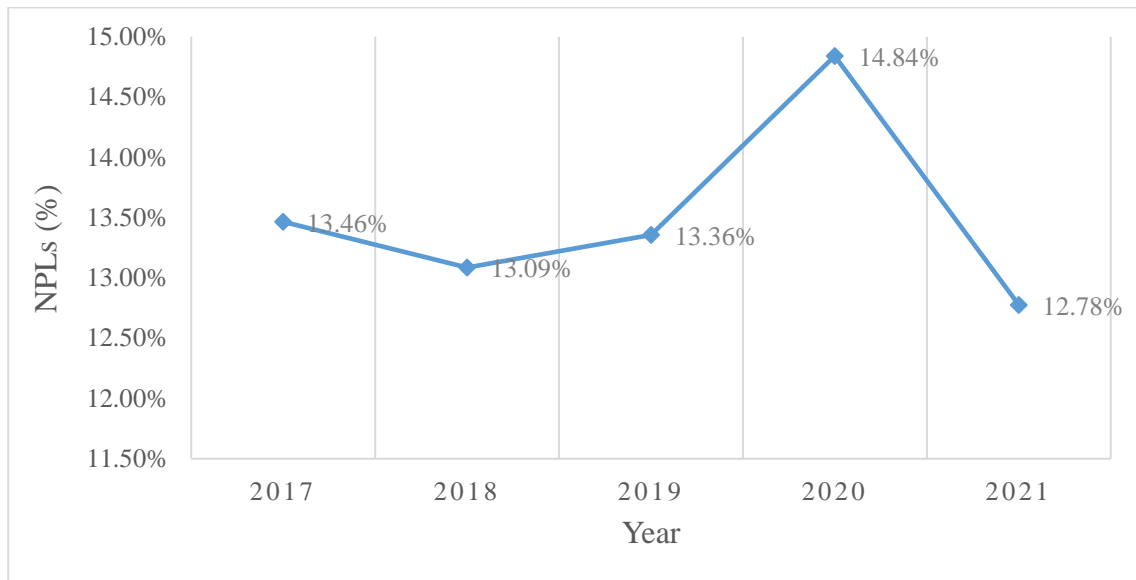


Figure 1.1: Trend line Analysis on Financial Stability

Based on the trend line in Figure 1.1, the trend in NPLs over the five-year period for the SACCOs indicates fluctuations in the financial stability of DTS in Kenya. In 2017, NPLs stood at 13.46%, followed by a slight decrease to 13.09% in 2018, indicating a positive sign, suggesting that some DTS may have taken measures to reduce non-performing loans, potentially improving their financial stability. In addition, there was a marginal increase to 13.36% in 2019, indicating that the overall financial stability of DTS did not worsen significantly during this year, but it also did not improve substantially. This was followed by a significant rise in NPLs to 14.84% in 2020, which could have been due to factors like economic challenges such as the COVID-19 pandemic, which might have affected borrowers' ability to repay loans.

A rise in NPLs raises concerns about the financial health of DTS, as it indicates increased credit risk. However, the trend reversed in 2021, with NPLs dropping to 12.78%, which can be attributed to improved loan management, better economic conditions, or the implementation of effective risk mitigation strategies by DTSs. This suggests that the financial stability of DTS in Kenya experienced variations during this period.

1.1.2 Firm Characteristics

Firm characteristics refer to the internal factors that contribute to the financial stability of a financial intermediary (Jawed, Tapar, & Dhaigude, 2023). According to Mohammed, Okpanachi, and Doha (2018), firm characteristics are mostly controlled by a company's management. Firm characteristics, as described by Kariuki (2016), refer to the elements of an organisation that are shaped by the managerial choices made at the operational level. However, Kandiru, Gachunga, Muturi, and Ogutu (2015) highlight that the internal environment of a corporation consists of firm-specific attributes, including demographic and managerial variables. Furthermore, according to Ondigo (2016), firm characteristics are basic components of an entity that have the capacity to influence the effectiveness of the organisation.

Kaguri (2013) asserts that multiple factors, such as liquidity, diversification, profitability, institutional shareholding, capital, leverage, age, assets of the company, growth, board composition, and economic environmental variables, influence a company's financial performance and its long-term sustainability. According to Gulzara, Hongxing, and Muhammad (2018), the stability of a financial institution is significantly impacted by firm

attributes, which include operational efficiency, diversity, funding cost, and bank liquidity. According to Athanasoglou, Sophocles, and Matthaios (2008), the characteristics of a firm can be classified as the internal aspects that are derived from financial statements. These statements include the balance sheet and income statements.

Capital adequacy alludes to the amount of capital that SACCOs need to have in order to effectively carry out their financial operations, as defined by regulatory and supervisory authorities (Ngeno, 2019). Their stability can be determined by measuring its ability to adequately fund its activities and manage risks outlined in its balance statement. The capital of SACCOs can be perceived from two perspectives; specifically, it can be understood as the sum of money invested by shareholders (paid-up share capital) which entitles them to receive all the future profits generated by their investment. From a broader perspective, it can be observed as the total amount of capital owned by individuals that is accessible to sustain the operations of a SACCO (Kusa & Ongore, 2013). The issue of sufficient capital for a financial institution is of importance, in the light of the global financial crisis. Regulatory authorities are now resorting to bailout measures to ensure that the financial systems are financially stable (Ningi & Dutse, 2008).

Capital adequacy extends to the amount of money an organization is required to maintain in order to run smoothly over a period of time (Olalekan & Adeyinka, 2013). In this regard, availability of optimal capital is necessary to cushion a firm from failure by absorbing any unanticipated losses. It further denotes the abilities and competencies of a firm to evaluate how best it can address the risks that it is exposed to and relates various

capabilities of a firm in making sound decisions founded on the overall corporate strategy (Andekina & Aimagambetova, 2015). According to Alamri and Almazari (2017), Capital adequacy ratio serves as an indicator towards a firm's management competence especially in resource allocation with the aim of maximizing shareholders wealth. It denotes whether a company has adequate capital to address its customer's needs.

SASRA (2010) mandated that all DT-SACCOs must always maintain a minimum core capital of at least Kshs 10 million. Furthermore, these entities are required to uphold specific minimum ratios related to their capital adequacy: 10% of core capital to total assets, 8% of core capital to total deposits, and 8% of institutional capital to total assets. Core capital, as defined by the relevant legislation, includes the total of shares fully paid by members, capital that has been issued, reserves that have been disclosed, earnings that have been retained, as well as any grants and donations received. These funds are not intended to be used unless the SACCOs are liquidated. Thus, their core capital may only be built through recruitment of new members to contribute additional share capital, or through retention of surplus to increase the reserves and retained earnings, or through receipt of grants and donations (SASRA, 2020). In this study, capital adequacy was measured by the core capital - total assets ratio as recommended by (Mohanty & Mahakud, 2019).

Liquidity is a crucial factor in determining the stability of SACCOs financially, as it indicates their capacity to fulfil their obligations promptly. In the absence of liquidity, funds can become trapped in systems that are challenging to convert into cash and

evaluate for their genuine monetary worth (Hao & Wong, 2021). In times of catastrophe, significant financial institutions cease operations, posing challenges for individuals to obtain the necessary funds for purchasing basic items such as food, petrol, and other emergency supplies (Flögel & Gärtner, 2020). Liquidity is also utilised to assess the financial well-being of a firm or personal investment portfolio. Liquidity has the dual purpose of providing a consistent source of readily available cash and serving as a valuable metric for assessing the financial viability of prospective investments (Ward, 2021).

According to Kimathi (2014), liquidity refers to an entity's capacity to fulfil all cash requirements obligations in the short run. Njeru (2016) states that DTSS that effectively handle their liquidity are capable of repaying external borrowings, fulfilling member loan demands, managing operational expenses, and promptly providing share and saving withdrawals to members. Liquidity is crucial since it allows DTSS to possess cash that can be utilised for expansion, accommodate volatility in the balance sheet, and fulfil consumer withdrawals (Njeri, 2014). The liquidity ratio measures the speed at which a DT-SACCO can fulfil its short-term financial responsibilities. The most crucial of these requirements is the prompt payment of savings (FOSA) deposits to members upon request (SASRA, 2020). The SASRA statutes mandate a minimum liquidity ratio of 15% for a DTSS. The World Council of Credit Unions (WOCCU) suggests adhering to a liquidity ratio not exceeding 5%. The liquidity of SACCOs was assessed in this study using the Liquid Assets to Total Assets ratio.

Management efficiency indicates senior management's ability to recognise, measure, and minimise the risks that deposit-taking SACCOs are exposed to. Members of DTSS place importance on management efficiency due to its correlation with improved service quality, favourable loan and deposit rates, and reduced service charges (Limam, 2001). Nasieku (2014) argues that efficiency is essential for improving financial services accessibility and ensuring the financial stability of deposit taking SACCOs, which are a vital component of the financial system. Due to the rise in rivalry within the sector, there has been significant attention focused on their level of efficiency. Reports indicate that DTSS in Kenya have exhibited low levels of efficiency. Mwangi (2014) in his study found that the average efficiency score for the years 2009-2013 was 0.775 after conducting his research and analysing the data. According to the findings of Ochola (2016), the average efficiency score in Kenya over the period of 2011-2013 was 0.683. According to Kariuki (2017), the industry efficiency score in Kenya for the years 2011-2014 was 0.677, which suggests that there was a lack of efficiency industrywide. The findings clearly denote a decrease in the efficiency of Deposit taking SACCOs in Kenya. The Cost-Income ratio was implemented as a metric to assess managerial efficiency.

1.1.3 Operating Environment

Operating environment refers various conditions and factors that affect how organizations run their business, including economic conditions like inflation or interest rates, regulatory laws and guidelines, technology available for managing accounts and competition from other financial institutions (Kabue, Kilika & Waithaka, 2023).

Financial stability of DTSs has been found to be influenced by the operating environment which comprises of both the internal and external factors that have a reasonable influence on the daily operations of an institution (Githinji, 2016). An organization's internal environment is composed of the SACCOs specific attributes within the organization that affect financial stability. Size, market share, adequate capital, ownership, and operational efficiency are some of the factors that fall under this category. The policies, decisions, and objectives of the institution, which are made internally by management, are the ones that control these certain aspects.

Conversely, the external operational environments refer to the macroeconomic factors that have the potential to impact the entire financial system. The management of the SACCOs does not have control over the external operational environment, which includes factors beyond its decision-making, rules, and plans. The factors encompassed are exchange rate, the gross domestic product (GDP), inflation rate and interest rate. The inflation rate and GDP are the macroeconomic factors that are used to regulate the operational environment (Maina, 2015; Demirguc-Kunt & Huizinga, 2010; Were & Wambua, 2024; Uzeru, 2012).

This study utilised the inflation rate as a measure of the macroeconomic stability in Kenya. Inflation has an impact on financial stability, which is contingent upon whether the inflation was foreseen or unforeseen. Anticipated inflation has a favourable impact on stability as it prompts corresponding adjustments in interest rates. Furthermore, sudden inflation has a detrimental impact on stability. Unforeseen inflation leads to disruptions

in money circulation, resulting in borrowers experiencing losses on their loans (Hoggarth et al., 1998). The fluctuations in the rate of inflation provide challenges in formulating loan negotiation and planning framework for both the financial institution and borrowers.

1.1.4 Firm Competitiveness

Firm competitiveness alludes to the ability of an entity to sustain and gain market share in its industry, as well as to be profitable over the long term (Mansur & Djaelani, 2023). A competitive firm is able to offer products or services that stand out for their quality, price, or some other factor that customers value; this allows the firm to attract more customers and generate more sales compared to other companies that are competing for the same market (Azeem, Ahmed, Haider & Sajjad, 2021). Firm competitiveness is the moderating variable under this study. Competition determines the appropriateness of a firm's activities that contribute to its performance in the market share. In the recent past, competition has clipped into this sector at a very fast rate. Simpson (2005) notes that a good concept of competition is one based on rivalry. This means that to compete one must try and outdo one's competitors in production and voluntary trade. This competition phenomenon in today's financial industry environment can only be approached by the DTS getting the most effective way of competing and managing the competition, which is the real challenge.

According to Njenga and Jagongo (2019), a large number of SACCOs are extending loans facilities to members three times of their contributions at the base lending rates of 1% on reducing balance method, whereas some other lending institutions are issuing at nine

times their members' savings at the same lending rates with SACCOs. The DTSS therefore needs to focus more on other strategies for retaining membership rather than concentrating on a dividend policy. For these financial institutions to survive under this situation have to be innovative and inventive in their business strategies. Business competition in this context means rivalry in business circles and the capability to take a portion of the market share being controlled. Competition has been intense with commercial banks eating into the business sector that had initially been controlled by SACCOs (Kaberu & Kung'u, 2022).

In Kenya competition among the DTSS is very evident in their day-to-day operations (Cytonn, 2016). Different firms try to outperform the competition by embracing creativity and innovation in their provision of products and services, to gain a larger market share. Product differentiation is one of the techniques that has been adopted by different firms competing for the same market. The study employed the SACCO's respective market shares to measure the degree of competitiveness.

1.1.5 Deposit Taking Savings and Credit Co-operatives in Kenya

Robert Owen initiated the inaugural Co-operative movement in Kenya in 1844. Co-operative Bank of Kenya (1993) asserts that in 1908, the farmers from Europe who settled in Lumbwa, which is located near Kericho initiated the first of cooperative movement in Kenya through production and marketing co-operatives (Odhiambo, 2019). Kenya's SACCOs industry is one of the largest in Africa in terms of total asset to GDP ratio. It stands at 5.7%, followed by Rwanda at 3% and Ethiopia at 0.7%. The Kenya Financial

Sector Stability Report (2020) states that the growth of the cooperatives has been driven by the quick adoption of technology and innovations in financial services and products, as well as the establishment of a common membership bond. The sector has had significant global issues in recent years, as highlighted by Mbugua and Kinyua (2019). These challenges include mission deviations, revenue creation, compliance, competitiveness, and limited capital, among others. The financial soundness of the sector has a significant impact on the overall economic growth and employment opportunities in the country. Kenya stands out as a compelling subject for analysis in Africa because to its prominent SACCOs subsector, which holds the biggest share of total assets (67%) and deposits/savings (62%) globally (SASRA, 2018).

According to SASRA (2015), there has been a rise in the number of licensed Deposit-Taking SACCOs (DTS) after the conclusion of the transition period provided by law. This transition period was given to SACCOs that were already engaged in deposit-taking activities before the laws came into effect. The purpose of this transition period was to enable these SACCOs to meet and fulfil the minimal licensing standards that have been imposed. On June 18, 2014, only 49 out of the planned 80 DTS were able to meet the basic licensing requirements and were consequently granted licenses. Another 31 entities were instructed to discontinue their deposit-taking operations, and transition to non-deposit taking activities. At the end of the year 2014, the total number of licensed SACCOs reached 181. The overall asset base of the 181-deposit taking SACCOs in this sub-sector experienced a growth rate of 17.2%. The funding for this cooperatives mostly

came from members' deposits, which increased by 12.7%. There was a membership expansion from 2.6 million to 3 million, indicating a growth rate of 15.30%, also contributed to this funding (Kinyua, 2013). Based on the SASRA report of 2021, three Deposit taking SACCOs had their licenses withdrawn, while an equal number had their license revoked in 2020.

1.2 Statement of the Problem

Deposit-taking SACCOs play an essential role in strengthening the economy by encouraging savings and providing accessible credit. The Kenyan economy is heavily dependent on the Co-operative sector and over 80% of the population derive their livelihood directly or indirectly from the Co-operative sector (Kagiri, 2023). These financial institutions offer a trusted, community-based platform for individuals to save, often at higher interest rates than traditional banks, which helps build a pool of available funds (SASRA, 2017). However, most of these SACCOs are struggling with financial stability issues and one of the key issues has been inadequate capital to meet operational costs and loan demands (SASRA, 2021). According to SASRA (2021), a considerable number of SACCOs in Kenya fail to meet the minimum capital requirements. Moreover, poor governance, such as lack of risk management practices and insufficient financial oversight, has added to their instability (Wangechi & Irungu, 2023).

According to an annual report by SASRA (2017), no new SACCOs were approved for registration in that year. Out of seven applications pending at the start of the year, five were rejected due to failure to meet minimum legal requirements, and two were still under

consideration. A total of 176 Deposit Taking SACCOs (DT-SACCOs) were operational, but two had their licenses revoked for not meeting financial obligations, leaving 174 still active. Additionally, six SACCOs, including Moi University, Nitunze, Uchongaji, Ainabkoi, and Nandi Hekima, were unable to provide satisfactory financial accounts for the year ending December 2017 due to non-compliance with accounting standards and insufficient disclosure, which puts the DT-SACCO industry at risk (SASRA, 2017).

The rate of nonperforming loans increased from 2017 to 2021, affecting financial operations of SACCOs. In 2017, twelve DT-SACCOs had temporary licenses, up from five in 2016, indicating ongoing compliance issues pointing to financial instability. Literature indicates that firm characteristics are key in assessing the financial stability of SACCOs. In 2019, SASRA noted that the non-performing loans (NPLs) in the sector stood at approximately 6.3%, indicating risky lending behaviors that jeopardize their stability financially. Moreover, SACCOs in Kenya have shown modest growth in certain aspects but poor performance in critical financial ratios (Birgen, Njau & Magadi, 2023).

According to a report by SASRA (2019), as of September 2019, several organizations that employed members of SACCOs were collectively owed approximately Kshs 3.86 billion, out of which Kshs 3.42 billion was designated for repaying loans and various financial services that SACCOs had extended to their members. The remaining portion of this amount was allocated for non-withdrawable deposits. According to SASRA report (2019), these delayed payments have made it challenging for DTS to offer loans and other credit services to their clients in a timely manner, severely affecting their liquidity and

core capital. In addition to payment delays, there have also been issues of financial mismanagement and dishonest practices by those in leadership roles within DTS. This bad trend has undeniably affected the financial stability of these institutions. Due to these issues, some DTS have had their licenses revoked, in other severe cases, closures have occurred. The culmination of these issues has led to a financial crisis for these institutions, severely limiting their ability to meet financial commitments to their members. The non-performing loans (NPL) issue has become a major threat to the stability of SACCOs in Kenya. Non-performing Loans have been on the rise as evidenced by the rise in percentage of Non-Performing Loans (NPLs) to Gross Loans (GLs) from 5.23% in 2016 to 6.14% in 2017, 6.3% in 2018, 6.15% in 2019 and 8.39% in 2020 (SASRA,2020). This trend threatens this sector's contribution to financial intermediation negatively.

Research focusing on financial stability has predominantly been directed towards understanding commercial banks. The study by Ngaira and Miroga (2018) showed a positive correlation between liquidity and financial stability of the Kenyan commercial banks. Githinji (2016) also identified operational costs, bank size, board size, capital adequacy, effective interest rate policies, and employee productivity as key factors impacting financial stability of commercial banks in Kenya. Wamalwa and Makori (2020) investigated how CAMEL variables affect financial stability of the Kenyan commercial banks. Their results, which used dynamic panel analysis, showed that operational efficiency significantly and positively influences the stability of these banks. However, when it comes to examining the association between firm characteristics and

the financial stability of DTSSs, the results and conclusions have been varied and inconsistent.

Opala (2014) carried out a study to examine the influence of financial stability on the performance of deposit taking SACCOs in Nairobi County. The results indicated that several parameters, including liquidity, adequacy of capital, size, and efficiency of management, positively impact the financial performance of these SACCOs. In a study conducted by Kiragu (2014), the influence of SASRA regulations on the financial performance of DTSSs in Nairobi County was examined. The findings revealed that the implementation of SASRA regulations had a significant impact on the financial performance of SACCOs in Nairobi County. However, most of these studies were conducted in different geographic contexts with different prevailing factors, adopted different methodologies and used different variables which gives rise to contextual, methodological and conceptual gaps. Existing studies that have focused on DTSS have mainly focused on financial performance and limited study has been done on financial stability hence there exist conceptual and contextual gaps that this research sought to address by investigating the effect of firm characteristics and financial stability of deposit-taking Savings and Credit Co-operatives societies in Kenya.

1.3 Objective of the Study

The study was guided by the following general and specific objectives:

1.3.1 General Objective

To investigate the effect of firm characteristics on financial stability of deposit taking Savings and Credit Co-operative societies in Kenya.

1.3.2 Specific Objectives

The study was guided by the following specific objectives:

- i. To evaluate the effect of capital adequacy on financial stability of deposit taking Savings and Credit Co-operative societies in Kenya.
- ii. To determine the effect of liquidity on financial stability of deposit taking Savings and Credit Co-operative societies in Kenya.
- iii. To assess the effect of management efficiency on financial stability of deposit taking Savings and Credit Co-operative societies in Kenya.
- iv. To assess the moderating effect of operating environment on the relationship between firm characteristics and financial stability of deposit taking Savings and Credit Co-operative societies in Kenya.
- v. To evaluate the mediating effect of competitiveness on the relationship between firm characteristics and financial stability of deposit taking Savings and Credit Co-operative societies in Kenya.

1.4 Research Hypotheses

The study tested the following null hypotheses:

- H01:** Capital Adequacy has no significant effect on financial stability of deposit taking Savings and Credit Co-operative Societies in Kenya.
- H02:** Liquidity has no significant effect on financial stability of deposit taking Savings and Credit Co-operative Societies in Kenya.
- H03:** Management efficiency has no significant effect on financial stability of deposit taking Savings and Co-operatives in Kenya.
- H04:** Operating environment does not significantly moderate the relationship between firm characteristics and financial stability of deposit taking Savings and Credit Co-operatives in Kenya.
- H05:** Competitiveness does not significantly mediate the relationship between firm characteristics and financial stability of deposit taking Savings and Credit Co-operatives in Kenya.

1.5 Significance of the Study

This study holds immense importance for diverse stakeholders in the business. The findings of this study may be resourceful to the SACCOs and other stakeholders, enabling them to meet their immediate and future regulatory requirements. Managers and stakeholders in this sector should be made aware of the link that exists among firm characteristics and financial stability of DTS in Kenya. This would greatly aid in the development of policies to improve the financial stability DTSs in Kenya.

The findings of this study can be utilized by stakeholders such as SASRA, National Treasury, and other relevant entities to develop policies that will bolster the economic impact of deposit taking SACCOs. The study may contribute to the existing literature by addressing the information gap and expanding the understanding of the impact of firm characteristics and financial stability on DTS in Kenya. This study may establish a fundamental framework for future scholars and researchers, offering a base and suggestions for further investigation in related fields worldwide. The paper may provide a comprehensive analysis of several hypotheses and their underlying principles regarding the characteristics of firms and the financial stability of DTS. This study may be a valuable resource for academics and researchers who have an interest in conducting research on the financial sector.

1.6 Scope of the Study

The conceptual focus of the research was on firm characteristics and financial stability of DTSs in Kenya. The study specifically focused on three firm characteristics which include capital adequacy, liquidity, and management efficiency and how they affect financial stability which was measured using the Non-Performing Loans ratio. Agency, liquidity preference, financial intermediation and market power theories were anchored by the study. The research depended largely on the published financial statements (secondary data) collected with the help of a data review guide.

This study took into consideration a census of 160-deposit taking SACCOs in Kenya (SASRA, 2021). The (2021) SASRA Supervision Report indicates that as of December

2021 a total of 175 DTSSs were in operation and 15 of the SACCOs were unable to meet their financial obligations forcing the regulator to revoke their full licenses for the year 2022. The study time scope was from the year 2017 to 2021 as it coincided with implementation and post implementation period of the SASRA prudential guidelines. The study adopted panel data and utilized panel regression analysis. The selection of panel data was motivated by its capability to enable a researcher to examine the actions of each individual entity across several locations and across a period of time.

1.7 Limitations of the Study

It is important to acknowledge that the study encountered several limitations. The study utilized secondary data, which is susceptible to potential issues such as missing data, inaccuracies, assumptions, and biases. In order to address this issue, we utilized secondary data from reliable sources such as SASRA, KNBS, CBK, published yearly financial reports and audited financial statements of the DT-SACCOs. This study anticipated resistance from the different institutions due to concerns about the disclosure of information that could potentially be exploited to undermine their overall strategies and policies. Nevertheless, the researcher elucidated the objective of the study, and the precautionary measures implemented to protect the participants' privacy. Considering that the study focused on panel data, it is probable that concerns such as data stationarity, multicollinearity, heteroscedasticity, and autocorrelation would have influenced the results. Nevertheless, this study proposed a solution for each diagnostic test to guarantee that each result was effective and reliable for decision-making purposes.

1.8 Organization of the Study

The study is structured into five main chapters. Chapter one illustrates a comprehensive discussion on the background information of the study, including the problem statement, objectives, importance, and the scope of the study. Additionally, it includes the constraints and structure of the research. The second chapter focuses specifically on a literature review, by examining empirical and theoretical studies on the link between characteristics of the firm and the financial stability of SACCOs. The chapter presents a summary of prior research that have been conducted in the same context, together with a conceptual framework that demonstrates the relationship between the variables of the study. The third chapter mainly presents the techniques used to accomplish the study goals, including research design, research philosophy, empirical model, measurement, and operationalization of variables. Additionally, the research study encompasses the sample process, target population, data gathering equipment and protocols, data analysis methodologies, and the diagnostic tests that will be used.

Chapter four provides an analysis, interpretation, and discussion of the findings. Chapter five presents a concise overview of the main discoveries, followed by a conclusion drawn from these findings, and concludes with recommendations based on the study's results. The chapter additionally outlines the policy implications of this study, highlights the limitations, the study's contribution to knowledge, and suggests areas for future studies.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter presents relevant literature related to the current topic of study. The chapter provides an overview of the theories anchored by the variables of this study. In addition, the chapter outlines empirical literature critical review on the study variables as well as a summary of the research gap emanating from the empirical review. Lastly, the chapter further captures a conceptual framework which contains a pictorial map showing the relationship between the study variables.

2.2 Theoretical Literature

This part provides major models which anchored the study variables which include agency theory, market power theory, financial intermediation theory and liquidity preference theory. The assertions of these theories anchor on the relationship between the research independent and dependent variables.

2.2.1 Agency Theory

As postulated by Jensen and Meckling in 1976, the theory extensively talks about the relationship existing between two parties: the principal and the agent. It talks about the issues that surface in the organization's separation of ownership and control. As indicated by Namazi (2012), this theory identifies with areas of relationships between principals and their relative agents in the organisation. Since the two individuals are thought to be

utility maximisers, and convinced by money related and non-monetary things, impulse issues may develop, particularly beneath the state of defencelessness and information asymmetry. The idea of individuals as self-governing entities motivated by their own self-objectives and the endeavor to achieve these interests, frequently at the cost of proprietors. This theory focuses on the relationship the exists between a company's owners, who are usually the shareholders of the organization and its management Rashid (2013).

The hypothesis posits the presence of agency conflict within this interaction. The management of firms is considered to be the representatives who are hired by the owners and entrusted with the task of operating the organisation and increasing the value of owners through strong performance and maximising wealth of shareholders. Hence, it is anticipated that the management will act and execute operations in accordance with the interests of the shareholders of the firm. According to Lopes, (2010), powerful motivators were at first agreed to regulate the interests of both parties (principal and agent). Kivisto (2007), suggests that in most circumstances, organization connections are proportional, however, they could equally be coercive. He points out that such associations can be recognized at a scope of levels of human co-task, from the degrees of people, gatherings, or relations.

According to Lan and Heracleous (2010), agency theory helps in actualizing the different administration systems to control the operators' activity in the mutually held organizations. Shareholders have given the management the responsibility of ensuring

financial stability of these entities but over the last few years, financial stability of the deposit-taking SACCOs has been an issue of concern (Kenya Financial Sector Stability Report, 2018). Shareholders are the principal, and the agent is the manager. It is their responsibility to act as responsible caretakers of the resources that have been given to them (Omondi, 2019). The study evaluated Agency Theory as crucial and pertinent, since it posits that the financial stability of Deposit-taking SACCOs is contingent upon the effectiveness and efficiency of managers in executing SACCOs activities to optimise shareholder wealth. This theory also establishes the fundamental factors of management efficiency and financial stability as the independent and dependent variables. The theory is relevant to this study as it anchors the on the predicted variable of the study.

2.2.2 Liquidity Preference Theory

Propounded by Keynes (1936), the model recognizes that there exist two categories of securities: long-term and short-term securities. This theory further postulates that investors will always demand a higher premium on long-term securities but will be willing to settle for a lower interest rate when it comes to short-term securities (Keynes, 1936). Bektas, (2014) confirms that this is due to the high risk associated with long-term securities. Consequently, investors will tend to go for short-term assets which are easily convertible to liquid cash (Akims, 2020).

According to Maubi (2018), the liquidity preference theory suggests that the government should develop effective monetary policies to control interest rates. Nevertheless, Keynes contends that there exist additional variables that influence the investment demand

schedule, rendering monetary policy insufficient in attaining optimal investment levels and sustaining full employment. According to Walsh (2010), there is a connection between investment demand and the modifications made by commercial banks to their lending rates based on sensitivity. This theory can alternatively be seen as the interest rate proposed by the universal theory of employment and money (Taylor & Taylor, 2009). The equilibrium between forces of supply and demand of money affects the rates of interest, which is influenced by deferred claims.

Keynes (1936), in his theory identified three motives for holding (demand) for money: precautionary, speculative and transactionary demand. Transaction demand for money – is where individuals will demand money to facilitate their daily transactions while precautionary demand is where individuals want to hold money for any unplanned uncertainties that may arise. Finally, speculative demand suggests that individuals hold liquid money to take advantage of asset prices in the market (Appelt, 2016). In relevance to this study, this theory tries to provide more insight on reasons why SACCOs would prefer to hold a certain level of liquid assets. According to Maubi, (2018), investment and savings are influenced by expectations, prospects and other external shocks than underlying real factors.

The investors who are risk averse flex the form of holding their resources to respond to these external shocks depending on volatility in asset prices (Schindler, 2011). According to Walsh, (2010), most of the savers vary the average liquidity of their portfolios. By the 1920s, it was widely recognised that there was a significant rise in consumer credit. As a

result, the funds available for loans were not just being used for investment purposes (Panico & Carlo, 2008). Keynes disregarded the reality that loan rates also allocate available cash for consumption in addition to investments. This theory was deemed pertinent to our study because of its propositions that establish a connection between variations in liquidity and the financial stability of financial organisations.

2.2.3 Market Power Theory

This theory, which was initially proposed by Bhagwati in 1965, was subsequently developed by Berger and Hannan in 1998, Shepherd in 1986, and Schmalensee in 1987. The hypothesis is based on the claim that concentration of markets is the most effective measure for evaluating market power. This is due to the presence of stronger market imperfections in more concentrated marketplaces, leading to the establishment of prices by different organisations for their products and services. These prices may not be advantageous to their clients or customers (Genchev, 2012). This theory posits that a firm can manipulate the prices of its services and products by controlling their forces of supply and demand (Bourke, 1989). This trait arises from the concept of imperfect competition, which states that different entities have different levels of power in the market. The hypothesis posits that competitiveness amplifies efficiency, hence bolstering profitability.

The theory is founded on two premises: the relative market power and old structure-conduct performance premises (SCP). SCP is demonstrated by a market structure that has relatively small number of organizations coupled with many barriers to entry which adopt a pricing strategy with an aim of maximizing their profits jointly. This can either be

through price leadership or collusion (Al-muharrami & Matthews, 2009). The pricing strategy should enable the respective firms to gain competitive advantage and higher profit margins. Jeon and Miller, (2005) points that less saturated markets may lead to lower rates of loans and higher rates of deposits due to low competition.

According to Al-muharrami and Matthews, (2009), relative market power premises abnormal profits and market power can only be achieved by organizations that possess large market share and are able to distinctively differentiate their products. Jeon & Miller, (2005) further points out that the point of difference between the first and the second premises purely rotates around market power proves generic to single SACCOs or to the market as a whole. The association between firm characteristics and financial stability of SACCOs may be influenced by the degree of market competitiveness (Akims, 2020).

This theory confirms that pressure brought about by competition favours the more efficient firms to outperform less efficient firms, become more profitable and eventually acquire the largest market share (Casu & Girardone, 2009; Hu & Xie, 2016). In Kenya, pressure due to market competition is so evident in the deposit taking SACCOs sub sector. Each SACCO tries to differentiate its products from each other as there exists many small institutions in the market. This makes the pricing collusion by the SACCOs to be very difficult. The implication is that individual SACCOs therefore strive to be profitable by gaining the largest market share on its own (Kenya Financial Sector Stability Report, 2018). The linkage between competitiveness and the relationship between firm characteristics and financial stability is therefore anchored by this theory.

2.2.4 Financial Intermediation Theory

Diamond (1984) is credited with advancing the development of Financial Intermediation theory. The idea elucidates the role of financial institutions as intermediaries, facilitating the connection between depositors and borrowers. Consistent with the notion, SACCOs and other financial intermediaries play a crucial role in providing enterprises with external funding. Hence, the theory offers robust forecasts regarding the diverse transactions employed by financial intermediaries, thus establishing a structure for examining crucial matters pertaining to banking policy. The theory of Financial Intermediation is based on the premise that intermediaries aim to reduce both informational asymmetries and transaction costs. The mitigation of market imperfections fosters the generation and enlargement of individual prospects, thereby yielding a favourable incentive outcome (Scholtens & Wensveen, 2003).

DTSs ensure best corporate governance practices and efficiency, resulting in streamlined transactions and reduced risk in financial contracts. Financial intermediaries are typically large, which allows them to benefit from economies of scale when analysing and evaluating potential borrowers to determine their creditworthiness. Implementing efficient monitoring mechanisms allows DTSs to effectively carry out the delegated monitoring role, resulting in reduced monitoring costs (Andries, 2009). SACCOs have progressively adapted their business models to include emerging non-conventional activities in the financial industry. As a result, they have been able to maintain their role as financial mediators.

As examined by Diamond and Dybvig in 1983, the economic function of financial institutions in converting assets that are difficult to sell into liabilities that can be easily converted into cash. Both investors and depositors exhibit risk aversion, resulting in challenges in accurately timing future opportunities, which can potentially trigger bank runs. However, intermediation helps investors avoid making long-term investments that are difficult to convert into cash. This Theory offers valuable insights into the diverse functions of financial intermediation in the economy, thereby promoting economic development, and financial stability. The theory offers insights into the SACCOs financial intermediation activities and their impact on financial stability.

2.3 Empirical Review

Several studies have been carried out in this area. This section therefore tried to look at the different past studies that have been undertaken in this field to bring out the various study gaps this study sought to fill.

2.3.1 Capital adequacy and financial stability

Nasieku (2014) conducted a study to analyze the influence of the Basel capital adequacy framework on the economic efficiency of banks in Kenya during the period of 2001 to 2011. Data envelopment analysis was employed to evaluate the economic efficiency of banks. The study indicated that allocation and utilization of resources (efficiency) in the Kenyan banking industry were influenced by the bank's capital level and the country's economic conditions. The findings of the study concluded that the presence of voluntary capital cushions had no influence on the efficacy of commercial banks in Kenya.

Nevertheless, the presence of risk-based capital cushions have a beneficial influence on the efficiency of banks. The economic efficiency of banks in Kenya was primarily examined, uncovering significant deficiencies in both conceptual and contextual comprehension. This study focused on analyzing the association between firm characteristics and financial stability of deposit-taking SACCOs in Kenya. Data analysis particularly encompassed the timeframe spanning from 2017 to 2021.

Amina (2016) examined the influence of Core capital on the financial performance of Deposit Taking SACCOs in Nairobi County, Kenya. A descriptive research approach was utilized by the study, targeting a population of 40 deposit taking SACCOs that were randomly selected within Nairobi City County. It was found that the institutions performance was highly impacted by their core capital. The study primarily examined the core capital and performance of 40 selected deposit-taking SACCOs located in Nairobi City County, Kenya. Since core capital was the sole independent variable with a small sample size, both conceptual and scope gaps were evident. This study aimed to examine the impact of a combination of capital adequacy, liquidity, and managerial efficiency on the stability of deposit accepting SACCOs in Kenya. The study focused on 160 fully licensed SACCOs, not only in Nairobi City County but across the entire country.

Kimutai (2019) investigated the influence of financial stability on the debt-to-equity ratios in Kenya. A total of 110 SACCOs were surveyed and analyzed for the time frame spanning from 2012 to 2016. Capital adequacy was utilized as a measure in the study to evaluate financial stability of SACCOs. The examination included additional variables

such as profitability, solvency, and asset quality. The study found that asset quality, Capital adequacy, and liquidity all had a statistically significant influence on the efficiency of the DTSSs. The study found that the size of an entity had a statistically significant effect on how financial soundness and efficiency are related. Therefore, the study suggested that imposing stricter regulations on Capital adequacy is essential to improve the efficiency of deposit taking SACCOs. The study focused on 110 SACCOs and discovered gaps in conceptual and methodological scope. The current study examined a collective sum of 160 Savings and Credit Cooperative Organizations (SACCOs) from 2017 to 2021.

Ochola (2021) examined the SASRA prudential guidelines on performance of SACCOs in the Nairobi City County, Kenya. The study focussed on the impact of minimum capital adequacy, assets quality, assets, and liquidity requirements on the performance of deposit accepting Savings and Credit Cooperative Organizations (SACCOs) in Kenya. A cross sectional analysis and descriptive design based on secondary and primary data was employed. The research findings confirmed that the prudential standards of SARSAs had significantly impacted the performance of the SACCOs both in terms of the regulatory standards instituted for membership and their sustainability. A considerable number of SACCOs also demonstrated improvement in how they performed concerning general efficiency, loan cycle, portfolio, and membership. Since the study focused on SASRA prudential standards as independent variable and performance as dependent variable, hence conceptual gap is presented. In addition, the study utilised both a mixture of

secondary and primary data, hence methodological is presented. This study focussed in the assessment of the effects of capital adequacy, management efficiency and liquidity on stability of deposit taking SACCOs, not only in Nairobi City County but in Kenya as a whole, which totals to 160 SACCOs that were fully licensed.

Ngui and Jagongo (2017) did a comparison of the performance of SACCOs in pre- and post-implementation of SASRA requirements and established that capital adequacy affects the performance of deposit taking SACCOs in Kenya. They particularly observed that capital adequacy affected institutional capital where most of the deposit taking SACCOs failed to achieve the minimum 8% requirement. Therefore, the authors concluded that the core capital and capital adequacy ratios should be reviewed to strengthen the deposit taking SACCOs in Kenya and improve their performance. Study majorly focused on capital adequacy on the SACCOs performance, while leaving out other firm features, hence conceptual gap. To address this gap, this study included firm liquidity and its management efficiency. In addition, this study considered the effect of mediation of competitiveness on the financial stability.

2.3.2 Liquidity and Financial Stability

In a study conducted by Nathan (2020), on the characteristics of commercial banks in Kenya's business sector and their financial stability were investigated. A causal research design was used for this study which aimed to determine the extent to which capital sufficiency, operational efficiency, bank liquidity, asset quality and profitability all have an effect on the capacity of commercial banks in Kenya to maintain their financial

stability. It was determined that the exchange rate was the most effective method for determining the moderating impact of characteristics of the firm on financial stability of commercial banks in Kenya. Between the years 2011 and 2018, the research was carried out at seventeen financial institutions in Kenya that were considered to be vulnerable. The ability of commercial banks in Kenya to maintain adequate levels of capital had a statistically significant and negative impact on the stability of their financial systems. In addition, the research found that the liquidity of banks had a negative impact on the financial stability of commercial banks in Kenya, albeit this impact was statistically minor or not significant at all. During the course of the research, it was discovered that there is a significant connection between the financial stability of commercial banks in Kenya and the characteristics of the firms themselves, which include asset quality, capital adequacy, operational efficiency and profitability. The research was conducted using a causal research design and sampled seventeen commercial banks in Kenya as its primary focus. Therefore, both contextual and methodological gaps are given, which this study aimed to solve by concentrating on SACCOs, employing an explanatory research methodology, and taking into consideration the 160 SACCOs in Kenya that accept deposits.

The influence of liquidity and the financial performance of non-financial entities that are listed on the Nairobi's Securities Exchange was investigated in a study by Sanghani (2014). The purpose of the study was to investigate the impact of liquidity on the financial performance of non-financial companies that are listed on the National Stock Exchange

(NSE). The study revealed that there exists a positive link between liquidity and the financial performance of these entities. Among the non-financial entities that are listed on the NSE, it was revealed a positive association existed between the current ratio and the financial performance of these entities. Companies that were not in the banking sector and were listed on the Nairobi Securities Exchange were the primary focus of the study. For the purpose of determining the extent to which capital adequacy and management efficiency have an impact on financial stability, this study included measures of both of these factors in addition to liquidity. A total of 160 Savings and Credit Cooperative Societies (SACCOs) in Kenya that take deposits made up the population.

Azhar (2015) examined the impact of liquidity and management efficiency on profitability by conducting an empirical investigation of specific energy distribution utilities in India. The research included a sample of 23 electricity distribution utilities that were in operation in India between 2006 and 2013. The return on capital was used as a statistic to evaluate profitability, acting as the predicted variable. The independent variables comprised of the cash ratio, current ratio, absolute cash ratio, quick ratio, debtor turnover ratio, collection efficiency, creditor turnover ratio, and interest coverage ratio. The statistical methods of Generalized Least Squares (GLS) regression and correlation were employed. The profitability of the chosen utility was greatly impacted by the interest coverage ratio, collection efficiency and debtor's turnover ratio. Nevertheless, the quick ratio, liquidity ratio, and creditor's turnover ratio do not significantly affect profitability. The study was carried out in India, focusing specifically on power distribution utilities.

The research was carried out in India and primarily focused on analyzing two distinct factors: liquidity and managerial efficiency. The statistical method employed was Generalised Least Squares (GLS). Nevertheless, the study revealed various deficiencies in relation to the context, concept, and technique. The objective of this study was to address the current deficiencies by specifically examining on the deposit accepting SACCOs in Kenya.

2.3.3 Managerial Efficiency and Financial Stability

Kariuki (2016) conducted a study to investigate the link between firm characteristics and the efficiency of financial intermediation in deposit-taking savings and credit co-operative societies in Kenya. The independent variables consisted of capital sufficiency, diversity, asset quality, profitability, liquidity and size, while the predicted variable was financial intermediation efficiency. A dataset containing balanced panel data for 103 deposits from SACCOs was collected and analyzed using a two-stage process for the period of 2011-2014. A forward selection technique was utilized to choose the most important measure for the individual independent variables. The study found a minimal association between the sufficiency of capital, the availability of liquid assets, and the effectiveness of financial intermediation. A clear and direct relationship between efficiency and size was also revealed by the study. The report proposes that managers and policy makers should prioritize their efforts towards improving management efficiency and increasing the size of SACCOs. Considering that the study mainly focused on evaluating the efficacy of financial intermediation, it is evident that there exists a

conceptual inconsistency. This study seeks to address this disparity by particularly examining financial stability.

Githinji (2016) analysed the factors of financial stability in Kenyan commercial banks. Descriptive research design was used by the study to define variables instead of confirming an expected association between variables. The survey included a total of 43 Kenyan commercial banks as of June 2016. The research utilized a comprehensive census survey to collect data from every commercial bank in Kenya. It was unveiled by the study that financial stability of commercial banks is impacted by variables like operating expenses, bank scale, board scale, capital scale, prudent interest rate strategy, and efficient workforce. The study found that 26.3% of the variation in financial stability may be attributed to the unique internal characteristics of banks. It was revealed that inflation rates, interest rates, interest rate spreads, GDP growth and currency rates have an influence on the financial stability of commercial banks. The external factor accounted for 29.1% of the variability in the financial stability of commercial banks in Kenya. The results indicated that the banks in Kenya utilized a range of tactics, including oversight, banking regulations, financial alignment, revenue diversification, and financial advancements, to enhance the financial resilience of commercial banks. The current study sought to address conceptual disparities by investigating the impact of firm characteristics and financial stability of DTSS in Kenya. It is important to note that the independent variables utilised in this study differ from those employed in previous research. Between

2017 and 2021, there were 160 SACCOs (Savings and Credit Cooperative Organisations) in Kenya.

Kari, Mansor, and Othman (2014) used data development analysis technique to assess the effectiveness of co-operatives in Malaysia. He looked at 56 cooperatives, which is a subset of the overall 70. The independent variables, namely turnover, number of members, and equity, were employed as predictors in a non-linear Tobit regression model to examine their influence on productivity and efficiency evaluations. The objective of the second-stage analysis was to examine whether any of the firm's characteristics (such as profits, turnover, membership, and members' equity) have an impact on the efficiency ratings. The results demonstrated that profit, equity and turnover exerted a significant influence on technical efficiency. The turnover of the co-operatives showed a positive correlation with all three categories, suggesting that a higher turnover is linked to superior efficiency scores. The findings revealed a negative correlation between the number of members and the amount of equity in co-operatives, and their efficiency scores. More precisely, when the number of members and the amount of equity grow, the efficiency of co-operatives declines. This study conducted a detailed analysis of cooperatives in Malaysia, which is a more developed country than Kenya where the current study is based.

Kisengo (2014) did a study to investigate the influence of characteristics of the firm on the performance of the microfinance institutions in Nakuru County, Kenya. The research sought to investigate the influence of company factors on the performance of the

microfinance sector in Kenya. The research utilized a correlational research design. A thorough survey was carried out on the 48 establishments that are officially registered with AMFI-K and are presently functioning in Nakuru County, Kenya. Questionnaires were used to collect primary data for the research. Descriptive statistics were used to summarize data regarding the characteristics of firms and the efficiency of organizations. Regression analysis was used, and the findings suggested that characteristics of a firm have a significant and advantageous influence on the overall performance of Microfinance Institutions (MFIs). The success of microfinances was primarily influenced by factors related to structure, whereas those linked to capital had the least impact. Practitioners are advised to focus on and cultivate firm characteristics in order to improve the sector's performance. This study specifically examined microfinances in Nakuru County in Kenya, while the present study focusses on DTSs in Kenya.

2.3.4 Operating Environment and Financial Stability

Omondi (2014) evaluated the effects of inflation rate on commercial banks' lending with focus on Kenya commercial bank limited. Descriptive research design was adopted and targeted a population comprising of 450 KCB employees from both management and non- management staff spread in all the 15 branches within Nairobi County and secondary data on inflation rates, new volumes of lending to creditors, loans default volumes and bank base lending rates was used. A sample size of 199 KCB staff was selected through multi-stage sampling procedure while purposive sampling was used. Secondary data was obtained from banks administrative records and documentation while data on inflation

rates was obtained from the Kenya National Bureau of Statistics. The results indicated a positive correlation between inflation rate and the base lending rate charged by the bank, as inflation levels rises, so did the bank's base lending rate both from the key informant figures and the regression analysis of the secondary data, showing that inflation has a significant effect on KCB base lending rate. Since the study was conducted in the banking sector using inflation rate as an independent variable and using primary data, contextual, conceptual and methodological gaps are evident. This research sought to address the gaps by examining the effects of firm characteristics and financial stability of deposit-taking Savings and Credit Co-operative societies in Kenya, utilising purely secondary data and a population of 160 SACCOs.

A study by Thumbi and Ragui (2019) investigated the association between environmental elements and the performance of the Kenyan commercial banks. Descriptive research design was utilized and a population of all 43 commercial banks that were operating in Kenya at the time. The respondents were marketing managers from each of the commercial banks, and the survey was directed toward the headquarters of each of the individual commercial banks. The study conducted a census of the 43 head marketing managers of the financial Institutions in Kenya using structured questionnaires to collect data. Analysis of data was done through inferential and descriptive statistics using the SPSS software. It was revealed that organizational resources had a significant impact on overall performance with or without government policies. In addition, organizational structure had a great impact on commercial banks' performance. Moreover, competition

had significant statistical influence on overall performance of commercial banks with or without the moderating influence of government policies. Finally, the government policy had significant moderating influence in the link between environmental factors and financial performance of Kenyan commercial banks. Environmental factors were used as a predictor variable and it was conducted in the banking sector, hence presenting both conceptual and contextual gaps. In addition, the study presents a methodological gap, given that it used primary data. This study will try to address the gaps identified by investigating the effects of firm characteristics and financial stability of DTS in Kenya, using multiple variables, purely secondary data and a population of 160 SACCOs.

Nicholas (2011) further notes that inflation reduces the purchasing power of money, inflation and the expectation that it will continue causes lenders to demand higher interest rates on loans. This is because lenders want to be compensated, not only for sacrificing the use of their money and assuming a risk in lending, but also for the expected decline in the purchasing power of their money during the life of the loan. In addition, there is a tendency for borrowers, also expecting the value of the money to decline before they repay the loan, to be willing to pay higher rates to borrow money. The willingness to pay higher rates to borrow is reinforced if the borrower uses the money to buy something that is apt to increase in value with inflation (such as a house). Therefore, inflation and inflationary expectations can press base rates upward.

Othman, Arshad, Aris and Arif (2015) explored how resources of an organization influence competitive advantage of cooperative firms in Malaysia by applying descriptive

research design and RBV of the firm. The research examined the impact of physical resources on the performance of cooperative organizations. Content analysis of the yearly reports of the cooperatives was employed. The results indicated a significant positive link between physical resources and performance only when measured in terms of total reserve but not in terms of gross profit and net profit, and therefore it was concluded that physical resources partially influence performance. The study concluded that cooperatives are not using physical resources to enhance the revenues generated from their operations. This study was done in cooperatives in Malaysia and instead of using financial stability as the predicted variable the study used performance. The study thus presents contextual, and methodological gaps given that it was conducted in Malaysian context and used primary data. This study will address the identified gaps by examining the effects of firm characteristics and financial stability of DTS in Kenya, using multiple variables, purely secondary data and a population of 160 SACCOs.

Another study by Nzisaa and Mbugua (2022) evaluated the effects of external environmental factors and its influence on the financial performance of all commercial banks listed in Kenya. Descriptive design was employed, and secondary data was utilised on market power, exchange rate fluctuations, inflation rate and technology use by the customers of the listed banks in Kenya. The study used a regression model for external environmental factors on financial performance. To measure the effects of environmental factors, the Market share, exchange rate fluctuation, and inflation rate and non-branch transaction ratio were regressed on Returns on Asset. The non-stationarity assumptions

were violated and so the researcher used VECM. The study found that one unit change in the factors bears an increase in financial performance of banks listed in the NSE. Only two of the factors were significant in explaining long term changes in the rate of financial performance in Kenya's' listed banks. The study used environmental factors and independent variable and financial performance as dependent variable, creating conceptual gap. In addition, the study was conducted in the banking sector, which is different from the context being considered by this study, hence contextual gap is identified. This study addresses the gaps by investigating the effects of firm characteristics and financial stability of DTS in Kenya, using multiple variables, purely secondary data and a population of 160 SACCOs.

2.3.5 Firm Competitiveness and Financial Stability

A study conducted by Ndegwa and Nguta (2021) investigated the role that business revenue plays as a mediator in the association between board characteristics and the financial difficulties experienced by deposit-taking SACCOs in Nairobi County, Kenya. The purpose of the research was to get a better understanding of how the income of a company influences the relationship between the qualifications of the board of directors and the financial hardship SACCOs in Nairobi County. According to the study, the revenue generated by large corporations is significantly more than that of small businesses. Upper echelons theory, which highlights the senior management's critical role in the development and implementation of strategic decisions, served as the guiding principle for the researchers conducting this study. For this study, a descriptive research

approach was utilized, and Nairobi City, County was an especially chosen location. A data collection sheet was utilized by SASRA to carry out the process of collecting secondary data. In the following step, a panel data analysis was performed with the assistance of the STATA software, and the findings were presented in the form of tables. It was revealed that income did not play a role as a mediator in the association between board qualifications and the financial difficulties experienced by deposit-taking SACCOs. The study used market share as a criterion in order to evaluate the competitiveness of businesses.

In their study, Kiweu (2012) analysed the influence of income emphasis source diversification on bank performance, specifically evaluated by return on equity (ROE) return on assets (ROA). A sample utilised in the study consisted of the 35 commercial banks which were operated in Kenya between 2000 to 2012. The study investigated the effect of income source diversification on profitability of Kenyan banks and its effect on reducing risks at both the individual bank level and the overall banking system. The study revealed that income diversification from traditional banking offers minimal, if any, advantages. The advantages of the development of non-interest revenue appeared insufficient to completely counterbalance the rise in risk associated with fee-based income. An apparent significant association between net interest income and non-interest income was observed, indicating that non-interest revenue may not be utilised to stabilise overall operational income. This research aimed to examine the connection between firm

characteristics and financial stability of DTSs in Kenya, with firm competitiveness serving as the mediating variable.

In their study, Mercieca *et al.* (2007) examined whether small European credit banks can enhance their performance by engaging in non-interest revenue activities. Through the examination of a dataset consisting of 755 small banks during the time frame of 1997-2003, researchers discovered that there were no evident advantages in terms of risk reduction through diversification, both within and across different business lines. Furthermore, they observed a negative correlation between non-interest revenue and the overall performance of the banks. The findings pointed out that small commercial banks could enhance their financial performance by increasing their strategic resources within their current operational areas of unique competitive advantage with their rival entities.

2.4 Summary of Literature and Research Gaps

The empirical literature and research gaps are summarized in Table 2.2 below.

Table 2.1 Summary of Literature and Research gaps

Author	Study	Findings	Research gaps	Addressing the gap
Nguta and Ndegwa, (2021)	The study examines the role of business revenue as a mediator in the link between board features and financial stability of DTSs in Nairobi County, Kenya.	The study found that company income did not operate as a mediator in the association between board qualities and financial hardship of DTSs.	Focused on the board characteristics of the SACCOs in Nairobi City County. Used financial distress and revenue as the study dependent and mediating	Focused on firm characteristics. Dependent variable of the study was financial stability, which was measured using NPLs, while competitiveness formed the study

			variables respectively	mediating variable.
Ochola, (2021)	SASRA prudential standards and performance of DTSs in Nairobi city county, Kenya.	The results confirmed that the prudential standards of SARSA had significantly influenced the performance of the SACCOs both in terms of the regulatory standards instituted for membership and their sustainability.	SASRA prudential regulatory policy was adopted as the independent variable. A descriptive design together with cross sectional analysis was adopted in the study.	The research dwelled on firm characteristics and financial stability (NPLs) of DTSs in Kenya. An explanatory research design was also employed.
Kimutai, (2019)	Financial soundness and efficiency of DTSs in Kenya.	The study's findings verified that the capital sufficiency, asset quality, and liquidity of the SACCOs all had a statistically significant impact on their efficiency. Results showed that the size of SACCOs had a statistically significant moderating impact on the correlation between financial soundness and efficiency.	The research focused on the efficiency of DTSs in Kenya and targeted a total of 110 SACCOs	This study focused more on the financial stability (NPLs) of the deposit taking SACCOs in Kenya. The study considered a total of 160 SACCOs for the period between 2017 and 2021.
Ngui and Jagongo (2017)	Comparing the performance of SACCOs in pre-and post-implementation of SASRA requirements	Study established that capital adequacy affects the performance of deposit taking SACCOs in Kenya. It was particularly observed that capital adequacy affected institutional capital where the majority of deposit taking SACCOs failed to achieve the minimum 8% requirement.	Study majorly focused on capital adequacy on the SACCOs performance, while leaving out other firm features.	Firm liquidity and its management efficiency was included in this study. The mediating effect of competitiveness on the financial stability was also considered.

Kariuki, (2016)	The research examined the link between firm characteristics and the effectiveness of financial intermediation in DTSs in Kenya.	An insignificant association between liquidity, capital adequacy, and financial intermediation efficiency was found. On the other hand, quality of asset was found to have a direct impact on efficiency of deposit taking SACCOs. An inverse relation was however shown between diversification, non-interest income and efficiency. A positive correlation between size and efficiency was also revealed.	Study was done during the initial stages of the implementation of the SASRA prudential regulatory guidelines (between 2011 to 2014).	This study focused on the later period after implementation of the prudential regulatory guidelines from 2017 to 2021. Inflation rate was also used as a moderating variable on the relationship between firm characteristics and the SACCOs financial stability.
Githinji, (2016)	Determinants of financial stability of commercial banks in Kenya.	The results indicated that commercial banks in Kenya used supervision, bank policy, financial reconciliation, income diversification and financial innovations in enhancing financial stability of commercial banks.	It adopted a descriptive design and focused on the financial stability of the Kenyan commercial banks.	Explanatory design was used focusing on the deposit taking SACCOs in Kenya.
Amina, A. (2016).	Influence of Core capital on the financial performance of Deposit Taking SACCOs in Nairobi County, Kenya.	It was concluded that the performance of DTSs is impacted by core capital in many ways, including the management of credit risk and the enhancement of public confidence.	The study focused on core capital and performance of the SACCOs mainly in Nairobi City County, Kenya. Study considered only 40 deposits taking SACCOs.	This study focused on joint effect of liquidity, capital adequacy, and management efficiency on financial stability of DTSS, not only in Nairobi city County, Kenya but in Kenya as a whole, which totals

				to 160 DT SACCOS.
Azhar (2015)	A selection of electricity distribution utilities in India were used for the purpose of conducting an empirical study to evaluate the influence of liquidity and managerial efficiency on profitability.	The quick ratio, the absolute liquid ratio, and the creditor's turnover ratio had a minimal impact on the profitability of selected power distribution utilities. However, the debtor's turnover ratio, collection efficiency, and interest coverage ratio indicated a considerable impact on the profitability of these utilities.	The study was done in India focusing on power distribution utilities. It only focused on two independent variables: liquidity and management efficiency. Generalized Least Squares (GLS) was applied.	This research was based in Kenya and considered the deposit taking SACCOS. The independent variables were also included Capital adequacy
Nasieku (2014)	An examination of the impact that the Basel capital adequacy on Kenyan banks economic efficiency.	In terms of resource allocation and utilization, the behaviour of the Kenyan banking industry was impacted by economic position of the country as well as the capital held. According to the findings of the study, the presence of risk-based capital cushions had a beneficial influence on the efficiency of banks in Kenya, whereas the presence of voluntary capital cushions, as assessed by the leverage ratio, did not have any repercussions for the effectiveness of banks in Kenya.	The economic efficiency of Kenya's banks was the primary focus of attention and the time period between 2001 and 2011 was taken into consideration.	Focus was mainly the financial stability of the DTs in Kenya for the period between 2017 and 2021.
Sanghani (2014)	What impact does liquidity	According to the findings of the study,	Looked at only the liquidity's	In addition to liquidity, this study

	have on the financial performance of companies that are not in the financial sector and are listed on the NSE?	the relationship between current ratio and the financial performance of non-financial companies that are listed on the NSE is a good one. In addition, the research demonstrated that a rise in the operational cash flow ratio has a beneficial impact on the financial performance of non-financial enterprises that are listed on the National Stock Exchange (NSE).	effect on the financial performance. Targeted on the non-financial firms that were listed at the NSE.	also included capital adequacy and management efficiency to gauge their impact on financial stability. Target population included 160 deposits taking SACCOs in Kenya.
Kari, Mansor and Othman (2014)	Assessment of the Co-operatives performance in Malaysia.	Findings indicate that turnover, profit and equity had a statistical and significant influence on the efficiency. The Turnover positively and significantly correlated to all three scores. The results also indicated an inverse relation between equity, members and all three efficiency scores	Study considered only 56 firms in Malaysia. Equity capital, turnover and profits formed the study independent variable.	An aggregation of capital adequacy, management efficiency and liquidity formed the independent variable. 160 Deposit taking SACCOs in Kenya were considered in the study.
Karim, Hassan and Chan (2010)	Efficiency of Banks and non-performing loans; as evidenced from Singapore and Malaysia.	Findings revealed that higher non-performing loan negatively affected the efficiency of cost.	Malaysia and Singapore (which are more developed as compared to Kenya) were the countries used in the study. Focussed on banks.	The study was done in Kenya which is a developing country and focused on 160 DT SACCOs.

Source: Review of Literature, 2024

2.5 Conceptual Framework

The conceptual framework in figure 2.1 below shows the relationship between capital adequacy, liquidity, management efficiency, operating environment and competitiveness on stability of DTS in Kenya.

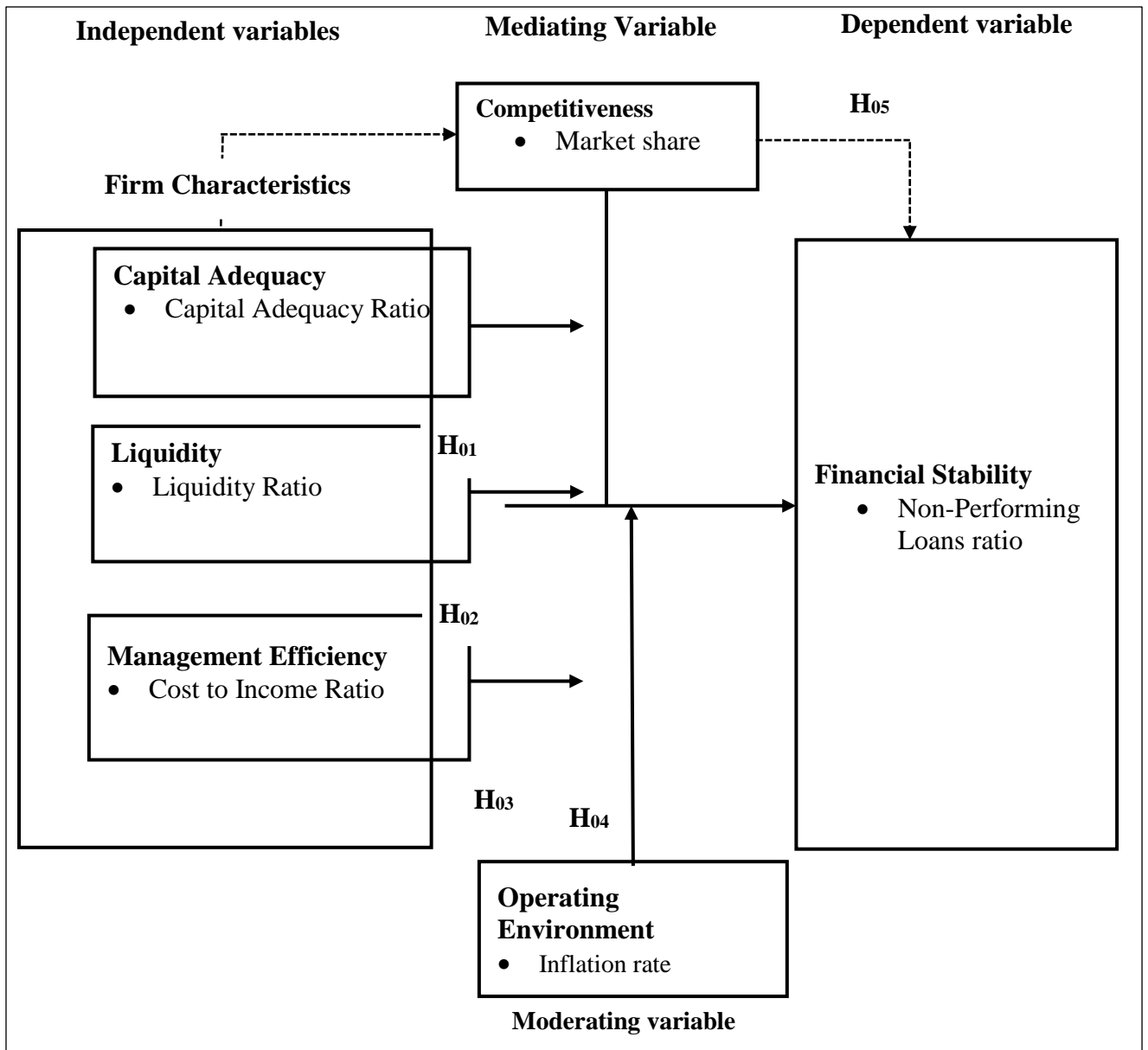


Figure 2.1: Conceptual Framework

Source: Researcher (2024)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

A description of the research methodologies that were utilized in the study is provided in this chapter. These approaches were utilized in order to generate meaningful, trustworthy, and valid results. Additionally, it encompasses characteristics such as the research design and philosophy, the population, the sample size, and the sampling design that were utilized. It serves as the foundation around which the entire research endeavor is constructed. The data that was used, the instruments used to gather the data, the evaluation methods that were utilized, and the presentation of the empirical models are also included. Additional important features that are discussed in this section include the measurement and operationalization of the variables, as well as the diagnostics test that was utilized to guarantee that the data that was utilized comply with all of the assumptions that were made regarding the methods that were utilized to test the research hypotheses.

3.2 Research Philosophy

Blumberg, Cooper, and Schindler (2014), noted research philosophy refers to the school of thought that governs the process of collecting, analyzing, interpreting, and making use of data pertaining to an investigation in a study. Saunders, Lewis, and Thornhill (2009) state that research philosophy encompasses not only the process of knowledge development but also the nature of the knowledge that is in the process of being generated. The research identified key components of research philosophy as discussed; positivism

believes in an objective reality that can be measured and understood through scientific methods, often using quantitative methods. On the other hand, interpretivism focuses on understanding subjective meanings and experiences within a specific context, often relying on qualitative methods. Constructivism philosophy views knowledge as actively constructed by individuals through their interactions with the world and feminist philosophy analyses social phenomenon through a lens of gender inequality, aiming to critique and challenge power dynamics.

In the course of this investigation, the positivist philosophical approach was utilized. Positivists are of the opinion that facts are real and can be accurately measured. As a result of the fact that the assumptions of positivism are supportive of this investigation, their application is suitable for the study. This research philosophy operates under the assumption that the events and environment being studied are highly external, objective, and largely unaffected by the research and the researcher. In contrast, the philosophy of social constructivism posits that knowledge about the events and environment is socially produced and completely subjective to the researcher's perspective (Bell & Bryman, 2007). The positivist research perspective is commonly used for studying visible social reality (Cohen & Crabtree, 2006; Saunders et al., 2009). The researcher gathered quantitative data and conducted statistical analysis to test hypotheses. The hypotheses will either rejected or not rejected based on the results (Nickerson, 2022). This was done in accordance with the research methodology employed by the study.

3.3 Research Design

As pointed out by Cooper and Schindler (2009), research design is an outline or method that a researcher intends to use when carrying out a research study. It is the blueprint utilized by researcher to provide solutions in line with research study problem (Sileyew, 2019). Huntington-Klein (2021) suggests that an explanatory research design determines the causes for the status of a particular phenomenon. Moreover, it is the systematic plan that outlines all methods and procedures to be used in collecting and analyzing data to address a specific research question or hypothesis (Berman, Jones & Udry, 2000). It encompasses key decisions such as the choice of research methods (qualitative, quantitative, or mixed methods), data collection techniques, sampling strategies, and data analysis approaches.

A well-structured research design is important for ensuring the reliability and validity of research findings. An explanatory research design was therefore employed by the researcher in this study. The choice of explanatory research design was supported by Kerlinger and Lee (2000) who anchored that the design can be adopted mainly when the study variables were not manipulated throughout the study. Therefore, this research approach was found to be more suitable and justifiable since this current study examined the association between firm characteristics and financial stability of DTSSs in Kenya.

3.4 Empirical Model

Panel data was employed by the study which incorporated time series and cross-sectional dimensions. Consequently, panel regression analysis was used to analyze data. Panel data

analysis has distinct benefits in comparison to both time series and cross-sectional analysis, as it enables the inclusion of unobservable variance in a dataset with panel structure. Panel data, in contrast to cross-sectional data or time series, offers a larger and more diverse dataset, resulting in enhanced variability, efficiency, and reduced collinearity among the research variables.

The general model of the study was adopted from Al-Khourri (2012) as follows:

$$Y_{it} = \beta_0 + \beta X'_{it} + \epsilon_{it} \dots\dots\dots 3.1$$

Where;

Y_{it} = Financial Stability of SACCO i at time t (Non-performing Loans)

X' = Vector of the independent variables at time t (Firm Characteristics)

β_0 = Constant term

β = Coefficients

ϵ = Error term

Equation 3.1 was then decomposed into 3.2 which was utilized for estimation.

$$NPL_{it} = \beta_0 + \beta_1 CA_{it} + \beta_2 L_{it} + \beta_3 ME_{it} + \epsilon \dots\dots\dots 3.2$$

Where;

NPL_{it} = Non-Performing Loans for DTS i at time t

CA_{it} = Capital Adequacy of DTS i at time t

L_{it} = Liquidity of DTS i at time t

ME_{it} = Management Efficiency of DTS i at time t

$\beta_1, \beta_2, \beta_3,$ = Coefficients

e = the error term assumed to be normal in distribution with zero mean and variance

3.4.1 Test for Moderation Decision Making Criteria

The Moderation effect was tested using the Baron and Kenny (1986) methodology. The interaction between firm characteristics and the moderator (operational environment) was modelled as shown in the equation below.

The model is presented as follows:

$$NPLS_{it} = \beta_0 + \beta_1 CA_{it} + \beta_2 L_{it} + \beta_3 ME_{it} + \beta_4 Z_{it} + \epsilon_{it} \dots \dots \dots 3.3$$

$$NPLS_{it} = \beta_0 + \beta_1 CA_{it} + \beta_2 L_{it} + \beta_3 ME_{it} + \beta_4 Z_{it} + \beta_5 CA_{it} * Z_{it} + \beta_6 L_{it} * Z_{it} + \beta_7 ME_{it} * Z_{it} + \epsilon_{it} \dots \dots \dots 3.4$$

Where;

$NPLS_{it}$ = Dependent variable (Financial Stability of Deposit Taking Saccos)

CA_{it} = Capital Adequacy

L_{it} = Liquidity

ME_{it} = Management Efficiency

Z_{it} = Moderator (operating environment)

The decision-making criteria is shown in Table 3.1.

Table 3.1: Criteria for moderation decision

Model	Model	Model	Total Effect	Conclusion
3. 2	3. 3	3. 4		
β_1 is insignificant $P > 0.05$	-	-	-	No effect
β_2 is insignificant $P > 0.05$	β_3 is insignificant $P > 0.05$	-	-	Moderator is independent variable
β_2 is significant $P < 0.05$	β_3 is significant $P < 0.05$	-	β_3	The moderator produces moderating effect

Source: Baron and Kenny (1986)

3.4.2 Test for Mediation

The stepwise regression technique was used to test for the mediation effect, as stated by Baron and Kenny (1986) and Mwangi (2014). If the association between the qualities of a firm and the financial stability of Deposit taking SACCOs in Kenya is entirely influenced by the competitiveness of the firm, then the connection between these two variables will be non-existent. A condition of partial mediation would be present if the path deviates significantly from zero. On mediation testing, the Baron and Kenny procedure was applied. The following four conditions must be met for mediation to be confirmed:

Step one:

In the absence of the mediating variable, the independent variable has significant linkage with the dependent variable (Baron & Kenny 1986).

A regression involving independent variable in prediction of the dependent variable.

$$NPL_{sit} = \beta_0 + \beta_1 CA_{it} + \beta_2 L_{it} + \beta_3 ME_{it} + \epsilon_{it} \dots\dots\dots 3.5$$

Step Two:

The independent variable explicitly correlates with the mediating variable.

$$M_{it} = \beta_0 + \beta_1 CA_{it} + \beta_2 L_{it} + \beta_3 ME_{it} + \epsilon_{it} \dots\dots\dots 3.6$$

Step Three:

The mediating variable explicitly correlates with the dependent variable.

$$NPL_{sit} = \beta_0 + \beta_1 M_{it} + \epsilon_{it} \dots\dots\dots 3.7$$

Step four:

While adjusting the consequences of the mediating variable on the predicted variable, the influence of predictor variable on the predicted variable is not significant in the presence of the mediating variable.

$$NPL_{sit} = \beta_0 + \beta_1 CA_{it} + \beta_2 L_{it} + \beta_3 ME_{it} + \beta_4 M_{it} + \epsilon_{it} \dots\dots\dots 3.8$$

Where;

CA_{it}= Capital Adequacy

L_{it} = Liquidity

ME_{it} = Management Efficiency

M_{it} = Mediating variable Firm Competitiveness (M) of DTS i at time t.

β_0 = Constant term

$\beta_{1,2,3}$ = Mediating Coefficients of explanatory variables

B_4 =Coefficient of competitiveness

ϵ_{it} = Error term

Baron and Kenny (1986) stipulate that the test as of steps 1 up to step 3 normally illustrates the existing relationships between variables when the coefficient is not zero. In case of an insignificant relationship, the conclusion shall be that mediation is not likely. If significant relationships are found in steps 1 to 3, a decision shall be made to move on to step 4. In the case that Competitiveness shows insignificance when Firm characteristics is controlled, then mediation is said to exist. Accordingly, if Firm characteristics and Competitiveness predict Financial Stability of DT Saccos significantly, then partial mediation is said to exist. This is detailed within Table 3.2;

Table 3.2: Criteria for Mediation Decision

	Outcome	Conclusion
1	In case β_1 in model 3.5 is significant In case β_1 in model 3.6 is significant In case β_1 is insignificant and β_2 in model 3.8 is significant	There is Complete Mediation
2	In case β_1 in model 3.5 is significant In case β_1 in model 3.6 is significant In case β_1 in model 3.5 is significant and β_1 in model 3.6 is insignificant while β_2 in model 3.8 is significant	There is Partial Mediation
3	In case β_1 in model 3.5 is insignificant In case β_1 in model 3.6 is insignificant In case β_1 in model 3.5 is significant and equivalent to β_1 in model 3.6 and β_2 is not significant in model 3.8	There is No Mediation

Source: Baron and Kenny (1986)

3.5 Operationalization and Measurement of Variables

Table 3.3 contains a comprehensive list of variables under study, together with their measurements and operational definitions utilised to assess these study variables. The measures implemented in this study were utilised and verified by previous researchers based on the literature given. All study variables were measured on a ratio scale.

Table 3.3: Operationalization and Measurement of Study Variables

Category of Variable	Variable	Operationalization	Measurement	Scale of measurement
Dependent	Financial Stability	<ul style="list-style-type: none"> Non- Performing Loans: Loans paid untimely or likely to be defaulted. 	Non- Performing Loans/ Total Loan Portfolio	Ratio
Independent	Capital Adequacy	<ul style="list-style-type: none"> Core Capital to Total Assets: The amount of capital a DTS maintains as per the regulator. 	Core Capital /Total Assets	Ratio
	Liquidity ratio	<ul style="list-style-type: none"> Liquid Assets to Total Assets: Ability to meet its obligations in the short run. 	Total Liquid Assets/ Total Assets	Ratio
	Management Efficiency	<ul style="list-style-type: none"> Cost to Income: Ability of a DTS to generate revenue from its resources. 	•Total Cost/ Total Income	Ratio
Moderating Variable	Operating Environment	<ul style="list-style-type: none"> Inflation rate: change in general price level at a given period 	<ul style="list-style-type: none"> Consumer Price Index 	Ratio
Mediating Variables	Competitiveness	<ul style="list-style-type: none"> Market share: Capita base controlled by each SACCO in the market. 	<ul style="list-style-type: none"> HHI index 	Ratio

Source: Researcher (2023)

3.6 Target Population

The target population, as defined by Borg et al. (2007), refers to the complete group of individuals, events, or objects that a researcher intends to study. It is the main interest group or organizations in a study (Ingram & Schneider, 1991). SASRA (2020) indicates that as at the year 2020 Kenya's DT-SACCOs sector comprised of 175 registered DT-SACCOs. However, out of these, only 160 had full licenses renewed for the period. The inclusion criteria for this study were based on fully registered SACCOs whose licenses have no restrictions in the year 2021. Registered DT - SACCOs outside this category were thus excluded from the study.

3.7 Sampling Design

This entails the process of planning and determining how a subset, or sample, of a larger population will be selected for inclusion in a research study (Burger & Silima, 2006). It involves making decisions about the method and criteria for selecting individuals or elements from the population to represent it adequately (Lohr, 2021). The study applied census approach for the sampling design. A census entails the comprehensive examination of all the businesses within a certain population (Cooper & Schindler, 2014). The sampling frame for the research comprised all 160-deposit taking SACCOs that possessed full licenses in Kenya (SASRA, 2020). Kothari (2011) asserts that the data acquired is made more valid by obtaining all the necessary information from every unit of study. This strategy also aids in mitigating potential bias that may arise from sampling problems.

3.8 Data Collection Instrument

This is the systematic gathering of empirical facts to get new insights and answer questions in the research (Kothari, 2011). This research mostly used quantitative secondary data that is panel in nature. Secondary data has numerous benefits. The data is suitable for making comparative assessments, as it requires fewer resources and may be used in longitudinal studies. Additionally, it offers permanency (Saunders et al., 2007). The research data was acquired from DTSS financial statements and oversight reports provided by SASRA which is the regulatory authority. The period of the study was from 2017 to 2021, and the document review guidelines can be found in appendices II and III.

3.9 Data Collection Procedure

The project was initiated by Kenyatta University with a request by the researcher to collect data. Subsequently, a permit to carry out research was granted from the National Commission for Science, Technology, and Innovation to permit the researcher to collect secondary data sourced from various SACCOs' financial statements and from the regulator - SASRA. The dataset under consideration was panel data, which exhibits both time series and cross-sectional attributes. A survey was conducted to collect secondary data from SACCOs for the period between 2017 and 2021. Gujarati and Porter (2003) argue that using both time series and cross-sectional data improves the quantity and quality of data to a degree that would be unattainable by using only one dimension.

3.10 Data Analysis and Presentation

This is the systematic methods and techniques used to convert research data into a format that can be effectively used (Greene, 2012). The process encompasses various stages, including the establishment of a dataset, data preparation for processing, application of models, and reporting of findings in accordance with study hypotheses and objectives (Verbeek, 2012). This was conducted to facilitate the data presentation and draw inferences. The data analysis used descriptive analysis as well as inferential analysis, specifically correlation and panel regression analysis. Descriptive analysis offers an overall overview and fundamental characteristics of the variables being studied. The descriptive analysis relied on statistical measures such as mean, standard deviation, number of observations, lowest and maximum values, as well as trend analysis of the variables under study.

Graphs and tables are the usual means of displaying descriptive statistics. A study's independent and dependent variables can be better understood by doing a correlation analysis (Wooldridge, 2013). To look into the connections among the research variables, Pearson's correlation analysis was used by the researcher. After that, the study's goals as stated in the empirical model were the center of attention during a panel regression analysis. This led researchers to employ regression analysis to check their study's hypotheses. Panel regression analysis-related diagnostic tests were administered. The study hypotheses were tested using the panel regression model once all the diagnostic test requirements were met. The study also used a significance level of 0.05 to test its

hypotheses. In order to test hypotheses, the p-value approach was employed. Data for the study came from an Excel spreadsheet, which was imported into the STATA software version for analysis.

3.11 Diagnostic Tests

When doing regression analysis, it is important to ascertain that violation of the regression assumptions does not occur. Deviation from regression assumptions results in distorted regression estimates (Gujarati & Porter 2003). In order to verify compliance to the underlying assumptions, the research performed diagnostic tests that encompassed assessments for Normality, Heteroscedasticity, multicollinearity, stationarity, and model specification before applying regression models.

3.11.1 Multicollinearity

The statistical phenomenon known as multicollinearity occurs in multiple regression analysis when two or more explanatory variables in a regression model display a high degree of correlation with each other (Haitovsky, 1969). Multicollinearity is a phenomenon that arises in the context of multiple regression analysis. According to Kock and Lynn (2012), it occurs where there is an association between two or more explanatory variables is greater than 70 percent. This indicates that one variable can be removed from the equation in order to include another variable. According to Wooldridge (2013), it is evident when two or more explanatory variables in a model display a moderate or high level of correlation with one another. As recommended by Cooper and Schindler (2015), multicollinearity was evaluated using the Variance Inflation Factor (VIF) test, which

suggests that a VIF value below 5 indicates acceptable levels of multicollinearity. If a situation arises where there is a significant degree of multicollinearity, it is necessary to remove one of the variables that are highly associated. Failure to address this issue would lead to an unlimited number of standard errors, so undermining the accuracy of hypothesis testing. Gujarati (2003) suggests that the existence of multicollinearity is not a matter of debate, but rather the focus is on its degree or severity. A VIF value exceeding 10 indicates the existence of multicollinearity, as suggested by Creswell et al. (2011).

3.11.2 Normality

Normality refers to a fundamental concept related to the distribution of data and that describes the shape and characteristics of a probability distribution, particularly the bell-shaped curve known as the normal distribution or Gaussian distribution (Hernandez, 2021). In a study, the normality test is conducted to ascertain normal distribution is followed in the research data, which is necessary for performing regression analysis. The presence of non-normal distribution of data might result in incorrect inferences and conclusions (Wooldridge, 2013). Regression analysis necessitates the utilization of data that follows a normal distribution or adheres to a normal distribution curve. In order to comply with this assumption, the research utilized the Shapiro-Wilk test, which assesses the similarity between the distribution and a normal distribution in terms of their standard deviation and mean.

It has been determined by Razali and Wah (2011) that the Shapiro–Wilk test is the most preferable option since it possesses favorable qualities of power. According to the

hypothesis opined by Brace (2018), a p-value that is less than 0.5 indicates that the normalcy rule has been broken, whereas a p-value that is larger than 0.5 indicates that normality does in fact exist. The application of non-parametric statistics is the solution to the problem of a violation of the normality test. The significance of normality tests in regression analysis lies in the fact that they guarantee that statistical analysis does not lead to overestimated or underestimated standard errors (Kothari, 2011). It is important to note that the presence of normality has an impact on the interpretation, validity, and reliability of inferences.

3.11.3 Heteroscedasticity

According to Cook and Weisberg (1983), heteroscedasticity is a situation where all the values of the explanatory variables have the same error term. According to Gujarati and Porter (2009), the axioms of regression require that the error term have a constant variance, or more accurately, homoscedastic relationships. In the event that heteroscedasticity is present, it is possible that the estimates will be inadequate as a consequence of the decreased statistical power of the regression coefficient (Kothari, 2011). This would potentially lead to biased regression estimates and increased standard errors which lenders conclusions biased. The Breush-Pagan test, which was initially proposed by Breush and Pagan (1979), was used to determine whether or not heteroscedasticity was present. The null hypothesis assumes that the variance of the error term is constant (homoscedastic) while the alternative hypothesis assumes heteroscedasticity. Null hypothesis would be accepted when the p-value > 0.05 indicates

homoscedasticity. When the p-value is less than 0.05, the null hypothesis is rejected showing the existence of heteroscedasticity. Further, Hakim (2012) points out that the presence of heteroscedasticity during regression analysis leads to wrong parameter estimates. The study remedied for violation of homoscedasticity by carrying out logarithmic transformation.

3.11.4 Autocorrelation

According to Verbeek (2012), autocorrelation is a statistical technique that measures the degree of cross correlation that exists between a signal of a variable and itself over a range of time periods. According to Kock and Lyne (2012), the presence of serial correlation within the panel data results in the standard error being biased and inefficient, which leads to incorrect inferences. Because it may be used in a number of different lags, the Breush-Godfrey LM test was utilized in this investigation to determine whether or not there was a correlation in the linear panel data. Due to the fact that this study makes use of panel data and the inherent serial autocorrelation that is present in such data, it is necessary to do this test in order to obtain accurate regression estimations. This study examined the idea that there exists absence of first order serial autocorrelation, which was known as the null hypothesis. According to Rumana, Tapati, Rahman, and Majumder (2012), the residuals are considered to be autocorrelated when the P value is less than about 5% of the significance level. A similar situation can occur when this regression assumption is not adhered to, which can result in incorrect standard errors and estimates that are approximative (Wooldridge, 2002). In the event that it is determined that serial

autocorrelation does in fact exist, the FGLS model, that employs maximum likelihood, was utilized.

3.11.5 Stationarity Test

A stationarity test is a statistical analysis used to assess whether a time series data set exhibits stationarity or not (Witt, Kurths & Pikovsky, 1998). In a stationary time series, statistical properties like the variance, mean and autocorrelation structure remain constant throughout the study period (Becker, Enders & Lee, 2006). When working with panel data, interactions are created between cross-sectional data and time series data. This is a natural consequence of the situation. In light of this, it is important to address both the non-stationary and stationary issues connected to panel data. In the study conducted by Ficăescu et al. (2021), it was shown that the failure to address both stationary and non-stationary concerns led to the generation of data that produced fabricated results. The hypothesis of the study under stationary test is that panel has a unit root. Hadri LM test was employed by this study as it takes care of unbalanced panels.

For the purpose of determining whether or not the variables are stationary, the study used the Levi-Lechun (LLC) test to carry out a unit test. This test was used to determine whether or not the variables are stationary. In accordance with the null hypothesis, each and every panel is characterized by the unit root measure. On the other hand, the alternative hypothesis asserts that at least one or some of the panels do not have a unit root. This is the conclusion that can be drawn from the discussion. In the event that the

variables contain a unit root, the variables in question are first differentiated, and then the differenced variables are utilized for the purpose of analysis.

3.11.6 Model Specification Test

When dealing with panel data, it is required to make a decision between using a fixed model or random effect regression model, depending on which model is the most suitable (Greene, 2008). Working with panel data requires making this decision. The Hausman specification test was employed by Kromtit and Tsenkwo (2014) in order to ascertain whether or not a random effect or fixed effect would be more suitable. The consistency and efficacy of random and fixed effect estimators, which are determined by the correlation between the effect of persons and the predictor factors, are essential to the success of this test. A situation in which there is no correlation is one in which the employment of the random effect is appropriate; on the other hand, the existence of correlation shows that the fixed effect model was appropriate. Once the Hausman specification test has ascertained that the fixed effects (FE) model is the appropriate one, it proceeded to test the inclusion of time fixed effects (FE) in order to ascertain whether or not the dummies for each year are equal to zero. If this is the case, then the model specification that is being estimated needs to have time fixed effects.

3.12 Ethical Considerations

Ethical considerations in research are paramount to uphold the dignity and rights of participants. Research ethics refers to the established and widely accepted principles that govern the interaction between individuals and their conduct (Saunders et al., 2009).

Hence, our study strictly followed all ethical principles, including safeguarding confidentiality, privacy, anonymity, and ensuring the data acquired is used with a clear purpose. Before utilizing any secondary data, the researcher carefully reviewed the consent agreements associated with the datasets to ensure that the original data collection had secured informed consent from participants, allowing for secondary analysis. Access to the datasets was restricted to authorized personnel only, and the study utilized secure data storage methods to prevent unauthorized access.

Prior to commencing the data collection process, the study received official authorization documents from the necessary authorities. This facilitated the enhancement of the participants' self-assurance and validated the data collection method. Approval was acquired from Kenyatta University, and authorization for the research permit was received from NACOSTI. In reporting of findings, I ensured that the data were presented in ways that preserved participant privacy. This included avoiding detailed descriptions of small subgroups that could inadvertently reveal identities. The conclusions reported in this study are solely derived from collected data and accurately depict the current situation.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.0 Introduction

The chapter documents the output of the study. First, the chapter presents results and makes findings thereof. Data analysis presentation is documented using tables and figures. The chapter then delves into data analysis using descriptive statistics, correlation analysis, trend analysis and panel regression analysis. The chapter further explores hypothesis testing and a discussion by comparing and contrasting the findings with other studies and theoretical literature.

4.1 Descriptive Statistics

Descriptive statistics are important in providing a foundational understanding of data characteristics and patterns (Cooksey & Cooksey, 2020). Summarizing large datasets through measures like standard deviation, mean, minimum and maximum makes it possible for the researcher to quickly grasp the central tendencies and variability within the data (Myers, Well & Lorch Jr, 2013). This summary is crucial for making data comprehensible and manageable, allowing for initial insights that guide further analysis. Moreover, descriptive statistics enable researcher to present findings in a clear, concise manner, making it easier to communicate complex data. In this study, the study findings and conclusions are determined by the type of data collected and the analytical methods employed. Central tendency metrics such as mean, maximum, minimum, and standard deviation serve to characterize the data set. The mean is favored as it encompasses all

data points and is intrinsically linked to measures of variability like variance and standard deviation (Gravetter, Wallnau, & Forzano, 2016). Standard deviation was opted for its resilience to changes in sample size and its utility in examining correlations and skewness in the data (Sharma, 2018). This study conducted descriptive analysis on all the study variables which includes; capital adequacy, liquidity, management efficiency, competitiveness, operating environment and financial stability which was measured using non-performing loans over the study period of between 2017 and 2021. The results of descriptive statistics are presented in table 4.1.

Table 4.1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
NPLs	800	5.65000	21.7000	13.87186	4.62744400
Capital Adequacy	800	3.91220	21.5915	10.81161	3.804785405
Liquidity	800	2.45760	16.58468	9.593869	3.378096474
Management Efficiency	800	4.54527	96.14586	49.09375	17.64303042
Operating Environment	800	4.68982	8.005723	5.891031	1.152451933
Firm Competitiveness	800	1.29000	14.19000	6.898188	3.258813269

Where: NPLs is Non-performing Loan Ratio

Source: Research data, 2023

Descriptive results in Table 4.1 shows variation in NPLs ratio across the DT SACCOs studied. The NPLs ranged between a minimum of 5.6500 and maximum of 21.700 NPL, indicating that different SACCOs had significantly different levels of non-performing loans within the study period. Some DTS were clearly more successful in managing their

loan portfolios than others. The results revealed a mean NPLs value of 13.87186. This implies that DTS with NPLs higher than this mean may need to consider implementing measures to reduce their non-performing loans. In addition, the results revealed a standard deviation of 4.627444 indicating the extent of variability in NPLs around the mean. This variability is attributed to a range of factors, including differences in lending practices, economic conditions, or the effectiveness of loan recovery mechanisms in different regions. These results are in support of the assertions past researchers that, financial stability is important for financial institutions, including SACCOs, to fulfill their obligations and maintain public confidence, particularly during unexpected events like the 2007-2009 financial crisis. This concept, emphasized by Elsayed, Naifar and Nasreen (2023) highlights the importance of stability over growth, with institutions needing to manage both internal factors, as per Kalani and Wareru (2009), and external influences beyond their control, as noted by Ongore and Kusa (2013). The variation in Non-Performing Loans (NPLs) among DT SACCOs exemplifies these challenges, suggesting that those with higher NPLs may struggle with stability and public confidence.

Regarding capital adequacy, the findings show that the DTSs recorded a maximum value of 21.5915 and minimum value of 3.9122, with a mean value of 10.81161 and a standard deviation of 3.804785405. Capital adequacy is crucial for the financial health and long-term stability of DTSs. The mean value of 10.81161 shows that, these DTSs in Kenya had a moderate level of capital during the study period. However, the standard deviation indicates that there was a fair amount of variation in capital adequacy among these SACCOs. These findings show a moderate average level of capital with considerable

variation and are consistent with the existing literature emphasizing its importance for financial stability and efficiency. The results are consistent with the observation by Nasieku (2014) which showed how capital adequacy influences the economic growth of Kenyan banks, noting a positive effect of risk-based capital cushions on efficiency. Additionally, Amina (2016) indicated the significant impact of core capital on the financial performance of SACCOs in Nairobi, pointing out limitations in study scope. Similarly, Kimutai (2019) established that liquidity, along with capital adequacy and asset quality, significantly affects the efficiency of DTs in Kenya, recommending stricter capital adequacy principles to drive efficiency.

Moreover, these DT SACCOs recorded a minimum liquidity ratio of 2.4576 and a maximum of 16.58468, with a mean of 9.593869 and a standard deviation of 3.378096474. Since liquidity is essential for daily operations and for meeting its obligations, the findings indicate that these DT SACCOs were generally at 58% of the maximum liquidity value of 16.58, suggesting a moderate level of liquidity. The mean suggests that DT SACCOs, on average, maintain a moderate level of liquidity ratio. Yet, the standard deviation explains that there was a moderate variation in liquidity levels among these societies, possibly reflecting different management practices or market conditions. The findings concur with previous studies in highlighting the importance of liquidity in financial institutions and other organizations. While Nathan (2020) points out the insignificant negative effect of liquidity on bank stability, Sanghani (2014) and Azhar (2015) indicate its positive influence on financial performance and profitability. This

shows that while DT SACCOs in Kenya generally maintain moderate levels of liquidity, the implications of this for their financial stability and performance can be multifaceted, influenced by various internal and external factors.

Management efficiency measured using cost to income ratio, registered values ranging from a minimum of 4.54527 and a maximum of 96.14586, mean of 49.09375, and a standard deviation of 17.64303042. This implies that cost to income ratio varied widely among the DT SACCOs in Kenya over the research period (2017-2021). The average score was found to be approximately 51% of the maximum value, indicating room for improvement in many co-operatives. This suggests that some DT SACCOs were much more efficiently managed than others. Efficient management is often directly related to financial stability, so this wide range could have significant implications for the long-term sustainability of these entities. These results are contrary to the findings by Kariuki (2016) who investigated the efficiency of financial intermediation in Kenyan SACCOs, considering variables like capital adequacy, liquidity, and size and found insignificant association between liquidity, capital adequacy and financial intermediation efficiency but noted a positive association between size and efficiency. Additionally, the results agree with findings of Githinji (2016) which focused on the financial stability of commercial banks in Kenya and identified that internal attributes such as operating costs, bank size, and policy measures accounted for a significant portion of the variation in financial stability. This is in line with the findings on DT SACCOs, where management

efficiency, as indicated by cost to income ratio, varied widely, implying a potential impact on financial stability.

The operating environment measured in terms of inflation rates had a minimum value of 4.68982 and a maximum of 8.005723, with an average rate of 5.891031 and a standard deviation of 1.152451933. The results show that there was a relatively narrow range between the lowest and highest inflation rates suggesting that most of these DT SACCOs operated under fairly similar economic conditions between 2017 and 2021. The average rate of 5.89 is approximately 74% of the maximum recorded inflation rate of 8.00, indicating that, on average, the co-operatives were operating under moderately challenging inflationary conditions. The standard deviation implies that while the operating environments were generally similar, there was still some variation, implying that some co-operatives might be more resilient or better adapted to inflationary pressures than others. These findings indicate that the operating environment for DT SACCOs in Kenya, characterized by moderately challenging inflation rates from 2017 to 2021, as also echoed in literature on the impact of economic factors on financial institutions. Omondi (2014) investigated the effects of inflation on rates of lending in Kenyan commercial banks, specifically Kenya Commercial Bank, finding a positive correlation between inflation rates and base lending rates. Similarly, Thumbi and Ragui (2019) assessed the relationship between environmental attributes, including economic conditions like inflation, and performance of commercial banks in Kenya. They found that environmental

factors, including competition and government policies, significantly affected bank performance.

Moreover, the findings show that the competitiveness of the DTSs measured using market share showed a range of 1.29 to a maximum of 14.19 with a mean of 6.898188 and a standard deviation of 3.258813269. This suggests that there was a moderate level of competition among these co-operatives. The standard deviation indicates that competitiveness among the SACCOs varied, which could impact their financial stability. The findings reveal that market share of the DTSs in Kenya between 2017 and 2021 ranged from a minimum of 1.29 to a maximum of 14.19, with an average of 6.898188 and a standard deviation of 3.258813269. The average market share of about 6.90 is approximately 49% of the highest market share observed, indicating that many co-operatives were operating at about half the market strength of the most competitive SACCO. The standard deviation of 3.26 points to a moderate level of variation in competitiveness among these co-operatives. This suggests that while some co-operatives had a stronger grip on the market, there was a balanced level of competition overall, which could have implications for their financial stability.

These results are consistent with the findings about the influence of business characteristics on financial stability. Nguta and Ndegwa (2021) investigated the correlation between board qualities, company revenue, and financial distress in deposit-taking SACCOs in Nairobi. Their findings indicate that business revenue does not operate as a mediator in the association between board features and financial distress. Kiweu

(2012) investigated the impact of revenue diversification on the efficiency of the Kenyan commercial banks. It was found that limited benefits from diversification, with non-interest income not effectively stabilizing total operating income. This implies that diversification strategies might not be the sole solution for enhancing market competitiveness and financial stability.

4.2 Trend Analysis

According to Jaiswal, Samuel and Kadabgaon (2018), trend analysis is the process of looking at data over a period of time to see if there exists a consistent upward or downward movement, or any other pattern. In this study, analysis of the trends has been presented for all the variables of the study: capital adequacy, liquidity, management efficiency, competitiveness, operating environment and financial stability. The results derived from this analysis are presented and discussed in the sections below.

4.2.1 Financial Stability

The trend line of financial stability of deposit taking Savings and Credit Co-operative societies in Kenya was assessed. The proxy of financial stability was Non-Performing Loans. Figure 4.1 shows the trend line of financial stability of DTS in Kenya over the period between 2017 and 2021.

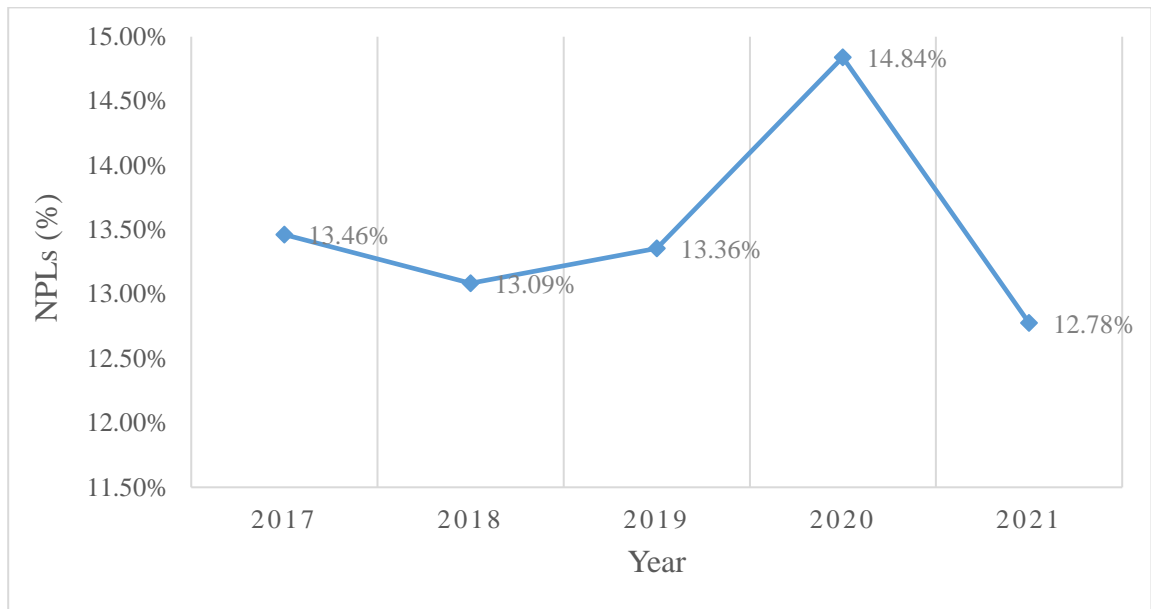


Figure 4.1: Financial Stability

Source: Research data, 2023

Based on the trend line in Figure 4.6, the trend in NPLs over the five-year period for the SACCOs indicates fluctuations in the financial stability of DTS in Kenya. In 2017, NPLs stood at 13.46%, followed by a slight decrease to 13.09% in 2018, indicating a positive sign, suggesting that some DTS may have taken measures to reduce non-performing loans, potentially improving their financial stability. In addition, there was a marginal increase to 13.36% in 2019, indicating that the overall financial stability of DTS did not worsen significantly during this year, but it also did not improve substantially. This was followed by a significant rise in NPLs to 14.84% in 2020, which could be due to factors like economic challenges such as the COVID-19 pandemic, which might have affected borrowers' ability to repay loans.

A rise in NPLs raises concerns about the financial health of DTS, as it indicates increased credit risk. However, the trend reversed in 2021, with NPLs dropping to 12.78%, which can be attributed to improved loan management, better economic conditions, or the implementation of effective risk mitigation strategies by DTS. This suggests that the financial stability of DTS in Kenya experienced variations during this period. The trends provide critical insights for stakeholders, including policymakers, to make informed decisions and take necessary actions to ensure the continued sustainability and stability of these financial institutions. The results of the trend analysis are in agreement with the results of research that was done by Mostak and Sushanta (2015). The study found that when a financial institution is financially stable, its ability to carry out its financial intermediation process is seamless, which in turn helps to develop confidence among its customers. Furthermore, García and José (2016) argue that the concept of financial stability pertains to the capability of a decentralized trading system (DTS) to carry out its financial intermediation process in a seamless manner among its users. In this regard, when a financial institution has financial stability, it is in a better position to execute financial obligations smoothly, which results in users having confidence in the system (Samorodov et al., 2019).

4.2.2 Capital Adequacy

The study sought to evaluate the impact of capital adequacy and financial stability of deposit taking Savings and Credit Co-operative societies in Kenya. Capital adequacy was

measured using Capital Adequacy Ratio. Figure 4.2 shows the trend line of the average capital adequacy ratios of DTs in Kenya between 2017 and 2021.

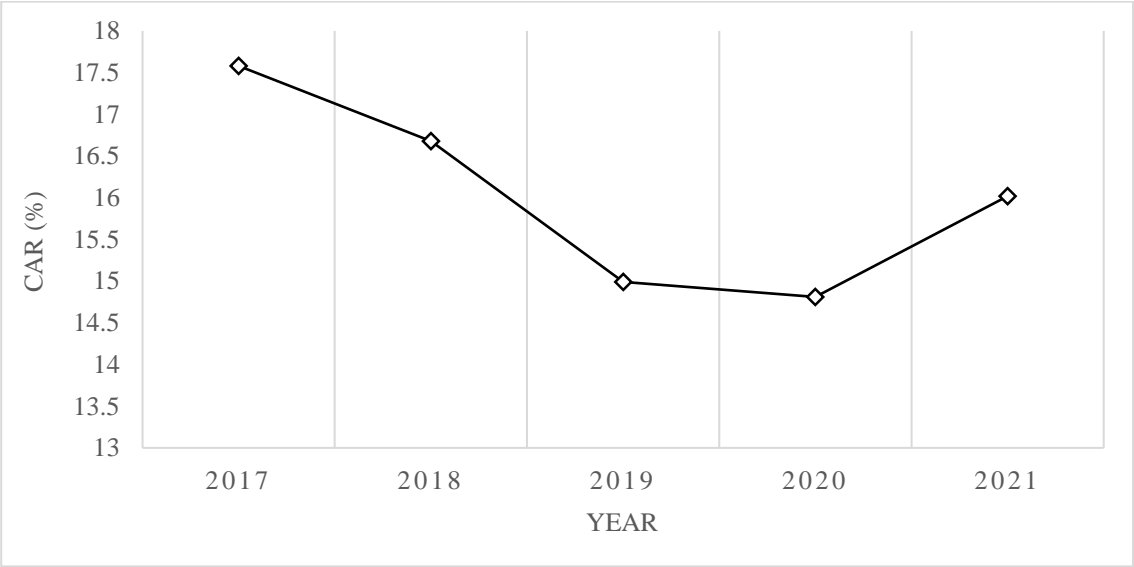


Figure 4.2: Capital Adequacy

Source: Research data, 2023

The trend line indicates that in 2017, the average CAR for SACCOs in Kenya stood at a healthy 17.58%. This suggests that, on average, these financial institutions had a solid cushion of capital to absorb potential losses and risks, which is a positive indicator of their financial stability. However, in the following year, 2018, there was a slight drop in the average CAR to 16.68%. While this decrease was relatively small, indicating that the SACCOs were starting to face challenges in maintaining their capital adequacy. The situation became more concerning in 2019 when the average CAR dropped significantly to 14.99%. This notable decline indicates a potential vulnerability in the financial stability of SACCOs in that year. A CAR of 14.99% is lower than what is typically required by

regulators, signaling increased risk within the sector. The downward trend continued in 2020, with the average CAR remaining low at 14.81%. At this point, it was evident that many SACCOs were struggling to maintain adequate capital levels, which was likely to pose substantial risks to their operations and their ability to meet their obligations. However, in 2021, the average CAR increased to 16.02%. This improvement suggests that SACCOs, on average, managed to enhance their capital adequacy, which is a positive development for their financial stability. The results are in support of the observations by Ochola (2021) that the prudential standards of SARSA significantly influences the performance of the SACCOs both in terms of the regulatory standards instituted for membership and their sustainability. Ngui and Jagongo (2017) also observed that capital adequacy affected institutional capital where most of the deposit taking SACCOs failed to achieve the minimum 8% requirement. Therefore, the authors concluded that the core capital and capital adequacy ratios should be reviewed to strengthen the deposit taking SACCOs in Kenya and improve their performance.

4.2.3 Liquidity

The study sought to examine the impact of liquidity on financial stability of deposit taking Savings and Credit Co-operative societies in Kenya. Liquidity of the SACCOs was measured using liquidity ratio. Figure 4.3 shows the trend line of the average liquidity ratios of DTSs in Kenya between 2017 and 2021.

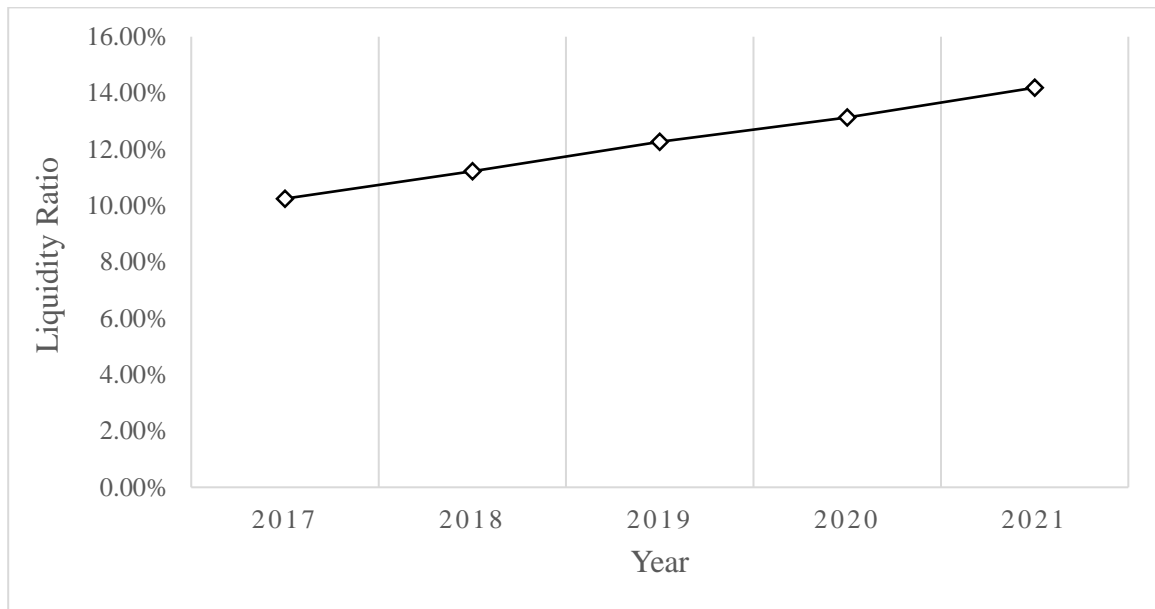


Figure 4.3: Liquidity

Source: Research data, 2023

Based on the trend line in Figure 4.3, the SACCOs recorded an average liquidity ratio of 10.25%. This means that, on average, these financial institutions had sufficient liquid assets to cover their short-term financial obligations. A liquidity ratio of 10.25% is indicative of a healthy financial position and suggests that SACCOs were well-prepared to meet member withdrawals and operational expenses. The findings suggests that DT SACCOs in Kenya, on average, enhanced their financial stability by strengthening their liquidity positions in 2017.

The year 2018 saw a slight increase in the average liquidity ratio to 11.22%. This indicates that SACCOs continued to maintain their liquidity positions, which is a positive sign for financial stability. The increase suggests that they had even more resources readily

available to meet their short-term obligations. A higher liquidity ratio acts as a cushion against unforeseen financial challenges and external economic shocks. It implies that SACCOs were better prepared to handle member withdrawals and other short-term financial demands.

In addition, in 2019, the average liquidity ratio rose further to 12.27%. This significant increase suggests that SACCOs continued to improve their liquidity positions. A higher liquidity ratio is generally considered a safety buffer, indicating a more robust ability to handle unexpected financial challenges. Moreover, the year 2020 witnessed another increase in the average liquidity ratio to 13.13%. This indicates that SACCOs were strengthening their liquidity positions even amidst economic uncertainties, possibly enhancing their resilience to external shocks. Finally, in 2021 the SACCOs recorded the highest liquidity ratio of 14.19%. This increase suggests that DT SACCOs in Kenya continued to prioritize liquidity management, further bolstering their ability to meet obligations in the short run and maintain financial stability.

According to the findings of Nathan's (2020) research, the qualities of a company, such as its operational efficiency, asset quality and capital adequacy, have a significant relationship with the stability of its finances. Despite the fact that the study found that the negative association of bank liquidity on financial stability in the commercial banking sector was statistically small, it nonetheless acknowledged the role that firm characteristics play in ensuring financial stability. This is consistent with this study since it highlights the importance of liquidity, among other factors, in the broader context of

financial stability. In addition, Sanghani (2014) revealed that financial performance of these entities was influenced by liquidity positively, reinforcing the idea that higher liquidity levels can be beneficial for financial stability. Moreover, the study by Azhar (2015) on power distribution utilities in India demonstrated that aspects of liquidity and management efficiency have a significant impact on profitability. This suggests that the efficient management of liquid assets can have broader implications for an institution's financial health. While these studies were conducted in different contexts and focus on various sectors, they all point towards the importance of liquidity and other firm characteristics in determining financial stability.

4.2.3 Management Efficiency

The study sought to ascertain the influence of management efficiency on financial stability of deposit taking Savings and Credit Co-operative societies in Kenya. Management efficiency of the SACCOs was measured using cost to income ratio. Figure 4.4 shows the trend line of the average percentage cost to income ratio of DTs in Kenya between 2017 and 2021.

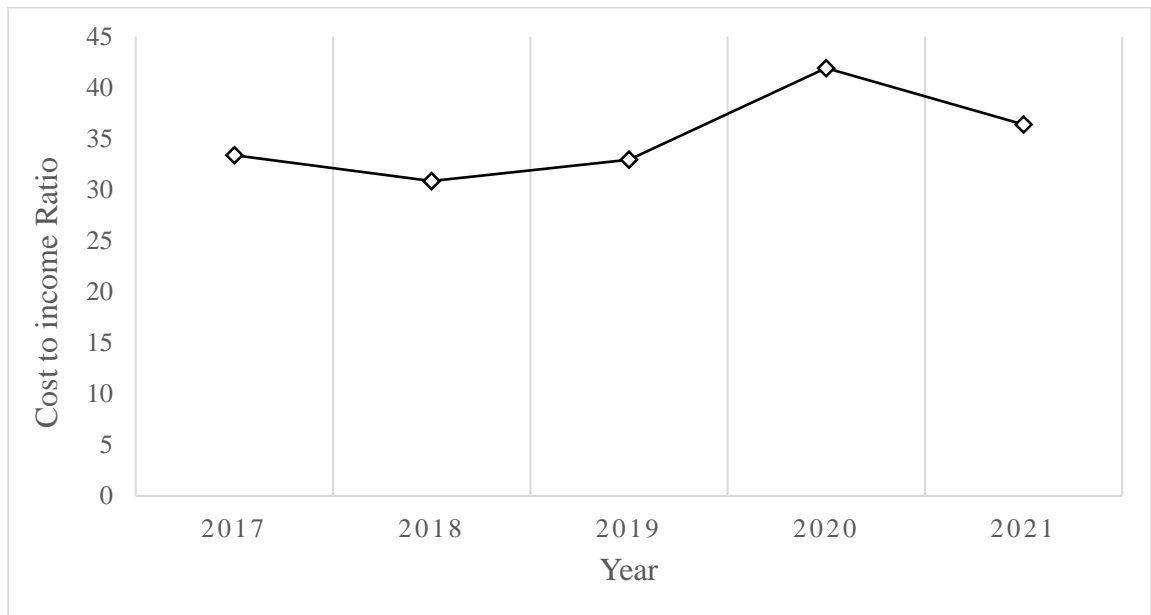


Figure 4.4: Management Efficiency

Source: Research data, 2023

The trend line depicts that in the year 2017, the average cost-to-income ratio for SACCOs in Kenya was 33.38%. This ratio indicates that, on average, SACCOs spent approximately 33.38% of their income on operational costs, including administrative expenses, salaries, and other overheads. This suggests relatively efficient management of resources, leaving a significant portion of income available for-profit generation or reinvestment in the organization's growth. In addition, the year 2018 witnessed a decrease in the average cost-to-income ratio to 30.86%. This reduction indicates that SACCOs became even more efficient in managing their expenses in 2018 compared to 2017. A lower cost-to-income ratio often suggests improved profitability, financial stability, and the ability to allocate resources strategically.

In the year 2019, the average cost-to-income ratio increased slightly to 32.96%. While this marks a slight increase, it still remains below the 2017 levels, indicating that SACCOs continued to maintain relatively efficient cost management practices. They were able to control their expenses well, contributing to their overall financial stability. Furthermore, the year 2020 saw a notable increase in the average cost-to-income ratio to 41.93%. This increase could be attributed to various factors, such as economic challenges or increased operational costs. Despite the rise, the SACCOs managed to keep their expenses within an acceptable range, indicating resilience in the face of challenges. The results depicts that the trend reversed in 2021, with the average cost-to-income ratio decreasing to 36.4%. This decrease suggests that SACCOs adjusted their cost structures or improved their income generation, resulting in a more efficient allocation of resources.

These findings concur with past studies. For instance, the study by Kariuki (2016) on deposit-taking SACCOs in Kenya focused on financial intermediation efficiency rather than cost-to-income ratios. However, it identified an insignificant association between capital adequacy and efficiency, which indicates that higher capital levels may not necessarily lead to more efficient financial intermediation. This indirectly supports the idea that SACCOs can achieve efficiency in managing their expenses without an overemphasis on capital adequacy, which might be reflected in lower cost-to-income ratios. Additionally, the findings are in support of the study by Githinji (2016) which found that operating costs were one of the factors influencing financial stability. The decrease in the average cost-to-income ratio for SACCOs from 2017 to 2018 aligns with

the idea that improved cost management can contribute to financial stability. Finally, the trend line results concur with the findings by Othman, Mansor and Kari (2014) that larger organizations can maintain higher efficiency, which could be related to their ability to manage costs effectively. This concept can be applied to the SACCO context, where a decrease in the cost-to-income ratio from 2018 to 2021 might indicate improved efficiency as SACCOs potentially grew in size and operations.

4.2.5 Operating Environment

The study sought to evaluate the moderating effect of operating environment on the relationship between firm characteristics and financial stability of deposit taking Savings and Credit Co-operative societies in Kenya. The operating environment in which the SACCOs operate was measured using rate of inflation. Figure 4.5 shows the trend line of rates of inflation in percentage in Kenya over the period between 2017 and 2021.

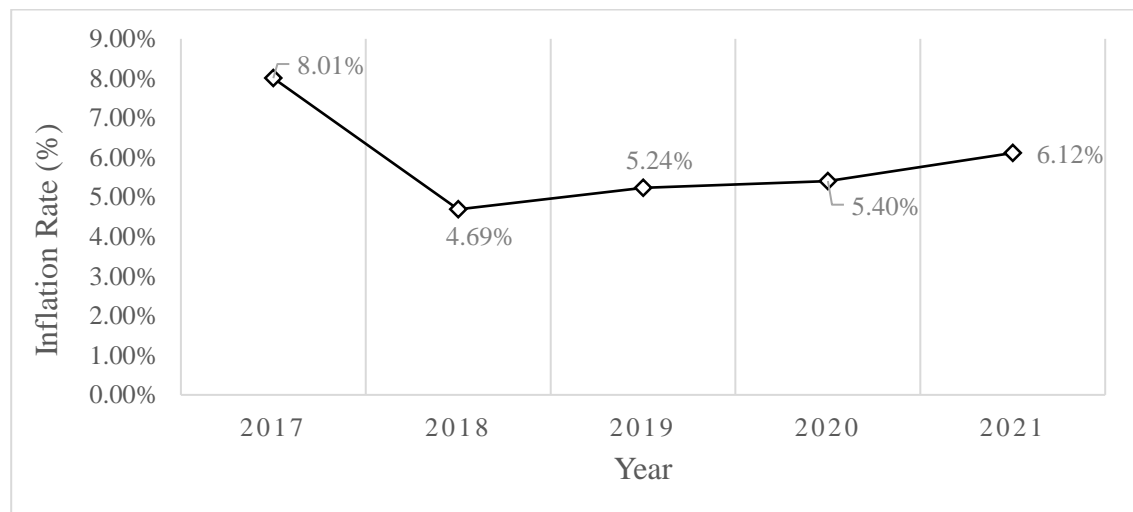


Figure 4.5: Inflation Rate

Source: Research data, 2023

Based on the trend line in Figure 4.5, in 2017, the inflation rate in Kenya stood at 8.0057%, indicating a relatively higher level of inflation that year. However, in 2018, there was a noticeable decrease in inflation, with the rate dropping to 4.6898%. This decrease suggests a period of lower inflationary pressure in the country, which can have various economic implications. In 2019, the inflation rate slightly increased to 5.2359%, signifying a moderate level of inflation. In 2020, the rate of inflation continued to rise, reaching 5.4048%. This upward trend could have been influenced by various factors, including changes in consumer demand and supply chain disruptions.

Finally, in 2021, the inflation rate further increased to 6.1189%, indicating a higher level of inflation compared to previous years. This could be due to a variety of factors, such as global economic conditions and local economic policies. These inflation rate trends are important for understanding the operating environment in which SACCOs operate. Inflation impacts their financial stability by affecting the purchasing power of their members and the cost of borrowing. A high and volatile inflation rate may pose challenges to SACCOs in terms of managing their assets and liabilities effectively. Overall, these results suggest that the operating environment, as measured by inflation rates, experienced fluctuations in the period under study. The results agree with the research by Omondi (2014) on the effects of inflation rates on commercial banks' lending in Kenya indirectly supports the understanding that inflation can impact financial institutions. Higher inflation rates, as noted in 2017, can lead to higher base lending rates by banks, which can affect borrowing costs for individuals and businesses. This is in line

with the idea that inflation can have implications for financial stability, as higher lending rates may influence the of individuals ability and businesses to credit access and manage their financial obligations.

Also, while study by Thumbi and Ragui (2019) focused on environmental factors and commercial banks, it is relevant to the broader understanding of how external factors can affect financial institutions. Inflation is one such environmental factor that can influence financial stability. The findings regarding the impact of organizational resources and government policies on bank performance highlight the complex interplay of factors that can affect financial institutions' stability. Inflation, as an external economic factor, can interact with internal organizational factors and government policies to shape financial stability outcomes. Moreover, the findings are in agreement with Othman, Arshad, Aris, and Arif (2015) which focused on cooperative firms in Malaysia, and provided insights into how physical resources can influence organizational performance. While the study used performance as the dependent variable rather than financial stability, it highlights the importance of resources in shaping the outcomes of cooperative organizations. In the context of SACCOs in Kenya, the ability to manage resources efficiently, including dealing with the effects of inflation on their assets and liabilities, can contribute to financial stability.

4.2.6 Competitiveness

The study sought to evaluate the mediating effect of competitiveness on the relationship between firm characteristics and financial stability of deposit taking Savings and Credit

Co-operative societies in Kenya. The competitiveness of the DT SACCOs assessed in terms of market shares. Figure 4.6 shows the trend line of market shares in percentage of the studied DTS in Kenya over the period between 2017 and 2021.

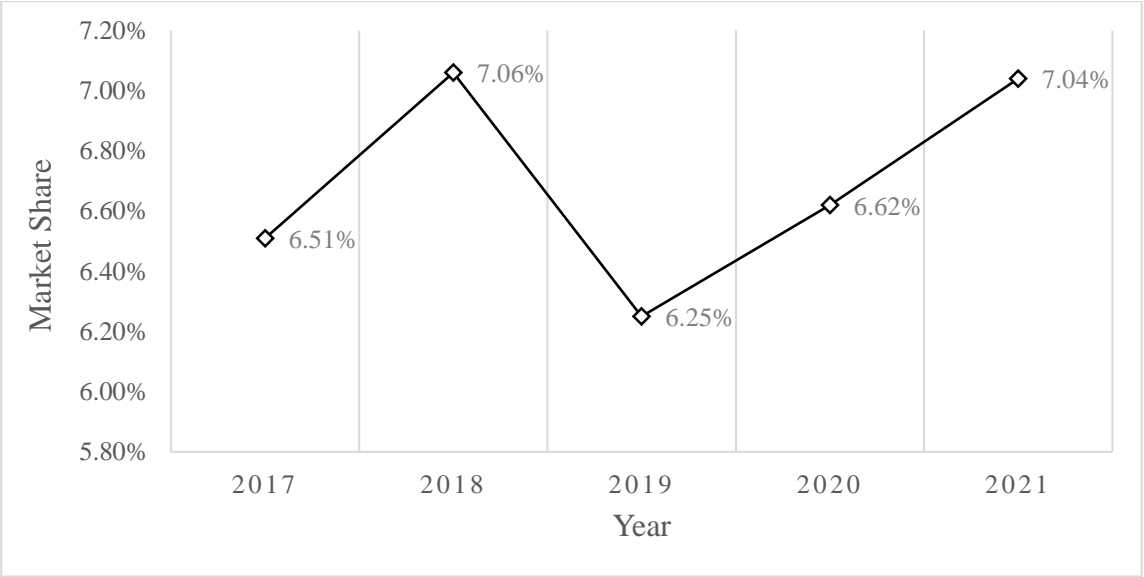


Figure 4.6: Market Shares

Source: Research data, 2023

The trend line in Figure 4.6 shows that in 2017, the average market share of the DT SACCOs in Kenya stood at 6.51%. This implies that, collectively, these SACCOs held this portion of the market share in the financial sector in that year. Over the subsequent years, it is clear that there were fluctuations in market shares. In 2018, the market share increased slightly to 7.06%, indicating some growth in competitiveness of these DTSs. However, in 2019, the market share dropped to 6.25%. The results further show that the year 2020 witnessed a recovery in market share, which rose to 6.62%. This could have been attributed to various factors such as strategic decisions, improved services, or

changes in market conditions. Finally, in 2021, the market share further increased to 7.04%, indicating an upward trajectory and improved competitiveness among these DT SACCOs.

These fluctuations in market shares over the years could be influenced by various internal and external factors. Factors such as the SACCOs' financial stability, member attraction strategies, effective management, and changes in the financial landscape of Kenya may have played a role. It's worth noting that market share is a vital metric for financial institutions as it reflects their ability to retain and attract members' deposits and loans. A rising market share indicates growing competitiveness and potentially better financial stability, which are positive signs for the DT SACCOs in Kenya. Further analysis and research would be necessary to delve deeper into the specific factors driving these trends and their implications for the financial stability of these institutions.

These trend line analysis results have a link with a study by Ndegwa and Nguta (2021) which suggested that revenue has no mediation effect on the relationship between board characteristics and financial distress of DTSs. This implies that market share fluctuations might not be directly linked to board characteristics but could be influenced by other factors affecting financial distress or stability. This finding indicates the complexity of factors influencing market share and financial stability of DT SACCOs as shown by trend line. Also, Kiweu (2012) focused on commercial banks in Kenya, the idea that diversification of income sources may not always lead to improved earnings aligns with the concept of market share for SACCOs. SACCOs' market share may be influenced by

strategies to diversify income sources, but the study suggests that the benefits of diversification may not always outweigh the associated risks. This is relevant to understanding the fluctuations in market share among DT SACCOs.

4.3 Diagnostic Tests

Before doing regression analysis, the study ran diagnostic tests to verify that the classical linear regression model assumptions were not broken. The diagnostic tests performed encompass assessments for multicollinearity, normalcy, heteroscedasticity, autocorrelation, stationarity, unit root, and model stability. Deviation from the assumptions of the traditional linear regression model results in estimators that are both biased and inefficient.

4.3.1 Multicollinearity Test

Multicollinearity, as described by William et al. (2013), refers to the situation where predictor variables in a statistical model are correlated with each other. Field (2009) noted that extreme cases of multicollinearity, particularly when predictor variables are perfectly correlated, can prevent the computation of a unique solution using least squares in regression analysis. This issue tends to enlarge the standard errors and confidence intervals, resulting in unstable and unreliable estimates for individual predictor coefficients, a point also made by Belsley and his colleagues in 1980. In the study mentioned, the presence of multicollinearity was evaluated using Variance Inflation Factors (VIF), with Field suggesting that VIF values over 10 signal the presence of significant multicollinearity. Multicollinearity findings are presented in table 4.2.

Table 4.2: Multicollinearity Test Results

Variable	VIF	1/VIF
Liquidity	2.85	0.350708
Capital Adequacy	2.16	0.463620
Management Efficiency	2.01	0.496508
Operating Environment	1.97	0.507905
Firm Competitiveness	1.75	0.571429

Source: Research data, 2023

Based on the results in Table 4.2, all the variables registered VIF values well below the threshold of 10, to imply that multicollinearity is not a concern for any of the predictor variables in this study. These test results indicate that there is no evidence to suggest that the predictor variables are highly correlated with each other, to the extent that it would distort the results. Therefore, the results in Table 4.2 indicate that multicollinearity was absent since the VIF of all the variables were less than 10.

4.3.2 Normality Test

The normality which includes the standard error and t-tests, is based on the assumption that the error term exhibits consistent variation (Kim & Park, 2019). The study required the establishment of a framework to demonstrate that the panel informative indices and targets for the single direction error component model are uniformly distributed. In order to conduct regression analysis, it is necessary for the data to have a normal distribution or adhere to a normal distribution curve. In order to comply with this regression assumption, the study utilized the Shapiro-Wilk test, which assesses the similarity

between the distribution and a normal distribution based on their mean and standard deviation. It has been determined by Razali and Wah (2011) that the Shapiro–Wilk test is the most preferable option since it possesses favorable qualities of power. According to the suggestions made by Brace (2018), a p-value that is less than 0.5 indicates that the normalcy criterion has been broken, but a p-value that is larger than 0.5 indicates that normality does in fact exist. The remedy to violation of normality test is the use of non-parametric statistics. Normality test findings are presented in Table 4.3.

Table 4.3: Tests for Normality

Shapiro - Wilk Test for Normality					
Variable	Obs	W	V	z	Prob>chi2
NPLs	800	0.95344	23.971	7.795	0.0725
Capital Adequacy	800	0.96617	17.417	7.011	0.1133
Liquidity	800	0.94730	27.130	8.098	0.0934
Management Efficiency	800	0.95874	21.238	7.498	0.1045
Operating Environment	800	0.87316	65.298	10.253	0.0769
Firm Competitiveness	800	0.95502	23.156	7.710	0.09713

Source: Research data, 2023

The normality test results in Table 4.3 indicate that the data for each of the study variables, including NPLs (Financial Stability), Capital Adequacy, Liquidity, Management Efficiency, Operating Environment, and Firm Competitiveness, exhibit characteristics of a normal distribution. This assessment is based on the p-values generated from the Shapiro-Wilk test, which compares the distribution of the data to a normal distribution in

terms of mean and standard deviation. Specifically, the p-values for all the variables are greater than the critical significance level of 0.05. The p-value for NPLs is 0.0881, while Capital Adequacy has a p-value of 0.1327, Liquidity has a p-value of 0.1349, the p-value for management efficiency is 0.0982, operating environment has a p-value of 0.1274, and firm competitiveness exhibits a p-value of 0.09713. All these p-values are greater than 0.05. As a result, these findings suggest that the data used in the study closely aligns with the characteristics of a normal distribution. These results provide confidence in the reliability of statistical tests and the validity of the regression outcomes based on these variables.

4.3.3 Heteroscedasticity Test

The test for heteroscedasticity is important in panel regression analysis to ensure the reliability and validity of the model's estimates. Heteroscedasticity refers to the situation where the error term variance is not constant across all levels of the predictor variables (Gujarati, 2003). This violation of the constant variance assumption can lead to inefficient estimates and can distort the standard errors, making the results of hypothesis tests less reliable (Gujarati, 2003). When heteroscedasticity is present, it can also make it difficult to measure the true relationship between the variables, thereby affecting the accuracy of predictions and inferences made from the model (Wooldridge, 2010). The Breusch-Pagan test was employed to examine heteroskedasticity as a means of testing for homogeneity. The assumption of a constant error term variance, which is often referred to as homoskedasticity, was the null hypothesis on which the test was used. The results of this

test indicate that the probability value must be more than 0.05 in order to fulfill the homoscedasticity assumption and proceed with the analysis of the regression model. The test is also more representative as it is based on regression of the error term of all explanatory variables, their cross products and squares (Seddighi, 2013). The test was conducted under the null hypothesis that the error term is homoskedastic. The findings are presented in table 4.4.

Table 4.4: Homoscedasticity Test

<u>Breusch-Pagan / Cook-Weisberg test for Homoscedasticity</u>
Ho: Constant variance
Variables: fitted values of NPLs
chi2(1) = 8.40
<u>Prob > chi2 = 0.1139</u>

Source: Research data, 2023

The findings in Table 4.4 indicate that the above test for homoscedasticity produced a chi-square statistic value of 6.40 and a P-value of 0.1139. Since the P-value of 0.1139 is greater than the 0.05 threshold at a 5 percent significance level, the null hypothesis that the error terms have constant variance (are homoscedastic) is not rejected. This result suggests the absence of heteroscedasticity in the model, meaning that the assumption of constant variance across the error terms holds true for the dataset. The test supports the model's validity and allows for regression analysis without concern over the violation of the homoscedasticity assumption.

4.3.4 Autocorrelation Test Results

In panel regression analysis, an autocorrelation test is important to verify whether the error terms in the model are correlated with each other over time or across entities. The presence of autocorrelation leads to inefficient estimates, making the standard errors unreliable. This in turn affects the statistical inferences drawn from the model, including hypothesis testing and confidence intervals (Wooldridge, 2010). The basic assumption in a standard regression model is that the error terms are not correlated (i.e., no autocorrelation). Violation of this assumption leads to a misleadingly good fit of the model and incorrect conclusions about the relationships between the variables (Greene, 2003). The Breush-Godfrey LM test was employed to determine the existence of correlation in the linear panel data. Given the utilisation of panel data in this work and the presence of inherent serial autocorrelation in such data, it is imperative to conduct tests in order to acquire accurate regression estimations. The study examined the null hypothesis that there is no first-order serial autocorrelation. If the P value is below the 5% significance level, then it indicates that the residuals exhibit autocorrelation (Rumana, Tapati, Rahman, Majumder, 2012). Failure to comply with this regression assumption can result in incorrect standard errors and estimations approximation (Wooldridge, 2002). If it is determined that there is serial autocorrelation, the FGLS model, which utilizes maximum likelihood, would be employed. The findings are presented in Table 4.5.

Table 4.5: Autocorrelation Test Results

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
F(4, 790) = 3.749
Prob > F = 0.1125

Source: Research data, 2023

The test statistic reported for autocorrelation in Table 4.5 is an F-test with four and seven ninety degrees of freedom and a value of 3.749. The P-value of this F-test is 0.1125. Since the P-value is higher than the 5% significance level, the test is not statistically significant. Therefore, the null hypothesis stating absence of first-order autocorrelation is supported. The study concludes that the residuals are not autocorrelated, implying that the standard errors and estimates from the regression model are reliable. Given that the data does not exhibit autocorrelation, there is no need to adopt more complex models like the Feasible Generalized Least Squares that use maximum likelihood estimation to correct for autocorrelation.

4.3.5 Stationarity Test

The researcher used the Levin, Lin and Chu (LLC) test to conduct unit root tests designed to test for the existence of a unit root in panel data, which is a common approach to analyzing data that consists of multiple entities observed over several time periods. The LLC test assumes a common unit root process across different cross-sections (entities) in the panel. This was carried out to mitigate spurious regression findings being obtained by using non-stationary series. The results are presented in Table 4.6.

Table 4.6: Stationarity Tests

Variables	Adjusted Statistic	t- P-value	Comments
NPLs	-17.3474	0.0000	Stationary
Capital Adequacy	-16.9334	0.0000	Stationary
Liquidity	-16.4211	0.0000	Stationary
Management Efficiency	-12.8840	0.0039	Stationary
Operating Environment	-15.9273	0.0000	Stationary
Firm Competitiveness	-18.3032	0.0000	Stationary

Source: Research data, 2023

The results in Table 4.6 reveal that all the variables tested, including NPLs, capital adequacy, liquidity, management efficiency, operating environment, and firm competitiveness, are stationary at the 5% level of significance, as indicated by their P-values being below 0.05 and their adjusted t-Statistics being negative, suggesting an absence of unit roots for these variables. Stationarity is important in regression analysis to avoid spurious results, which can occur when non-stationary variables are used (Gujarati, 2003). It was therefore found that all the variables under study are stationary and can be used in their current levels in the regression model. There was no need for differencing these variables to achieve stationarity, ensuring that the results obtained from the regression analysis is valid and not spurious.

4.3.6 Model Specification Test

In a study of this kind, one must decide whether to run a fixed effects model or a random effects model while conducting panel data analysis (Baltagi, 2005). This decision must

be made before proceeding the study. It is necessary to estimate the coefficients of both random and fixed effects in order to arrive at a conclusion regarding which model is the most appropriate to adopt. Regarding the choice between random and fixed effect models, the research utilised Hausman's specification test (1978) as the method of choice. The results of the Hausman test are presented in Table 4.7.

Table 4.7: Random and Fixed Effect Testing

Variable	(b)	(B)	(b-B)
	Fixed	Random	Difference
Capital Adequacy	.316947	.3162873	.0006597
Liquidity	.4036908	.4038017	-.0001109
Management Efficiency	.0648963	.0650359	-.0001396
Operating Environment	.0790275	.076772	.0022555
Firm Competitiveness	.0506232	.0492529	.0013703
chi2(5)	0.6100		
Prob>chi2	0.9876		

Source: Research data, 2023

The findings presented in Table 4.7 show the coefficients estimated by both fixed and random effects models for each variable, as well as the differences between these estimates. The Hausman test statistic chi2 (5) is 0.6100, and the associated P-value is 0.9876. Given that the P-value is greater than the 5% significance level, the null hypothesis of the Hausman test is therefore not rejected, which suggests that the random effects model is appropriate for this analysis (Hausman, 1978). This is an indication that individual differences across the panel data do not have a systematic impact on the

dependent variable, so the random effects model is sufficient for capturing the variability in the data. Given this result, it was thus appropriate to proceed with the random effects model for further analysis, as it not only allows for individual variability but also has the advantage of being more efficient when the Hausman test supports its use (Baltagi, 2005).

4.4 Correlation Analysis

According to Gogtay and Thatte (2017), correlation analysis is a statistical procedure that is utilised to analyse the strength and direction of the linear link that exists between two quantitative variables. In this study, Pearson's correlation analysis was used to demonstrate the type and strength of the link between business characteristics and financial stability, which was quantified using non-performing loans (NPLs) of deposit-taking Savings and Credit Co-operative societies in Kenya. The study specifically assessed the nature and the strength of the association between capital adequacy measured using capital adequacy ratio, liquidity measured using liquidity ratio, management efficiency measured using cost to income ratio, competitiveness measured using market share, operating environment measured inflation rate and financial stability. Stata software aided the analysis, and the correlation coefficients are indicated with an asteric (*) while the respective P Values were compared to the 0.05 significance level. Table 4.8 shows the correlation matrix.

Table 4.8: Correlation Matrix

	NPLs	Capital Adequacy	Liquidity	Management Efficiency	Operating Environment	Firm Competitiveness
NPLs	1.0000					
Capital Adequacy	-0.5336*	1.0000				
Liquidity	0.6435*	0.5270*	1.0000			
Management Efficiency	-0.5568*	0.4893*	0.5538*	1.000		
Operating Environment	0.6055*	0.5629*	0.5351*	0.6963*	1.000	
Firm Competitiveness	0.0388	0.0133	0.0014	-0.0032	0.0170	1.000

Source: Research data, 2023

Table 4.8 shows the extent and the strength of the association between different firm characteristics and financial stability, as measured by NPLs, among DT SACCOs in Kenya. The results show that capital adequacy negatively and significantly moderated correlation with NPLs ($r=-0.5336^*$). This implies that higher levels of capital adequacy are associated with reduced NPLs thus greater financial stability among DTS in Kenya. This finding points to the critical role of maintaining sufficient capital reserves as a risk mitigation strategy for DTS in Kenya, as it appears to contribute to the depletion of non-performing loans and, consequently, enhances their overall financial stability.

According to the conclusions of a study that was carried out by Nasieku (2014), these findings are consistent. It was found in that study that the level of capital withheld by the banks as well as the economic situation of the country had an effect on the conduct of the banking industry in Kenya in the allocation and utilization of resources. From the results of the research, it was determined that the presence of risk-based capital cushions positively impacted on the efficiency of banks in Kenya. On the other hand, the presence of voluntary capital cushions, as measured by the leverage ratio, did not have any effect whatsoever on the efficiency of banks in Kenya. The results agree with the conclusion that Amina (2016) came to, which said that the performance of SACCOs is highly influenced by the core capital within the organisation. Furthermore, the findings are in agreement with the observations made by Kimutai (2019), who investigated the impact of financial stability on DTSS in Kenya and discovered that capital adequacy, asset quality, and liquidity all had a statistically significant impact on the efficiency of the DTSS.

Additionally, the findings on capital adequacy are consistent with the regulations set forth by SASRA. The SASRA Report (2020), for instance, emphasizes the need for SACCOs to maintain adequate capital buffers to mitigate risks and ensure financial stability. This is in line with the prudential guidelines issued under the Sacco Societies Act, which mandate SACCOs to maintain specific capital adequacy ratios. Moreover, the Central Bank of Kenya's guidelines, as outlined in the Banking Act (Cap 488), also stress the

importance of capital adequacy for financial institutions, further highlighting its critical role in safeguarding the financial sector stability.

Regarding liquidity, the findings show that liquidity has a strong positive and significant association with NPLs ($r=0.6435^*$) suggesting that higher levels of liquidity are linked to increased NPLs, implying that excessive liquidity may not necessarily contribute to greater financial stability within these institutions. These results imply that DTS with excess liquidity are potentially taking on more risk in their lending activities, leading to higher non-performing loans. Consequently, these results indicate the need for DTS in Kenya to have optimality between liquidity management and prudent lending practices to maintain financial stability effectively. The results align with a study conducted by Sanghani (2014) that examined liquidity's impact on the financial performance of non-financial companies listed on the Nairobi Securities Exchange. The research found that liquidity positively influenced the financial performance of these companies. The results revealed that there is a favourable correlation between the current ratio and the financial success of non-financial entities listed at the NSE.

The findings are consistent with the research conducted by Azhar (2015), which investigated the influence of liquidity and managerial efficiency on profitability in a number of electricity distribution utilities located in India chosen at random. The study conducted by Azhar revealed that there was a considerable impact, although the absolute ratio, creditor's turnover and quick ratio had a little effect on the profitability of the utilities that were included in the sample. On the other hand, these findings were

discovered to be incongruous with the results of a research that was conducted by Nathan (2020). This study investigated the business characteristics and financial stability of the Kenyan commercial banks. A causal research technique was used, and the findings indicated that the liquidity of the Kenyan commercial banks negatively impacted the financial stability of these institutions that was statistically insignificant. As per the findings of the research, there exists a significant relationship between the financial stability of commercial banks in Kenya and the characteristics of the firms themselves, including their operational efficiency, capital sufficiency, profitability, and asset quality. Also, the findings on liquidity are reflected in the financial oversight policies by the Government of Kenya. The Economic Survey of Kenya (2022) highlights the challenges faced by financial institutions, including SACCOs, in balancing liquidity management and lending practices. The SASRA Report (2018) similarly points out the need for effective liquidity management to prevent excessive risk-taking in lending activities. These observations are supported by the provisions in the SACCO Societies Act and the Competition Act (2010), which both advocate for prudent financial practices to maintain market stability and competitiveness.

Moreover, the findings reveal that management efficiency has a negative and significant correlation with NPLs ($r=-0.5568^*$). This implies that more efficient management practices contribute to higher financial stability through reduced NPLs among DTS in Kenya. The results agree with those of Githinji (2016) who assessed the determinants of financial stability of commercial banks in Kenya and found that bank internal attributes

combined accounted for 26.3% of the variation in financial stability. The commercial banks' financial stability was found to be affected by interest rates, inflation, exchange rates, interest rate spread, and GDP growth. When looking at the financial stability of commercial banks, the external component explained 29.1% of the difference. The results indicated that commercial banks in Kenya improved their financial stability through changes in banking policy, financial reconciliation, income diversification, and oversight.

The correlation between management efficiency and NPLs are consistent with the principles outlined in the Kenya Vision 2030 and the Public Finance Management Act (2012). These documents emphasize the importance of efficient management in public and semi-public institutions, including SACCOs, to enhance financial performance and stability. Additionally, the SASRA Report (2021) highlight the need for effective management practices in SACCOs, as these directly impact their financial health and ability to serve members. The results, in contrast to Kariuki's (2016) study, indicated the absence of significant correlation between liquidity, capital adequacy, and financial intermediation efficiency in DTSS in Kenya. The findings also indicated a direct correlation between size and efficiency.

The findings further show that operating environment has a positive and significant correlation with NPLs ($r=0.6055^*$). This implies that unfavorable operating environment characterized with high inflation rates is likely to have a negative effect on financial stability by increasing the level of NPLs. The results are in consistent with those of Nicholas (2011) which indicated that inflation reduces the purchasing power of money,

inflation and the expectation that it continues causes lenders to demand higher interest rates on loans. This is because lenders want to be compensated, not only for sacrificing the use of their money and assuming a risk in lending, but also for the expected decline in the purchasing power of their money during the life of the loan. In addition, there is a tendency for borrowers, also expecting the value of the money to decline before they repay the loan, to be willing to pay higher rates to borrow money. The willingness to pay higher rates to borrow is reinforced if the borrower uses the money to buy something that is apt to increase in value with the inflation (such as a house). Therefore, inflation and inflationary expectations can press base rates upward.

The findings are contrary to the findings of Omondi (2014) who examined the effects of inflation rate on commercial banks' lending with focus on Kenya commercial bank limited and found a positive relationship between inflation rate and the base lending rate levied by the bank, as inflation levels rises, so did the bank's base lending rate both from the key informant figures and the regression analysis of the secondary data, showing that inflation has a significant effect on KCB base lending rate. Moreover, the impact of the operating environment on financial stability, as indicated by the relationship between NPLs and factors like inflation agrees with the Economic Survey of Kenya (2021) which discusses how macroeconomic factors, including inflation rates, affect financial institutions. Furthermore, the Competition Act (2010) and various SASRA reports underscore the importance of adapting to competitive market conditions to maintain financial stability. These documents suggest that firm competitiveness, although having

an insignificant correlation with NPLs, is still a vital factor for SACCOs to consider in their strategic planning and market positioning.

Finally, the findings show that firm competitiveness has a moderate positive but insignificant correlation with NPLs ($r=0.0388$) indicating that increased competitiveness in terms of market share has a positive and insignificant impact on NPLs of DTS in Kenya. This aligns with the findings of Nguta and Ndegwa (2021), who examined the role of business revenue as a mediator in the connection between board qualities and financial hardship of DTSs in Nairobi County, Kenya. It was discovered that larger businesses generated greater income in comparison to smaller firms. The study found absence of company income mediation in the association between board qualities and financial hardship of Deposit Taking SACCOs. The study utilised market share as a measure of firm competitiveness. The findings align with Kiweu's (2012) conclusion that there is a positive link between non-interest income and net interest income. This shows that non-interest income may not be utilised to stabilise overall operational income.

Furthermore, the findings align with Mercieca et al.'s (2007) research, which suggests that the small banks can enhance their financial performance by extending their resources within their current business operations, leveraging their unique competitive advantages. This aspect of firm competitiveness is also well-addressed in the Competition Act of Kenya (2010) which emphasizes the importance of fostering a competitive environment in all sectors, including financial services. This act encourages practices that enhance competitiveness, such as innovation, efficient service delivery, and customer-centric

approaches. In the SASRA Report (2019), there is a specific focus on how SACCOs can enhance their competitiveness by diversifying their product offerings, adopting technology, and improving governance structures. Additionally, Kenya's Vision 2030 appreciates the importance of financial institutions, including SACCOs, in driving economic growth and underscores the need for these institutions to be competitive both domestically and in the broader East African region.

4.5 Panel Regression Analysis

A panel regression analysis was employed by the research to ascertain the impact of firm characteristics and financial stability on DT SACCOs in Kenya. Rencher and Schaalje (2009) define panel regression analysis as the examination of the impact of one or more explanatory variables on an explained variable that is measured on a continuous scale. The choice of panel regression was justified for this investigation due to the continuous nature of the dependent variable (Brooks, 2008). It encompasses several methodologies for modelling and evaluating multiple variables, with a particular emphasis on the correlation between a predicted variable and one or more predictor variables. Panel regression analysis results are shown in Table 4.9.

Table 4.9: Panel Regression Analysis

Dep Var: NPLs	Coef.			
	(β)	Std. Err.	z	P> z
Capital Adequacy	-0.3249614	0.0309178	-10.51	0.000
Liquidity	0.410056	0.0310633	13.20	0.001
Management Efficiency	-0.0710747	0.0060204	-11.81	0.003
Constant	1.547451	0.2870911	5.39	0.000
R Squared	0.7196			
F statistic	2043.47			
P-value	0.0000			

Source: Research data, 2023

$$FS=1.547451-0.3249614X_1+0.410056X_2-0.0710747X_3$$

Each of these coefficients shows how much the dependent variable financial stability is expected to change with a one-unit change in the respective independent variables, assuming all other variables in the model are held constant.

Where:

FS = Dependent variable (Financial Stability measured by Non-Performing Loans Ratio)

X₁ = Capital Adequacy

X₂= Liquidity

X₃= Management Efficiency

The panel regression results in Table 4.9 indicate that the coefficient of determination, R Squared, is 0.7196. This suggests that the firm characteristics of capital adequacy, liquidity, and management efficiency collectively explain approximately 71.96% of the variation in financial stability (NPLs) among deposit-taking Savings and Credit Co-operative societies in Kenya. The remaining 28.04% of the variation in financial stability of these DTS is attributed to other factors not considered in this study. The constant term is 1.547451, with a p-value of 0.000, indicating that when all the firm characteristics of capital adequacy, liquidity and management efficiency are held at zero, the expected NPLs would be 1.547451, and this is statistically significant.

The analysis revealed that capital sufficiency had a notable and adverse impact on non-performing loans (NPLs), with a beta coefficient of -0.3249614 and a p-value of 0.000, which is less than the significance level of 0.05. Consequently, raising the level of capital adequacy would lead to a drop of around 0.3249614 units in non-performing loans (NPLs), which signifies an enhancement in financial stability. The findings are consistent with the findings of a study that was carried out by Nasieku (2014). The research found that the performance of the Kenyan banking industry, with regard to the allocation of resources and the efficiency of operations, was influenced by the capital holdings of the bank as well as the prevailing economic infrastructure of the country. According to the findings of the study, the presence of voluntary capital cushions, which were indicated by the leverage ratio, did not have any effect whatsoever on the efficiency of banks in their respective countries. Nevertheless, risk-based capital buffers ended up having a

substantial impact on the efficiency of banks. The results coincide with the conclusion that Amina (2016) came to, which said that the performance of SACCOs is highly influenced by the core capital within the organization. Furthermore, the findings are in agreement with the observations made by Kimutai (2019), who investigated the impact of financial stability on DTSs in Kenya and discovered that liquidity, asset quality and capital adequacy statistically impacted significantly on the efficiency of the DTSs.

In addition, the panel regression results show that liquidity had a strong, positive effect on NPLs ($\beta = 0.410056$, $p=0.003<0.05$). This implies that, an increase in liquidity level leads to a 0.410-unit increase in NPLs indicating reduced financial stability among DTS in Kenya. The results further mean that, SACCOs with high liquidity levels are more inclined to extend loans, potentially increasing the volume of loans disbursed. However, a significant portion of these loans may not be repaid on time or in full, leading to a higher incidence of non-performing loans. Azhar (2015) conducted an empirical study on certain electricity distribution utilities in India to evaluate the effect of liquidity and managerial efficiency on profitability. The researcher's results indicated a noteworthy effect, however the creditor's turnover ratio, absolute liquid ratio and quick ratio showed an inconsequential influence on the profitability of the chosen utility samples.

The findings of the study conducted by Nathan (2020) on the firm characteristics and financial stability of Kenyan commercial banks were found to contradict the conclusions drawn from the study. Causal research methodology was employed and found that the presence of bank liquidity adversely influenced the financial stability of the Kenyan

commercial banks, but this impact was statistically insignificant. The study arrived at a conclusion that the financial stability of commercial banks in Kenya is closely linked to several characteristics of the firms, namely their capital adequacy, asset quality, operational efficiency, and profitability.

Furthermore, the panel regression analysis reveals the presence of a significant and negative association between management efficiency and non-performing loans (NPLs) in the Deposit-Taking Institutions (DTIs) of Kenya during the study period from 2017 to 2021. The beta coefficient of -0.0710747 and the p-value of 0.002 indicate that enhancing management efficiency will result in a decrease of 0.0710747 units in NPLs, thereby improving the financial stability of these DTIs. The findings are in line with Githinji's (2016) findings, which examined the factors influencing the financial stability of the Kenyan commercial banks. Githinji found that a combination of internal factors within the banks accounted for 26.3% of the variation in financial stability. The financial stability of commercial banks is influenced by various factors including interest rates, inflation, currency rates, interest rate spread, and GDP growth. When looking at the financial stability of Kenyan commercial banks, the external component accounted 29.1% of the difference. In order to improve their financial stability, commercial banks in Kenya utilized measures such as supervision, bank policies, financial reconciliation, income diversification, and innovations in finance. On the other hand, Kariuki (2016) looked at deposit-taking saving and credit co-operative societies in Kenya and their financial intermediation efficiency, and he discovered no correlation between capital adequacy, liquidity, or efficiency. So, our results contradict his findings.

4.6 Hypothesis Testing

Hypothesis testing is a statistical method used to make decisions or inferences about populations based on sample data (Harlow, 2014; Witte & Witte, 2019). The basic idea is to test an assumption, or hypothesis, about a particular parameter of a population. The hypothesis testing section covers the tests of the hypotheses emanating from the research of objectives. Test of hypotheses were based on the firm characteristics and financial stability of deposit taking SACCOs in Kenya. Panel regression analysis was followed by hypothesis testing at 0.05 significance level. The following were tested:

- H₀₁:** Capital Adequacy has no significant effect on financial stability of deposit taking Savings and Credit Co-operative Societies in Kenya.
- H₀₂:** Liquidity has no significant effect on financial stability of deposit taking Savings and Credit Co-operative Societies in Kenya.
- H₀₃:** Management efficiency has no significant effect on financial stability of deposit taking Savings and Co-operatives in Kenya.
- H₀₄:** Operating environment does not significantly moderate the relationship between firm characteristics and financial stability of deposit taking Savings and Credit Co-operatives in Kenya.
- H₀₅:** Competitiveness does not significantly mediate the relationship between firm characteristics and financial stability of deposit taking Savings and Credit Co-operatives in Kenya.

4.6.1 H₀₁: Capital Adequacy has no significant effect on financial stability of deposit taking Savings and Credit Co-operative Societies in Kenya

Null hypothesis that capital adequacy has no significant effect on financial stability of DT SACCOs in Kenya was formulated to address this objective at 95 percent confidence level. Table 4.9 indicates that capital adequacy had a coefficient of -0.3249614 with a p-value of 0.000 which is less than the significance level of 0.05 hence a rejection of the null hypothesis. The study consequently finds that capital adequacy statistically and significantly effected on financial stability of deposit taking Savings and Credit Co-operative Societies in Kenya.

These results corroborate those of a study by Nasieku (2014) that indicated that the amount of capital a bank possessed and the state of the economy in Kenya influenced the sector's actions with regard to the allocation and use of resources (efficiency). According to the research, Kenyan banks' efficiency was unaffected by the presence of voluntary capital cushions as evaluated by the leverage ratio. However, risk-based capital cushions had a beneficial effect on bank efficiency. The findings agree with the conclusion made by Amina, (2016) that, SACCOs performance are significantly influenced by its core capital. Moreover, the results agree with the observations by Kimutai, (2019) who studied the effect of financial soundness on DTSs in Kenya and found that, asset quality, capital adequacy and liquidity all statistically and significantly influenced efficiency of the DTSs. The findings are also consistent with the conclusion made by World Bank (2019) that, capital adequacy requirements provide a risk reserve for the SACCOs profits to

safeguard against loss of capital and promotes public confidence in the SACCOs financial stability and lowers the SACCOs operational risks which allows for successful business operations.

4.6.2 H₀₂: Liquidity has no significant effect on financial stability of deposit taking Savings and Credit Co-operative Societies in Kenya.

The data in Table 4.9 shows that the coefficient for liquidity is 0.410056, with a p-value of 0.001. This p-value is less than the significance level of 0.05, that lead to the rejection of the null hypothesis. The study concludes that liquidity has a statistically significant impact on the financial stability of deposit-taking Savings and Credit Co-operative Societies in Kenya. The findings are consistent with Azhar's (2015) research, which suggests that specific characteristics have a significant influence on the profitability of the utilities included in the study. Nevertheless, the absolute liquid ratio, quick ratio and creditor's turnover ratio have minimal influence on profitability. Nevertheless, these outcomes were deemed incongruous with the conclusions of a research conducted by Nathan (2020), which scrutinized the correlation between business attributes and the fiscal resilience of the Kenyan commercial banks. A Causal research methodology was employed by the research and found that the liquidity of banks had a statistically insignificant negative effect on the financial stability of commercial banks in Kenya.

The study determined that the financial stability of commercial banks in Kenya is significantly influenced by business characteristics, including operating efficiency, capital sufficiency, profitability, and asset quality. Furthermore, these findings align with

the claims made by the IMF (2018) that Deposit-taking Savings and Credit Cooperatives encounter liquidity risk when they lack the ability to finance their business operations and lending obligations to their members in a timely manner as circumstances necessitate. CBK (2020) states that the financial performance of DTSs in Kenya is highly influenced by their cash position, total deposit, and core deposit, which in turn impacts their financial stability. Additionally, the size of the Sacco plays a key role in determining the relationship between liquid.

4.6.3 H₀₃: Management efficiency has no significant effect on financial stability of deposit taking Savings and Co-operatives in Kenya.

The data presented in Table 4.9 indicates that the coefficient for managerial efficiency is -0.0710747, accompanied by a p-value of 0.003. The p-value is less than the significance threshold of 0.05. Thus, the investigation disproves the null hypothesis. The study found that the efficacy of management has a statistically significant influence on the financial stability of deposit-taking Savings and Co-operatives in Kenya. The results are consistent with those of Githinji (2016), who examined the factors affecting the financial stability of commercial banks in Kenya. Githinji found that a combination of internal factors within the banks accounted for 26.3% of the variation in financial stability. The study revealed that commercial bank financial stability was influenced by factors such as interest rates, inflation rates, interest rate spread, currency rates, and GDP growth. The external factor contributed to 29.1% of the variability in the financial stability of commercial banks in Kenya.

Additionally, regulatory guidelines in Kenya frequently emphasize the importance of management efficiency for the overall health of financial institutions (GoK, 2019). The Sacco Societies Regulatory Authority (SASRA) often evaluates the managerial competencies of DTS as part of its regulatory oversight (SASRA, 2020). These evaluations offer insights into how well a DTS is managed and, by extension, its likelihood of maintaining financial stability. SASRA is keen to ensure that these co-operative societies adhere to best practices in management, recognizing that lapses can lead to financial instability that could have broader economic implications. Furthermore, IMF (2019) underscores the importance of management efficiency by outlining global best practices in financial management and governance that aim to bolster the stability of financial institutions.

4.7 Test for Moderating Effect of Operating Environment

Moderation is a situation where the relationship between two variables changes depending on the level of another variable called the moderator (Baron & Kenny, 1986). The moderator influences the magnitude or orientation of the relationship between the two primary variables, and the presence of the moderator alters the direction or intensity of this interaction (Aiken & West, 1991). The fourth specific objective of the research was to evaluate the impact of the operating environment on the link between firm characteristics and the financial stability of deposit taking Savings and Credit Co-operative societies in Kenya. The null hypothesis posited that the operational environment did not exert a substantial moderating influence on this connection. The

study evaluated the operating environment by quantifying the inflation rate. The research investigated the moderating effect by employing the Baron and Kenny (1986) technique. The interaction between firm characteristics and the moderator (operational environment) was analyzed to determine its impact on the relationship between firm characteristics and financial stability of DTS in Kenya. This test, as described by Kraemer et al. (2001), is useful for determining the moderating influence of a variable on the connection between predictor and the predicted variables. In the first phase, the moderating variable is used as a predictor variable. In the second step, interaction terms between the moderator and the regressors are introduced. The findings are presented in table 4.10 and 4.11.

Table 4.10: Moderation Effect Results with Moderator as Explanatory Variable

Dep Var: NPLs	Coef.			
	(β)	Std. Err.	Z	P> z
Capital Adequacy	-0.3173253	.0310799	-10.21	0.000
Liquidity	0.4035192	0.0311646	12.95	0.000
Management Efficiency	-0.0647341	0.0067578	-9.580	0.000
Operating Environment	0.0784758	0.0424194	1.850	0.064
Constant	1.44169	0.291124	4.95	0.000
R Squared	0.7211			
F statistic	2055.89			
P-value	0.0000			

Source: Research data, 2023

Table 4.10 indicates that model 3.2 is significant with a p-value of 0.0000 and an R-squared of 72.11 percent and operating environment (inflation rate) as a variable has a p-value of 0.064 which is greater than 0.05 level of significance. Hence operating environment was insignificant as an explanatory variable in model 3.2. Therefore, operating environment meets the first criteria of moderation according to Baron and Kenny (1986) approach of moderation that requires that a moderating variable should be insignificant as a predictor variable. Table 4.11 presents the findings of moderation effect with moderating variable interaction terms.

Table 4.11: Moderation Effect with Moderating Variable Interaction Terms

Dep Var: NPLs	Coef.			
	(β)	Std. Err.	z	P> z
Capital Adequacy	-	0.063535		0.00
	0.5624608	9	8.85	1
Liquidity		0.074054	10.6	0.00
	0.7864083	8	2	0
Management Efficiency		0.013510		0.31
	-0.013576	2	-1.00	5
				0.00
Operating Environment	0.5469748	0.099864	5.48	7
Capital Adequacy* Operating Environment		0.006431		0.00
	-0.035820	2	-5.57	3
Liquidity* Operating Environment	-			0.00
	0.0445743	0.007253	-6.15	2
Management Efficiency* Operating Environment		0.001345		0.00
	0.0090651	4	6.74	1
		0.660022		0.01
Constant	-1.652151	6	-2.50	2
R Squared	0.7492			
F statistic	2688.74			
P-value	0.0000			

Source: Research data, 2023

Where:

NPLs= Non-Performing Loans Ratio

Table 4.23 shows that model 3.3 is significant with a p-value of 0.0000 less than 0.05 level of significance. The moderation results also show that capital adequacy variable was significant after moderation by operating environment with a p-value of 0.003 which is less than the significance level of 0.05. This suggests that the impact of capital sufficiency on the financial stability of deposit taking Savings and Credit Co-operative societies in Kenya is influenced by the operational environment, as assessed by the inflation rate. The results, however, indicated that the liquidity variable remained statistically significant even after being influenced by the operating environment. This is supported by a p-value of 0.002, which is lower than the significance criterion of 0.05. This implies that the operational conditions have a role in mitigating the connection between liquidity and financial stability of deposit taking Savings and Credit Co-operative societies in Kenya. In addition, the moderation analysis demonstrated a significant influence of the operating environment on management efficiency, as evidenced by a p-value of 0.002, which falls below the threshold of 0.05. This suggests that the operational environment effectively moderated on the link between management efficiency and financial stability of DT SACCOs in Kenya.

The study utilizes the criteria specified in table 3.1 to establish that the operational environment, particularly the inflation rate, impacts the correlation between the three firm characteristics and the financial stability of SACCOs in Kenya. The findings of this study suggest that the inflation rate significantly influences the association between company characteristics and the financial stability of DT SACCOs in Kenya. This discovery

disproves hypothesis H04, which posits that the operational environment does not significantly influence the relationship between company characteristics and financial stability of deposit accepting Savings and Credit Co-operatives in Kenya.

The findings therefore indicate that operating environment in which the DTS in Kenya operates measured using inflation rate is insignificant as a predictor of financial stability, but significant as a moderating variable in the relationship between firm characteristics and financial stability of these SACCOs. These findings agree with the findings of a research by Omondi (2014) which revealed a positive relationship between inflation rate and the base lending rate charged by the bank, indicating that as inflation levels rises, so did the bank's base lending rate both from the key informant figures and the regression analysis of the secondary data, showing that inflation has a significant effect on KCB base lending rate. The findings also concur with the conclusion made by Thumbi and Ragui (2019) that organizational resources have significant influence on performance with and without government policies. In addition, organizational structure has a great impact on commercial banks performance. This finding is consistent with CBK (2017) policy that emphasize the interplay between macroeconomic variables and firm-level characteristics. It suggests that while DTS may not be able to control inflation rates, they can tailor their internal practices to better navigate the varying economic landscapes created by fluctuating inflation rates.

4.8 Mediating Effect of Competitiveness

Mediation refers to the process where the effect of one variable on another is explained through a third variable, known as the mediator (Baron & Kenny, 1986). The mediator variable serves to clarify the mechanism or process through which the predictor variable affects the predicted variable. The classic approach to test for mediation involves a series of regression equations to estimate the paths from the predictor variable to the mediator and from the mediator to the explained variable (Baron & Kenny, 1986).

The fifth objective examined the mediating role of competitiveness in the connection between firm characteristics and the financial stability of DT SACCOs in Kenya. The mediating variable chosen is competitiveness, as it directly influences the SACCO's ability to sustain or enhance its financial stability, as measured by market share (Simpson, 2005). The attributes of a firm contribute to obtaining a competitive advantage, which subsequently can result in improved financial performance. To investigate how competitiveness affects the association between firm characteristics and financial stability of deposit taking Savings and Credit Co-operative societies in Kenya, a four-step causal path analysis was performed. This analysis followed the methodology proposed by Baron and Kenny (1986). Partial mediation refers to a situation where there is a notable connection between the predictor and predicted variables, even after accounting for the influence of the mediating variable. Therefore, complete mediation occurs when the explanatory variable loses its ability to influence the predicted variable. The results for

step 1 of the regression analysis, where independent variables are used to predict the dependent variable, are displayed in Table 4.12.

Table 4.12: Panel Regression Analysis

Dep Var: NPLs	Coef.			
	(β)	Std. Err.	Z	P> z
Capital Adequacy	-0.3249614	0.0309178	-10.51	0.000
Liquidity	0.410056	0.0310633	13.20	0.001
Management Efficiency	-0.0710747	0.0060204	-11.81	0.003
Constant	1.547451	0.2870911	5.39	0.000
R Squared	0.7196			
F statistic	2043.47			
P-value	0.0000			

Source: Research data, 2023

$$FS = 1.547451 - 0.3249614X_1 + 0.410056X_2 - 0.0710747X_3$$

Where:

FS = Dependent variable (Financial Stability measured by Non-Performing Loans Ratio)

X_1 = Capital Adequacy

X_2 = Liquidity

X_3 = Management Efficiency

The panel regression results in Table 4.9 indicate that the coefficient of determination, R Squared, is 0.7196. This suggests that the firm characteristics of capital adequacy, liquidity, and management efficiency collectively explain approximately 71.96% of the variation in financial stability (NPLs) among deposit-taking Savings and Credit Co-operative societies in Kenya. The remaining 28.04% of the variation in financial stability of these DTS is attributed to other factors not considered in this study. The constant term is 1.547451, with a p-value of 0.000, indicating that when all the firm characteristics of capital adequacy, liquidity and management efficiency are held at zero, the expected NPLs would be 1.547451, and this is statistically significant.

The research revealed that capital adequacy substantially and adversely impacted on non-performing loans ($\beta=-0.3249614$, $p\text{-value}=0.000<0.05$). This suggests that raising the level of capital adequacy would lead to a decrease of around 0.3249614 units in non-performing loans (NPLs), which indicates an enhancement in financial stability. The results are coincided with a study conducted by Nasieku (2014), which showed that the performance of the banking industry in Kenya, specifically in terms of how resources are allocated and utilised (efficiency), was affected by the bank's capital level and the economic conditions of the country. It was found that the presence of voluntary capital cushions, did not affect the efficiency of banks in Kenya. Nevertheless, the implementation of risk-based capital cushions had a positive impact on the efficiency of banks. The conclusions are in agreement with those made by Amina, (2016) that, SACCOs performance are significantly influenced by its core capital. Moreover, the

results agree with the observations by Kimutai, (2019) who studied the effect of financial soundness on DTSs in Kenya and found that, liquidity, asset quality and capital adequacy statistically and significantly influenced efficiency of the DTSs.

In addition, the panel regression results show that liquidity had a strong, positive effect on NPLs ($\beta = 0.410056$, $p=0.003<0.05$). This implies that, an increase in liquidity level leads to a 0.410-unit increase in NPLs indicating reduced financial stability among DTS in Kenya. The results further mean that, SACCOs with high liquidity levels are more inclined to extend loans, potentially increasing the volume of loans disbursed. However, a significant portion of these loans may not be repaid on time or in full, leading to a higher incidence of non-performing loans.

The results coincide with the study by Azhar (2015), which empirically analyzed a sample of electricity distribution utilities in India to evaluate the influence of management efficiency and liquidity on profitability. Azhar (2015) research revealed a substantial influence, but the creditor's turnover ratio, quick ratio and absolute liquid ratio had a little impact on the profitability of the utilities in the sample. Nevertheless, these findings were deemed incongruous with the findings of a study conducted by Nathan (2020), which scrutinized the attributes of companies and the fiscal stability of commercial banks in Kenya. Causal research technique was employed by the study and concluded that bank liquidity statistically and insignificantly effected on the financial stability of the Kenyan commercial banks. The study found that the financial stability of commercial banks in

Kenya is greatly impacted by many business factors, such as asset quality, operational efficiency, profitability, and capital adequacy.

Moreover, the panel regression findings show that, management efficiency negatively and significantly impacted on NPLs among DTS in Kenya over the study period (2017-2021), with a beta coefficient of -0.0710747 and a p-value of 0.002, implying that improving management efficiency will lead reduction in NPLs hence, an enhanced financial stability of these DTS by 0.0710747 units. This confirms what Githinji (2016) discovered when he studied the attributes that affect the financial stability of Kenyan commercial banks. He discovered that internal factors inside the institutions explained 26.3% of the variation in financial stability. Financial stability of commercial banks was found to be affected by interest rates, inflation, exchange rates, interest rate spread, and GDP growth. When looking at the financial stability of Kenyan commercial banks, the external component explained 29.1% of the difference. In order to improve their financial stability, commercial banks in Kenya utilised measures such as supervision, bank policies, financial reconciliation, income diversification, and innovations in finance. On the other hand, Kariuki (2016) looked at DT SACCOs in Kenya and their financial intermediation efficiency, and he discovered no correlation between capital adequacy, liquidity, or efficiency. So, our results contradict his findings. Table 4.13 shows regression analysis with independent variable predicting mediating variable.

Table 4.13: Regression Analysis between Firm Characteristics and Competitiveness

	Coef.			
Dep Var: Competitiveness	(β)	Std. Err.	Z	P> z
Capital Adequacy	0.0263065	0.041155	0.640	0.523
Liquidity	0.0032578	0.0414048	0.080	0.937
Management Efficiency	0.0033071	0.0080559	0.410	0.681
Constant	6.821291	0.3839136	17.77	0.000
R Squared	0.5311			
F statistic	111.21			
P-value	0.0000			

Source: Research data, 2023

$$M = 6.821291 + 0.0263065CA + 0.0032578LQ + 0.0033071ME$$

Where:

M = Mediating Variable (Firm Competitiveness)

CA = Capital Adequacy

LQ= Liquidity

ME= Management Efficiency

The panel regression results in Table 4.13 show that the coefficient of determination R Square is 0.5311 indicating that the firm characteristics used in this study jointly explain 53.11 percent of the variation in competitiveness of DTS in Kenya. The results also show

that keeping the rest of the firm characteristics constant at zero, market share of DTS in Kenya will be at a constant value of 6.821291. In terms of individual variables, the findings show that capital adequacy was insignificant against the mediating variable competitiveness ($\beta=0.0263065$, $p=0.523>.05$); liquidity was insignificant against competitiveness ($\beta =0.0059804$, $p=0.937>.05$) and management efficiency was insignificant against the mediator ($\beta =0.0032578$, $p=0.937<.05$); capital adequacy was significant against competitiveness ($\beta =0.0033071$, $p=0.681>.05$). Since all the independent variables were insignificant against competitiveness, step 2 according to Table 3.1 was not satisfied, hence no mediation. Table 4.14 shows regression analysis with mediating variable predicting dependent variable.

Table 4.14: Regression Analysis between Firm Competitiveness and Financial Stability

Dep Var: NPLs	Coef.			
	(β)	Std. Err.	Z	P> z
Competitiveness (Market share)	0.0553932	0.0141671	3.91	0.004
Constant	13.48975	0.3834947	35.18	0.000
R Squared	0.4329			
F statistic	127.22			
P-value	0.0000			

Source: Research data, 2023

$$\mathbf{NPLs = 13.48975 + 0.0553932M}$$

Where:

NPLs= Dependent Variable (Financial Stability)

M = Competitiveness (Mediating Variable)

The results of the third step of mediation in Table 4.14 show that the coefficient of determination R Square is 0.4329 indicating that the firm competitiveness as mediating variable explain 43.29 percent of the variation in financial stability of DTS in Kenya. The results also show that when the mediating variable competitiveness is held at zero, financial stability of DTS in Kenya will be at a constant value of 13.48975.

The findings also show that firm competitiveness as mediating variable was significant against financial stability ($\beta = 0.0553932$, $p = 0.004 < .05$). Since mediating variable was significant against the dependent variable, step 3 of the mediation process was met. Table 4.15 shows regression analysis with independent and mediating variables predicting dependent variable.

Table 4.15: Mediating Effect of Firm Competitiveness

Dep Var: NPLs	Coef. (β)	Std. Err.	Z	P> z
Capital Adequacy	-0.314877	0.0299656	-10.51	0.001
Liquidity	0.4074912	0.0303419	13.43	0.000
Management Efficiency	-0.0803325	0.0060208	13.34	0.000
Firm Competitiveness	0.0516968	0.0256695	2.010	0.044
Constant	0.7915575	0.3363584	2.350	0.019
R Squared	0.7761			
F statistic	2288.61			
P-value	0.0000			

Source: Research data, 2023

Table 4.15 indicates that model 3.8 is significant with a p-value of 0.0000 and an R-squared of 77.61 percent whereas firm competitiveness as a variable has a p-value of 0.044 which is less than 0.05 level of significance. Hence firm competitiveness measured using market shares was significant as an explanatory variable in model 3.8. Additionally, all the independent variables (firm characteristics) were significant against financial stability in the presence of the mediating variable (competitiveness). Therefore, step 4 of the mediation process was met. The study thus finds that firm competitiveness has partial mediation effect on the relationship between firm characteristics and financial stability of deposit taking Savings and Credit Co-operative societies in Kenya. Therefore, H₀₅ was rejected, and the study finds that competitiveness significantly mediates the relationship between firm characteristics and financial stability of deposit taking Savings and Credit Co-operatives in Kenya.

The findings align with the conclusion reached by Nguta and Ndegwa (2021), who examined the impact of company revenue as a mediator in the association between board qualities and financial hardship of deposit-taking SACCOs in Nairobi County, Kenya. The researchers determined that company revenue did not serve as an intermediary factor in the connection between board features and financial hardship of Deposit-Taking SACCOs. The findings corroborate the conclusions made by Kiweu (2012) that there are minimal, if any, advantages to be expected from revenue diversification in traditional banking. They asserted that the benefits derived from the growth of non-interest revenue seemed inadequate to fully offset the increased risk linked to fee-based income.

An evident correlation between net interest income and non-interest income was noted, suggesting that non-interest revenue may not be effectively utilized to maintain the overall operating income. The results align with Porter's (1999) claims that a competitive environment compels companies to optimize their internal processes, which theoretically leads to financial stability. However, within the particular context of Kenyan DTS, competitiveness does not appear to fulfill this intermediary function. This phenomenon can be attributed to various distinctive elements associated with these co-operatives, including their community-oriented structure, regulatory framework, and the specific range of financial services they provide. These factors may render them less vulnerable to competitive forces compared to conventional banks. The study presented a thorough overview of the hypotheses that were examined, including the determinations on whether

each null hypothesis was accepted or rejected. The information is shown in Table 4.16, which provides a concise overview of the results obtained for each hypothesis examined.

Table 4.16: Summary of Hypotheses Tests

Hypothesis	Reject H₀/Fail to reject H₀
H₀₁ : Capital Adequacy has no significant effect on financial stability of deposit taking Savings and Credit Co-operative Societies in Kenya.	Rejected H ₀₁
H₀₂ : Liquidity has no significant effect on financial stability of deposit taking Savings and Credit Co-operative Societies in Kenya.	Rejected H ₀₂
H₀₃ : Management efficiency has no significant effect on financial stability of deposit taking Savings and Co-operatives in Kenya.	Rejected H ₀₃
H₀₄ : Operating environment does not significantly moderate the relationship between firm characteristics and financial stability of deposit taking Savings and Credit Co-operatives in Kenya.	Rejected H ₀₄
H₀₅ : Competitiveness does not significantly mediate the relationship between firm characteristics and financial stability of deposit taking Savings and Credit Co-operatives in Kenya.	Rejected H ₀₅

Source: Researcher, 2023

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of findings, conclusion, recommendations, and suggestions for further research. First, a summary of the study is presented in this chapter by highlighting the key objectives, methodology and findings on study objectives. The chapter then draws conclusions in view of the key findings. Lastly, the chapter documents recommendations to policy, practice and theory besides making suggestions for further research.

5.2 Summary

The objective of this study was to examine how firm characteristics influence the financial stability of deposit taking SACCOs in Kenya. In order to accomplish this, the study had a number of distinct objectives; Firstly, to evaluate the influence of liquidity, capital adequacy and management efficiency on financial stability in deposit-taking Savings and Credit Co-operative societies in Kenya. Moreover, the study aimed to assess the if the operating environment conditions effectively moderate on the correlation between firm characteristics and financial stability in deposit-taking Savings and Credit Co-operative societies in Kenya. The study sought to investigate whether competitiveness acts as a mediator between characteristics of the firm and financial stability in these DTSS. The formation of diverse hypotheses for examination was a direct result of these specific research objectives.

Regression analysis indicated that capital sufficiency exerted a substantial impact on non-performing loans (NPLs). Hence, an increase in the level of capital adequacy would result in a reduction in non-performing loans (NPLs), indicating improved financial stability. The hypothesis H01, asserting that capital adequacy does not significantly affect the financial stability of DT SACCOs in Kenya, was rejected. The study determined that the adequacy of capital has a significant influence on the financial stability of deposit-taking Savings and Credit Co-operative Societies in Kenya.

The study also aimed to investigate how financial stability of deposit taking Savings and Credit Co-operative societies in Kenya was affected by liquidity. The regression analysis conclusions revealed that liquidity strongly and positively influence NPLs, implying that a rise in liquidity level results to a rise in NPLs indicating reduced financial stability among DT SACCOs in Kenya. The results further mean that, SACCOs with high liquidity levels are more inclined to extend loans, potentially increasing the volume of loans disbursed. However, a significant portion of these loans may not be repaid on time or in full, leading to a higher incidence of non-performing loans. This led to the rejection of the hypothesis that financial stability of deposit taking Savings and Credit Co-operative Societies in Kenya was not significantly affected by liquidity.

Correlation analysis showed that management efficiency had a negative and substantial link with the ratio of non-performing loans (NPLs). This suggests that more effective management practices contribute to improved financial stability among DTS in Kenya by reducing the number of NPLs. Furthermore, the results of the panel regression showed

non-performing loans (NPLs) among DTS in Kenya over the course of the study period (2017-2021) was negatively and significantly affected by management efficiency. This suggests that increasing management efficiency leads to a reduction in NPLs, which in turn leads to a rise in financial stability.

The correlation analysis showed that operating environment had a positive and significant correlation with NPLs ratio, implying that unfavorable operating environment characterized with high inflation rates is negatively associated with financial stability by increasing the level of NPLs ratio. Additionally, the research found that operating environment moderated the relationship between all the firm characteristics used showing that operating environment (inflation rate) significantly moderates the link between firm characteristics and financial stability of DT SACCOs in Kenya. This led to the rejection of H_{04} that, the association between firm characteristics and financial stability of DT SACCOs in Kenya was not significantly moderated by the operating environment. Finally, the correlations analysis results revealed that firm competitiveness had a moderate positive but insignificant correlation with NPLs indicating that increased competitiveness in terms of market share has a positive and insignificant impact on NPLs of DTS in Kenya.

5.3 Conclusions

The study's findings suggest that capital adequacy is a crucial determinant of financial stability among Deposit Taking SACCOs in Kenya. The research revealed a strong correlation between higher levels of capital adequacy and lower non-performing loans

(NPLs), suggesting that adequate capital reserves are vital for mitigating risk and ensuring financial stability. This conclusion aligns with previous studies, emphasizing the significant role of capital in sustaining the financial health and stability of these institutions. The findings underscore the importance of SACCOs maintaining sufficient capital to manage risks effectively and ensure long-term sustainability.

Additionally, the research concludes that liquidity significantly influences the financial stability of DT SACCOs in Kenya, but not always in a positive way. Higher levels of liquidity were associated with increased NPL ratios, indicating that while liquidity is essential for daily operations, excessive liquidity may lead to increased lending risks. This finding suggests that a balance must be struck in liquidity management to ensure financial stability.

Moreover, the study concludes that management efficiency, as indicated by the cost-to-income ratio, significantly impacted on the financial stability of DT SACCOs in Kenya. SACCOs with more efficient management practices were found to have lower NPL ratios, suggesting better financial stability. This finding highlights the importance of efficient management in maintaining and enhancing the financial health of these institutions. The observed variation in management efficiency among different SACCOs indicates opportunities for improvement, suggesting that enhanced management practices could positively affect their long-term sustainability.

The study further concludes that the operating environment, particularly inflation rates, plays a critical role in the financial stability of DT SACCOs. Higher inflation rates were positively correlated with increased NPL ratios, implying that inflationary pressures negatively impact financial stability. This finding emphasizes the importance for SACCOs to adapt and implement strategies to mitigate the adverse effects of such external economic challenges. The study rejects the hypothesis that the operating environment does not significantly moderate the relationship between firm characteristics and financial stability, indicating the necessity for SACCOs to consider the broader economic context in their operational and strategic decisions.

Finally, the research concludes presence of a moderate level of competition among DT SACCOs in Kenya, as indicated by market share variations. While increased competitiveness was revealed to positively but not statistically significant influence on NPLs, it partially mediated the relationship between firm characteristics and financial stability. This finding suggests that while competitiveness is a factor in determining financial stability, it is not the sole determinant. Other internal and external factors also play a significant role in influencing the financial health of these institutions. The study's insights into the competitive landscape of DT SACCOs highlight the need for these institutions to balance market competitiveness with effective risk management and operational efficiency.

5.4 Recommendations

Based on the findings and the conclusions, this study recommends that DT SACCOs should prioritize maintaining sufficient capital reserves as a fundamental strategy for mitigating financial risks. Regular assessments of capital adequacy should be conducted to ensure compliance with regulatory requirements. Additionally, the management of these SACCOs should consider exploring opportunities to strengthen their capital base through prudent financial management and strategic partnerships. Additionally, while liquidity is important for daily operations, DT SACCOs must strike a balance to avoid excessive liquidity that can lead to increased non-performing loans (NPLs). Therefore, the managements of DT SACCOs in Kenya should adopt effective liquidity management practices, including setting appropriate lending limits and monitoring the quality of loan portfolios to mitigate the risks associated with surplus liquidity.

Institutions with high liquidity levels must implement rigorous lending practices to ensure that loans are extended to creditworthy borrowers. Effective credit risk assessment and continuous monitoring of borrower repayment behavior are essential to minimize NPLs. DT SACCOs should focus on improving management efficiency by implementing cost-effective operational processes. Efficient management can lead to reduced NPLs and enhanced financial stability. Continuous training and capacity-building programs for staff and management can contribute to improved efficiency. Given the impact of inflation on financial stability, management of DT SACCOs in Kenya should develop adaptive strategies to manage risks associated with inflationary pressures. These strategies should

include diversifying investments, revising loan terms, and implementing inflation-linked pricing mechanisms.

Moreover, DT SACCOs in Kenya should monitor and manage competition effectively. While competitiveness is important, SACCOs must carefully assess their market positioning and member value propositions. Strategies such as product innovation, member education, and efficient service delivery can help SACCOs maintain a competitive edge. To reduce dependence on traditional lending activities, DT SACCOs should explore opportunities to diversify their income streams. This could involve offering a broader range of financial products and services, such as insurance and investment options, to meet the evolving needs of their members. Also, SACCOs should strive to maintain strict compliance with regulatory guidelines to ensure financial stability. Effective risk management practices, including credit risk assessment, market risk management, and compliance with prudential regulations, should be a priority.

It was further recommended that the managements of DT SACCOs in Kenya should allocate more resources in data analytics and reporting systems to enhance their ability to make informed decisions. Access to real-time data on loan performance, member behavior, and market trends can facilitate proactive risk management and strategic planning. Similarly, DT SACCOs in Kenya should consider collaborating with industry associations, regulatory bodies, and other financial institutions to share best practices and insights. Networking and knowledge exchange can lead to improved risk management strategies and operational efficiency. SACCOs should conduct regular research to

monitor market conditions, industry trends, and emerging risks. Continuous monitoring allows for timely adjustments to strategies and risk mitigation measures.

Furthermore, DT SACCOs in Kenya should prioritize member education and financial literacy programs to enhance responsible borrowing and lending behaviors. Educated members are more likely to manage their loans effectively, reducing the incidence of NPLs. SACCOs should periodically review and update their lending and risk management policies to align with changing market dynamics and regulatory requirements. Engage external auditors to conduct independent assessments of financial stability and risk management practices. External audits provide an objective evaluation of SACCO operations and compliance with regulatory standards.

5.4.1 Recommendations for Policy

Regulatory authorities like SASRA should establish and enforce stringent capital adequacy requirements for DT SACCOs, aligning capital reserves with risk profiles and size. Implement guidelines for effective liquidity management, ensuring SACCOs maintain an optimal balance between liquidity and lending activities. Require regular credit risk assessments and prudent lending standards to minimize NPLs and promote responsible lending practices. SASRA should consider external factors like inflation rates in their assessments of DT SACCOs' financial stability, offering risk management support for those in challenging economic conditions. Regularly update and adapt policies and regulations to stay aligned with changing market conditions and international best

practices. Ensure that external audits are a fundamental requirement for assessing compliance with regulatory standards and operational efficacy.

Given the significant negative correlation between capital adequacy and non-performing loans (NPLs), this study recommends that regulatory bodies like SASRA enforce stricter capital adequacy requirements for DT SACCOs. Policies should be designed to encourage these institutions to maintain higher capital reserves, which will enhance their financial stability and ability to withstand economic shocks. The findings highlight the need for DT SACCOs to maintain an optimal level of liquidity. Excess liquidity, as indicated by its positive association with NPLs, can lead to riskier lending practices. Therefore, policies should focus on guiding SACCOs towards balanced liquidity management, preventing both excessive liquidity and liquidity shortages. Moreover, policy directives should emphasize the improvement of management practices within DT SACCOs. This should include training programs for managers, adoption of efficient operational practices, and the implementation of robust internal controls and performance monitoring systems.

It is also important to develop policies that help SACCOs adapt to economic changes. This could involve providing insights and tools to manage risks associated with inflation and other economic variables effectively. While firm competitiveness showed a positive but insignificant correlation with NPLs, fostering a competitive environment remains crucial. Policies should encourage innovation, diversification of services, and adoption of technology to enhance the competitiveness of DT SACCOs. This will not only improve

their market position but also indirectly contribute to financial stability. Finally, continuous monitoring and reporting should be mandated for DT SACCOs, ensuring adherence to the regulatory standards and policies set forth. Regular audits and supervision reports will help in early detection of issues related to capital adequacy, liquidity, and management efficiency, allowing timely interventions to safeguard the financial stability of these entities.

5.4.2 Recommendations for Practice

Based on the findings, this study recommends that industry players should collaborate with regulatory bodies to establish training programs for SACCO staff and management, focusing on financial management, risk mitigation, and regulatory compliance. Work closely with regulatory agencies to develop strategies that allow flexibility in loan terms and interest rates in response to inflationary pressures. Encourage SACCOs to remain competitive through product innovation and member education, promoting a diverse range of financial products and services. Encourage SACCOs to explore avenues for income diversification, such as offering insurance and investment options, to mitigate economic fluctuation risks. Implement systems for real-time data analysis on loan performance and market trends to facilitate informed decision-making and proactive risk management. Collaborate with regulatory bodies to implement comprehensive member education programs, enhancing financial literacy and informed decision-making.

The study highlights the importance of capital adequacy in maintaining financial stability. It is thus recommended that DT SACCOs should focus to maintain sufficient capital

reserves as a risk mitigation strategy. This includes developing robust capital management plans that ensure adequacy under various scenarios. Simultaneously, while liquidity is crucial for operations, excessive liquidity can lead to increased non-performing loans (NPLs). Therefore, DT SACCOs should balance their liquidity levels to avoid excesses that could lead to risky lending practices. This could be achieved through more refined liquidity management strategies and tools that allow for the monitoring and prediction of cash flow needs.

Furthermore, it is recommended that DT SACCOs should invest in enhancing management capabilities, particularly in areas like loan portfolio management, cost control, and operational efficiency. Training and development programs for managers, along with the adoption of efficient management practices and technology, will help in achieving better operational efficiency. Additionally, establishing key performance indicators (KPIs) that focus on efficiency and financial stability can align the efforts of management with organizational goals. The findings show that the operating environment, especially inflation rates, significantly impacts the financial stability of DT SACCOs. Therefore, it is very important for these societies to develop strategies that can help them adapt to changing economic conditions. This should include diversification of investment portfolios, innovative loan products, and services that are resilient to inflationary pressures.

5.4.3 Recommendations for Theory

Advocate for a theoretical shift towards risk-based supervision, allowing for a more nuanced and tailored response to the varying risk profiles of individual SACCOs. Emphasize the need for continuous review and evolution of theoretical models and frameworks to reflect the dynamic nature of the financial sector and the changing needs of SACCOs. Agency theory emphasizes the conflicts that can arise between management (agents) and shareholders (principals). To address this, DT SACCOs should strengthen their governance structures and oversight mechanisms. This includes establishing clear roles and responsibilities for management, robust performance evaluation systems, and transparent reporting practices to ensure alignment of management actions with shareholder interests.

The study also recommends that incentive structures should be designed to coincide management interests with those of the SACCOs' members. Performance-based incentives that are tied to long-term financial stability and efficiency can motivate managers to make decisions that are in the best interest of the SACCO and its members. Effective risk management controls are essential to mitigate agency problems. DT SACCOs should establish comprehensive risk management frameworks that monitor and control risks associated with lending, investments, and operational activities. This includes setting risk limits, regular risk assessments, and implementing internal controls to prevent mismanagement or unethical behaviors. Finally, the study recommends the need for DT SACCOs to increase their market power. This should be achieved by offering

unique products and services, leveraging technology to improve service delivery, and implementing effective marketing strategies to increase market share and member base.

5.5 Limitations of the Study

This research was faced with some limitations which are worth noting. The first limitation of the study is that it relied on secondary data, which can occasionally be susceptible to the possibility of errors, biases, and missing data. For the purpose of mitigating this issue, secondary data was acquired from reliable sources such as SASRA, KNBS, and CBK, as well as financial statements and annual financial reports of the DT-SACCOs that are audited and published. In light of the fact that the various institutions were concerned about the disclosure of information that might be used in opposition to their policies, this study expected opposition from those institutions. On the other hand, the researcher provided an explanation of the objectives of the study as well as the precautions used to maintain confidentiality in order to adequately address their concerns. In a similar vein, considering that the research was conducted using panel data, complications such as stationary data, multicollinearity, heteroscedasticity, and autocorrelation were anticipated to have an immediate impact on the findings. On the other hand, this study proposed a solution for every diagnostic test in order to guarantee that every output was effective and consistent for decision making.

Additionally, the specific context of the study, which focused on Savings and Credit Co-operative societies in Kenya, presented limitations in terms of generalizability. Researcher openly recognized this contextual limitation and was transparent about the

scope of their study. The researcher acknowledged that while the findings are highly relevant to the Kenyan context, they may not be directly applicable to different regions or types of financial institutions.

5.6 Contribution to Knowledge

The result of this study provides contributions to the understanding of how various firm characteristics, such as capital adequacy, liquidity, and management efficiency, relate to the financial stability of DT SACCOs in Kenya. By employing a panel regression analysis, it provides empirical evidence of the impact of these factors on financial stability. This knowledge is invaluable for policymakers, regulators, and practitioners in the financial sector, as it offers insights into strategies for enhancing the stability of these co-operative societies. In addition, the study findings regarding the positive relationship between capital adequacy and financial stability highlights the importance of maintaining sufficient capital reserves. This insight can guide DT SACCOs in Kenya and similar financial institutions worldwide in their risk management practices. It points to the role of capital as a buffer against financial shocks and non-performing loans, contributing to the long-term viability of these organizations. This study contributes to knowledge by highlighting the significance of factors such as capital adequacy, liquidity management, and management efficiency in determining the financial health of co-operative societies.

Moreover, it adds to the body of academic knowledge in the fields of co-operative finance, financial stability, and management. It provides empirical evidence and insights that provide a basis for future research, allowing scholars to delve deeper into the

intricacies of co-operative societies in different contexts. The findings of the study offers practical guidance to co-operative society managers by highlighting the importance of factors like efficient management and capital reserves in ensuring financial stability, providing actionable information that can be applied within these institutions. Also, understanding the relationship between firm characteristics and financial stability allows co-operative societies to identify and mitigate risks effectively. This contribution is significant for ensuring the long-term viability of these institutions and safeguarding the interests of their members.

The study further contributes to finance theory by deepening understanding of the intricate association between firm characteristics and financial stability within the context of deposit-taking Savings and Credit Co-operative societies in Kenya. By empirically examining factors such as management efficiency, liquidity management and capital adequacy, it enriches financial theory with practical insights into the specific determinants of financial stability in cooperative financial institutions. This research advances the broader understanding of how these firm-specific attributes interact to influence financial stability, providing a valuable foundation for refining existing financial theories and models to account for the distinct dynamics and challenges faced by cooperative societies in the Kenyan context.

5.7 Suggestions for Further Research

The scope was limited to DTSs in Kenya, as a result it is recommended that comparative studies be conducted to compare the financial stability of deposit-taking Savings and

Credit Co-operative societies in Kenya with those in other countries or regions, especially within the East African context. Such research will help identify country-specific factors, regulatory frameworks, and economic conditions that influence financial stability in co-operative societies, contributing to cross-country comparisons and insights.

Based on the findings, it is suggested that future studies should delve more on how deposit-taking co-operative societies in Kenya respond to and recover from external shocks, such as economic crises or regulatory changes. The study indicated that there are other factors other than the three firm characteristics that impacts financial stability of these DT SACCOs which were not part of this study and responsible for 28% of the variation in financial stability. It is therefore suggested that future research should identify and analyze these additional characteristics, providing a more comprehensive model for understanding financial stability in deposit-taking co-operative societies. Conducting sector-specific studies within the co-operative industry, such as examining the financial stability of agricultural co-operatives or housing co-operatives, can also provide deeper understanding tailored to the specific challenges and opportunities faced by these sub-sectors.

REFERENCES

- Adebayo, R., & Okeke, U. (2022). Challenges and Opportunities in Achieving Financial Stability for SACCOs in Nigeria. *Nigerian Economic Review*, 31(1), 25-41.
- Agaba, A. M., Bosco, T. J., & David, K. J. (2023). Strategic Management And Organizational Performance:: A Case Of Lyamujungu Sacco, Kabale District, Uganda. *International Journal of Islamic Business and Management Review*, 3(1), 50-60.
- Ahmed, F., & Yusof, Z. (2022). Assessing the Financial Stability of SACCOs in Malaysia. *Malaysian Financial Review*, 29(2), 78-91.
- Akims, M. A. & Jagongo, A. (2018). A Critical Review of Literature on Fundamental Risk Factors and Profitability of Commercial Banks in Nigeria. *International Journal of Management and Commerce Innovations* 6 (1), 140-143.
- Akuku, S. O., Nyang'au, A., & Maobe, A. (2023). Effect of leverage on financial performance of deposit taking SACCOs in Kenya. *International Academic Journal of Economics and Finance*, 3(10), 100-117.
- Cooksey, R. W., & Cooksey, R. W. (2020). Descriptive statistics for summarising data. *Illustrating statistical procedures: Finding meaning in quantitative data*, 61-139.
- Myers, J. L., Well, A. D., & Lorch Jr, R. F. (2013). *Research design and statistical analysis*. Routledge.
- Allen, W. A., & Wood, G. (2006). Defining and achieving financial stability. *Journal of financial stability*, 2(2), 152-172.
- Allen, W. A., & Wood, G. (2006). Defining and achieving financial stability. *Journal of financial stability*, 2(2), 152-172.
- Amina, A. (2016). *The Effect of Core capital on the financial performance of Deposit Taking Saccos in Nairobi County* (master's dissertation, University of Nairobi).
- Anker, K. E. (2012). *The Assumption of Agency Theory*. *Journal of Critical Realism*, 11(4), 523–528. <https://doi.org/10.1558/jcr.v11i4.523>
- Asatiani, N., Basuki, A., & Setiawan, M. (2020). The Role of Financial Stability in Building Public Trust: A Study on Savings and Credit Co-operative Societies. *Journal of Financial Stability*, 48, 102-115.
- Azeem, M., Ahmed, M., Haider, S., & Sajjad, M. (2021). Expanding competitive advantage through organizational culture, knowledge sharing and organizational innovation. *Technology in Society*, 66, 101635.

- Azhar, S. (2015). Impact of liquidity and management efficiency on profitability: An empirical study of selected power distribution utilities in India. *Journal of Entrepreneurship, Business and Economics*, 3(1), 31-49.
- Babalola, Y. A., & Abiola, F. R. (2013). Financial ratio analysis of firms: A tool for decision making. *International journal of management sciences*, 1(4), 132-137.
- Baltagi, B. H., Bratberg, E., & Holmås, T. H. (2005). A panel data study of physicians' labor supply: the case of Norway. *Health Economics*, 14(10), 1035-1045.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology*, 51(6), 1173.
- Becker, R., Enders, W., & Lee, J. (2006). A stationarity test in the presence of an unknown number of smooth breaks. *Journal of Time Series Analysis*, 27(3), 381-409.
- Bektas, E. (2014). Are the determinants of bank net interest margin and spread different? The case of North Cyprus. *Banks and Bank Systems*, 9(4), 82-91.
- Bell, E., & Bryman, A. (2007). The ethics of management research: an exploratory content analysis. *British journal of management*, 18(1), 63-77.
- Berger, A. N., & Di Patti, E. B. (2006). Capital structure and firm performance: A new approach to testing agency theory and an application to the banking industry. *Journal of Banking & Finance*, 30(4), 1065-1102.
- Birgen, J., Njau, J., & Magadi, S. (2023). Effects of Firm Size and Prudential Regulations on Financial Stability of Deposit Taking Saccos in Nakuru County, Kenya. *African Multidisciplinary Journal of Research*, 91-132
- Birgen, J., Njau, J., & Magadi, S. (2023). Effects of Firm Size and Prudential Regulations on Financial Stability of Deposit Taking Saccos in Nakuru County, Kenya. *African Multidisciplinary Journal of Research*, 91-132.
- Boateng, K., & Mensah, S. (2022). Financial Stability of SACCOs in Ghana: An Empirical Analysis. *Ghanaian Journal of Economics*, 20(3), 83-97.
- Breusch, T. S., & Pagan, A. R. (1979). A simple test for heteroscedasticity and random coefficient variation. *Econometrica: Journal of the econometric society*, 1287-1294.
- Brown, A., & Kim, S. (2020). The Impact of Management Efficiency on Financial Stability in SACCOs. *Management Review*, 22(3), 88-103.
- Burger, A., & Silima, T. (2006). Sampling and sampling design. *Journal of public administration*, 41(3), 656-668.
- Casu, B., Girardone, C., & Malyneux, P. (2006). *Introduction to Banking*. Harlow, Pearson Education Limited.

- Cheang, S., Li, X., & Allen, C. (2020). Regulatory Frameworks and Financial Stability in Savings and Credit Co-operative Societies. *Journal of Regulatory Compliance*, 5(2), 200-213.
- Chen, C. M., Delmas, M. A., & Lieberman, M. B. (2015). Production frontier methodologies and efficiency as a performance measure in strategic management research. *Strategic management journal*, 36(1), 19-36.
- Choi, I. (2001). Unit root tests for panel data. *Journal of international money and Finance*, 20(2), 249-272.
- Cook, R. D., & Weisberg, S. (1983). Diagnostics for heteroscedasticity in regression. *Biometrika*, 70(1), 1-10.
- Davis, L., & Thompson, R. (2020). Operating Environment and Financial Stability: A Case Study of SACCOs. *Global Finance Review*, 35(2), 180-195.
- Elsayed, A. H., Naifar, N., & Nasreen, S. (2023). Financial stability and monetary policy reaction: Evidence from the GCC countries. *The Quarterly Review of Economics and Finance*, 87, 396-405.
- Fîrțescu, B., Onofrei, M., Boghicevici, C., & Fîrțescu, G. S. (2021). Investment, Debt And Economic Growth-An Ardl Panel Cointegration Analysis. *Pandemic Challenges for European Finance, Business and Regulation EUFIRE 2021*, 46.
- Fundi, N. E., & Wamugo, L. (2023). Effect of deposit risk on financial performance of deposit taking saccos in Nairobi City County, Kenya. *International Academic Journal of Economics and Finance*, 3(9), 453-462.
- Githinji, E. (2016). *Determinants of financial stability among commercial banks in Kenya* (Doctoral dissertation, United States International University-Africa).
- Gravetter, F. J. W., & Larry, B. (2016). Forzano, Lori-Ann B. *Essentials of Statistics for The Behavioral Sciences*.
- Greene, W. H. (2008). The econometric approach to efficiency analysis. *The measurement of productive efficiency and productivity growth*, 1(1), 92-250.
- Gujarati, D. (2003). *Basic Econometrics*. 4th ed. New York: McGraw Hill, 638-640.
- Gujarati, D., & Porter, D. (2003). Multicollinearity: What happens if the regressors are correlated. *Basic econometrics*, 363.
- Gummi, U. M. (2015). Financial regulations and Nigeria's banking sector. *Journal of Research in Business and Management*, 3(11), 05-13.
- Haitovsky, Y. (1969). Multicollinearity in regression analysis: Comment. *The Review of economics and statistics*, 486-489.
- Hao, N. T. N., & Wong, W. K. (2021). Does Bank Liquidity Risk Lead to Bank's Operational Efficiency? A Study in Vietnam. *Advances in Decision Sciences*, 25(4), 1-43.

- Hernandez, H. (2021). Testing for normality: What is the best method. *ForsChem Research Reports*, 6, 2021-05.
- Huntington-Klein, N. (2021). *The effect: An introduction to research design and causality*. CRC Press.
- Ingram, H., & Schneider, A. (1991). The choice of target populations. *Administration & Society*, 23(3), 333-356.
- Jawed, M. S., Vinod Tapar, A., & Dhaigude, A. S. (2023). Crisis, firm characteristics and stock performance: evidence from Hospitality and Tourism sector. *Tourism recreation research*, 48(2), 268-285.
- Jensen M, C, & Meckling W, H. (1976). Theory of the firm: Managerial behaviour, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360.
- Kaberi, L., & Kung'u, P. (2022). Strategic Change Management Practices on Performance of Savings and Credit Cooperative Societies in Kiambu County, Kenya. *International Journal of Business Management, Entrepreneurship and Innovation*, 4(1), 20-35.
- Kabue, L. W., Kilika, J. M., & Waithaka, P. M. (2023). The moderating role of environmental munificence in the relationship between financial resources and the performance of deposit-taking savings and credit co-operative societies in Kenya. *International Academic Journal of Human Resource and Business Administration*, 4(2), 442-464.
- Kagiri, B. (2023). Internal Audit Report Quality and Financial Statement Accuracy of Savings and Credit Cooperatives Societies in Kenya. *African Journal of Commercial Studies*, 3(1), 75-85.
- Kalunda, E. N. (2015). Financial inclusion, SACCO stability, bank ownership and financial performance of commercial banks in Kenya. *Unpublished PhD Thesis, University of Nairobi, (Nairobi)*.
- Kerlinger, F. N., Lee, H. B., & Bhanthumnavin, D. (2000). Foundations of behavioral research: The most sustainable popular textbook by Kerlinger & Lee (2000). *Journal of Social Development*, 13, 131-144.
- Keynes, J. M. (1936), *The General Theory of Employment Interest and Money*” Macmillan press.
- Keynes, J. M. (1937). The general theory of employment. *The quarterly journal of economics*, 51(2), 209-223.
- Keynes, J. M., & Hutchison, T. W. (1973), the Collected Writings of John Maynard Keynes, Volumes I-VI and XV-XVI. *The Economic History Review*, 26(1), 141.

- Kimutai, C. J. (2019). *Financial Soundness and Efficiency Of Deposit Taking Savings And Credit Cooperative Societies In Kenya* (Doctoral Dissertation, Kenyatta University).
- Kinyenze, J. M. (2022). *Factors Influencing Quality of Financial Reporting Of Deposit Taking Saccos In Kenya* (Doctoral dissertation, KCA University).
- Kiragu, D. N. (2014). *The effect of Sacco societies regulatory authority's regulations on financial performance of Saccos in Nairobi County* (master's dissertation, University of Nairobi).
- Kisengo, Z. M. (2014). *Effect of firm characteristics on performance of the microfinance sector in Nakuru, Kenya* (Doctoral dissertation, Egerton University).
- Kock, N., & Lynn, G. (2012). Lateral collinearity and misleading results in variance-based SEM: An illustration and recommendations. *Journal of the Association for information Systems, 13*(7).
- Kothari, C. R. (2004). *Research methodology: Methods and techniques*. New Age International.
- Lan, L., & Heracleous, L. (2010). Rethinking agency theory: the view from Law. *Academy of Management Review, 35*(2), 294-314.
- Lohr, S. L. (2021). *Sampling: design and analysis*. CRC press.
- Mansur, M., & Djaelani, A. K. (2023). Business Strategy Approach to Informal Small Businesses in Increasing Productivity and Competitiveness. *Golden Ratio of Marketing and Applied Psychology of Business, 3*(1), 01-19.
- Mashalaghu, R. B., & Mutunga, O. (2023). Effect of Firm Characteristics on Financial Stability of MicroFinance Institutions in Kilifi County, Kenya. *International Research Journal of Economics and Management Studies IRJEMS, 2*(2).
- Matthews, K., & Thompson, J. (2008). *The Economics of Banking*, (2nded.) Kent, Wiley Publishers.
- Mbugua, J. W., & Kinyua, G. M. (2019). Personnel differentiation and organization performance: An empirical analysis of deposit taking micro-finance institutions in Nairobi City County, Kenya. *International Academic Journal of Human Resource and Business Administration, 3*(7), 485-495.
- Messabia, N., Beauvoir, E., & Kooli, C. (2022). Haitian Cooperative of Savings and Credits: Social and Community Dimensions of Success. In *Artificial Intelligence for Sustainable Finance and Sustainable Technology: Proceedings of ICGER 2021 I* (pp. 32-41). Springer International Publishing.
- Messabia, N., Beauvoir, E., & Kooli, C. (2023). Governance and management of a savings and credit cooperative: The successful example of a Haitian SACCO. *Vision, 27*(3), 397-409.

- Messabia, N., Beauvoir, E., & Kooli, C. (2023). Governance and management of a savings and credit cooperative: The successful example of a Haitian SACCO. *Vision*, 27(3), 397-409.
- Millan, E. N., Kamau, C. G., & Ibia, M. P. (2023). Effect of Mobile Banking Technology on Loan Performance of Deposit Taking Savings and Credit Cooperative Organisations in Mombasa County, Kenya.
- Moghaddam, J. Y., Akhavan, P., & Mehralian, G. (2015). Intellectual capital, ethical climate and organisational performance: an interaction analysis. *International Journal of Learning and Intellectual Capital*, 12(3), 232-250.
- Moh'd Al-Tamimi, K. A., & Obeidat, S. F. (2013). Determinants of capital adequacy in commercial banks of Jordan an empirical study. *Dirassat Journal Economic Issue*, 4(2), 267-280.
- Moh'd Al-Tamimi, K. A., & Obeidat, S. F. (2013). Determinants of capital adequacy in commercial banks of Jordan an empirical study. *International Journal of Academic research in Economics and management sciences*, 2(4), 44.
- Mostak, M., & Sushanta, M. (2015). Is financial inclusion good for SACCO stability. *International evidence, University of London, UK*.
- Mushonga, M., Arun, T. G., & Marwa, N. W. (2019). The cooperative movement in South Africa: Can financial cooperatives become sustainable enterprises. *Strategic Change*, 28(4), 259-271.
- Mwangi, D. K., & Ombui, K. (2018). Factors Affecting Financial Performance of Deposit Taking Saccos in Nairobi County, Kenya. *International Journal of Scientific and Research Publications (IJSRP)*, 8(10), 153-159.
- Mwangi, F. M. (2018). *Disclosure Requirements and Financial Performance Of Deposit Taking Savings And Credit Co-Operatives In Nairobi County Kenya* (Doctoral Dissertation, Kenyatta University).
- Mwangi, M., Kaijage, E., & Ganesh, P. (2021). Moderating Effect of Firm Characteristics on the Relationship between Electric Power Outage Dynamics and Financial Performance of Manufacturing Firms in Kenya.
- Ndung'u, E. G., & Mutinda, J. (2022). Corporate growth strategies and financial performance of deposit-taking savings and credit co-operative societies in Nairobi City County, Kenya. *International Academic Journal of Economics and Finance*, 3 (8), 25, 46(2).
- Ngaira, A. P., & Miroga, J. (2018). Determinants of financial stability of listed commercial banks in Kenya. *The Strategic Journal of Business & Change Management*, 5(4), 1074-1097.
- Ngeno, J. C. (2019). *Capital adequacy framework, funds allocation strategy and financial performance of deposit taking Sacco's in Kenya* (Doctoral dissertation, KeMU).

- Nickerson, C. (2022). Interpretivism paradigm & research philosophy. *Simply Sociology*, 5.
- Ningi, S. I., & Dutse, A. Y. (2008). Impact of bank consolidation strategy on the Nigerian economy. *African Economic and Business Review*, 6(2), 26-45.
- Njenga, R., & Jagongo, A. (2019). Effect of financial management decisions on financial performance of selected non-deposit taking SACCOs in Kiambu County, Kenya: Theoretical Review. *International Academic Journal of Economics and Finance*, 3(3), 204-217.
- Nkosi, B., & Moyo, T. (2022). A Study on the Financial Stability of SACCOs in South Africa. *Journal of South African Financial Markets*, 28(2), 45-60.
- Nzisaa, M. I., & Mbugua, D. D. (2022). Effects Of External Environmental Factors on The Financial Performance Of Commercial Banks Listed In Kenya.
- Odhiambo, S. P. O. (2019). Determinants of financial performance of savings and credit cooperative societies in Nakuru town, Kenya. *Reviewed Journal International of Business Management [ISSN 2663-127X]*, 1(1), 42-53.
- Omondi, O. G. (2014). *Effects of inflation on commercial banks' lending: A case of Kenya commercial bank limited* (Doctoral dissertation, United States International University-Africa).
- Ongore, V. O., & Kusa, G. B. (2013). Determinants of financial performance of commercial banks in Kenya. *International journal of economics and financial issues*, 3(1), 237-252.
- Onyango, D. (2021). *Technoloological innovation and competitive advantage of Deposit taking savings and Credit Cooperative Societies in Nairobi City County* (Doctoral dissertation, University of Nairobi).
- Opala, J. A. (2014). *Effect of financial stability on the performance of deposit taking SACCOs in Nairobi County* (Doctoral dissertation).
- Otache, I., Echukwu, I. J., Umar, K., Yunusa, A., & Audu, S. (2022). Internal factors affecting the performance of employee-based savings and credit cooperatives: evidence from Nigeria. *Journal of Enterprising Communities: People and Places in the Global Economy*.
- Othman, R., Arshad, R., Aris, N. A., & Arif, S. M. M. (2015). Organizational resources and sustained competitive advantage of cooperative organizations in Malaysia. *Procedia-Social and Behavioral Sciences*, 170, 120-127.
- Otwoko, B. E. (2023). *Interest Rate Drivers and Financial Performance of Deposit Taking Savings and Credit Co-operative Societies in Kenya* (Doctoral dissertation, JKUAT-COHRED).
- Panico, C. (2008). *Durlauf, Steven N.; Blume, Lawrence E., eds. "The New Palgrave Dictionary of Economics"*. Palgrave Macmillan.

- Parker, S., & Chen, L. (2020). Competitiveness and Financial Stability in SACCOs. *Journal of Financial Innovation*, 18(4), 62-78.
- Ramlall, I. (2018). Concept of Financial Stability Demystified. In *Understanding Financial Stability*. Emerald Publishing Limited.
- Razali, N. M., & Wah, Y. B. (2011). Power comparisons of shapiro-wilk, kolmogorov-smirnov, lilliefors and anderson-darling tests. *Journal of statistical modeling and analytics*, 2(1), 21-33.
- Rois, R., Basak, T., Rahman, M. M., & Majumder, A. K. (2012). One-Sided Wald Test for Restricted Higher Order Autocorrelation in Dynamic Linear Model. *International Journal of Advanced Scientific Engineering and Technological Research*, 1(3).
- Samanta, S., & Chakraborty, T. (2018). An Analysis of Capital Adequacy in Select Indian Commercial Banks: A Frontier Approach. *IUP Journal of Management Research*, 17(2).
- Sanghani, D. A. (2014). *The effect of liquidity on the financial performance of non-financial companies listed at the Nairobi Securities Exchange* (Doctoral dissertation).
- Santos, L., & Oliveira, M. (2022). An Analysis of the Financial Stability of SACCOs in Brazil. *Journal of Brazilian Economics*, 31(1), 59-73.
- Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students*. Pearson education.
- Seccareccia, M. (2012). Financialization and the transformation of commercial banking: understanding the recent Canadian experience before and during the international financial crisis. *Journal of Post Keynesian Economics*, 35(2), 277-300.
- Seddighi, H. (2013). *Introductory econometrics: a practical approach*. Routledge.
- Sharma, R., & Kumar, P. (2022). Financial Stability of SACCOs in India: Challenges and Opportunities. *Journal of Indian Financial Markets*, 24(1), 33-47.
- Sileyew, K. J. (2019). Research design and methodology. *Cyberspace*, 1-12.
- Smith, J., & Johnson, K. (2020). The Role of Capital Adequacy in SACCOs' Financial Stability. *Journal of Cooperative Studies*, 53(2), 25-40.
- Taylor, L., & Taylor, L. (2009). *Reconstructing macroeconomics: Structuralist proposals and critiques of the mainstream*. Harvard University Press.
- Thumbi, G. W., & Ragui, M. (2019). Environmental Factors and Performance of Commercial Banks in Kenya. *International Journal of Current Aspects*, 3(6), 149-175.

- Tilahun, N., & Fan, Y. (2014). Transit and job accessibility: an empirical study of access to competitive clusters and regional growth strategies for enhancing transit accessibility. *Transport Policy*, 33, 17-25.
- Tordee, B., Igbara, F. N., Alobari, C., & Zukbee, S. (2020). Macro-Economic Conditions and Financially Constraints Firms in Nigeria: A Study of Firms Financial Decision. *Equatorial Journal of Social Sciences and Human Behaviour*.
- Tran, T. T., Nguyen, Y. T., & Long, T. (2019). The determinants of liquidity risk of commercial banks in Vietnam. *Banks and Bank Systems*, 14(1), 94.
- Walsh, C. E. (2010). *Monetary theory and policy*. MIT press.
- Wamalwa, N., & Makori, J. M. P. D. (2020). Effect of Camel Variables on Financial Stability: A Dynamic Panel Analysis of Commercial Banks in Kenya.
- Wangechi, S. W., & Irungu, A. M. (2023). Working Capital Management and Financial Performance of Deposit Taking Savings and Credit Cooperative Societies in Central Region, Kenya. *Journal of Finance and Accounting*, 3(1), 34-46.
- Wangechi, S. W., & Irungu, A. M. (2023). Working Capital Management and Financial Performance of Deposit Taking Savings and Credit Cooperative Societies in Central Region, Kenya. *Journal of Finance and Accounting*, 3(1), 34-46.
- Ward, C. (2021). Contradictions of Financial Capital Switching: Reading the Corporate Leverage Crisis through The Port of Liverpool's Whole Business Securitization. *International Journal of Urban and Regional Research*, 45(2), 249-265.
- Were, M., & Wambua, J. (2014). What factors drive interest rate spread of commercial banks? Empirical evidence from Kenya. *Review of development Finance*, 4(2), 73-82.
- Williams, R., Jackson, P., & Davis, H. (2020). Liquidity Management in SACCOs: An Empirical Analysis. *Financial Markets Journal*, 7(1), 15-29.
- Witt, A., Kurths, J., & Pikovsky, A. (1998). Testing stationarity in time series. *physical Review E*, 58(2), 1800.
- Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data*. MIT press.
- World Council of Credit Unions. (2020). *The Importance of Financial Stability in Savings and Credit Co-operative Societies for Community Development*. WOCCU Report.
- Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2010). *Business Research Methods*, South Western. Cengage Learning.

APPENDICES

Appendix I: Data Collection Template

Year	Financial Stability		Capital Adequacy Ratio		Liquidity Ratio		Cost – Income Ratio		Inflation Rate %		Market share Ratio
	Non-Performing Loans	Total Gross loans	Core Capital	Total Assets	Liquid Assets	Total Assets	Operating Expenses	Operating income	Consumer price index	Personal consumption expenditure price	HHI index
2017											
2018											
2019											
2020											
2021											

Appendix II: Research Authorization Letter



KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: kubps@yahoo.com
dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 8710901 Ext. 57530

Our Ref: D86/CTY/21441/2020

Date: 21st September, 2023

The Director General,
National Commission for Science, Technology & Innovation,
P.O. Box 30623-00100,
NAIROBI

Dear Sir/Madam,

RE-RESEARCH AUTHORIZATION FOR HESBORN BIRISI REG. NO.D86/CTY/21441/2020

I write to introduce Birisi who is a Postgraduate Student of this University. The student is registered for a Ph.D. degree programme in the Department of Business, Economics & Tourism in the School of Business, Economics & Tourism.

Birisi intends to conduct research for Ph.D. thesis entitled, "Firm Characteristics and Financial Stability of Deposit Taking Savings and Credit Co-Operative Societies in Kenya".

Any assistance given will be highly appreciated.

Yours faithfully,

for PROF. ELISHIBA KIMANI
EXECUTIVE DEAN, GRADUATE SCHOOL

JG/cso

Appendix III: Research Approval Letter



KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: kulps@yahoo.com
dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 810901 Ext. 57530

Internal Memo

FROM: Dean, Graduate School

DATE: 21st September, 2023

TO: Hesborn Birisi Birisi
C/o Department of Accounting & Finance
KENYATTA UNIVERSITY

REF: D86/CTY/21441/2020

SUBJECT: APPROVAL OF RESEARCH PROPOSAL

This is to inform you that the Graduate School Board at its meeting 19th September, 2023 approved your Ph.D. Research Proposal entitled "Firm Characteristics and Financial Stability of Deposit Taking Savings and Credit Co-Operative Societies in Kenya".

You may now proceed with your Data collection, subject to clearance with the Director General, National Commission for Science, Technology & Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed supervision Tracking and Progress Report Forms. The Forms are available at the University's Website under Graduate School webpage downloads.

Also, please ensure that you publish article(s) from your thesis before submitting it to Graduate School for examination as per the Commission for University Education and Kenyatta University guidelines. By copy of this letter, the Registrar (Academic) is hereby requested to grant you substantive registration for your Ph.D. studies.

Thank you,

JULIA GITU
FOR: EXECUTIVE DEAN, GRADUATE SCHOOL

c.c. Chairman, Department of Accounting & Finance
Registrar (Academic) Asst; Mr. Richard Chweya

Supervisors:

1. Dr. Job Omagwa
C/o Dept. of Accounting & Finance
Kenyatta University
2. Dr. Salome Mutsau
C/o Dept. of Accounting & Finance
Kenyatta University

JG/cao

Appendix IV: NACOSTI Research License



REPUBLIC OF KENYA

Ref No: 436937



**NATIONAL COMMISSION FOR
SCIENCE, TECHNOLOGY & INNOVATION**

Date of Issue: 02/October/2023

RESEARCH LICENSE



This is to Certify that Mr. Hudson Oadfield Biridi of Kenyatta University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: **FIRM CHARACTERISTICS AND FINANCIAL STABILITY OF DEPOSIT TAKING SAVINGS AND CREDIT CO-OPERATIVE SOCIETIES IN KENYA** for the period ending : 02/October/2024.

License No: NACOSTI/P/23/00024

Applicant Identification Number: **436937**

Director General

**NATIONAL COMMISSION FOR
SCIENCE, TECHNOLOGY &
INNOVATION**



Verification QR Code



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

See overleaf for conditions