

EFFECT OF FINANCIAL STRUCTURE ON FINANCIAL DISTRESS OF SEMI-AUTONOMOUS GOVERNMENT AGENCIES AND STATE CORPORATIONS IN AGRICULTURAL SECTOR IN KENYA

BY

NJAGI GERALD KARUGA

**MASTER OF SCIENCE IN COMMERCE DEGREE
(FINANCE AND INVESTMENT)**

KCA UNIVERSITY

2024

EFFECT OF FINANCIAL STRUCTURE ON FINANCIAL DISTRESS OF SEMI-AUTONOMOUS GOVERNMENT AGENCIES AND STATE CORPORATIONS IN AGRICULTURAL SECTOR IN KENYA

BY

NJAGI GERALD KARUGA

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF SCIENCE IN COMMERCE DEGREE (FINANCE AND INVESTMENT) TO THE SCHOOL OF BUSINESS AT KCA UNIVERSITY

NOVEMBER, 2024

DECLARATION

This original research project has not been submitted to other examining committees or academic institutions. Without my permission or that of KCA University, no one should reprint any part of the project.

Gerald Karuga
Student Name.....

11/00106
Reg, No.



Signature:

17/9/2024
Date:

I do hereby confirm that I have examined the master's dissertation of
Njagi Gerald Karuga

This academic study project has been submitted to KCA University with my permission as
the University Supervisor


Signature..... **23/10/2023**
Date.....

Dr. Rogers Ochenge
Dissertation Supervisor

EFFECT OF FINANCIAL STRUCTURE ON FINANCIAL DISTRESS OF SEMI-AUTONOMOUS GOVERNMENT AGENCIES AND STATE CORPORATIONS IN AGRICULTURAL SECTOR IN KENYA

ABSTRACT

The study investigated the effect of financial structures specifically short-term debts, long-term debts, capital reserve, and retained earnings on the financial distress among SAGAs and SCs in the agricultural sector of Kenya. Data used was from 2017 to 2021, collected from financial statements and other government reports. The analysis was conducted using SPSS v26 to employ both descriptive and inferential statistical techniques. Hausman test done implied that fixed effect model was appropriate model to be used. Results of regression analysis stated that short-term debts and long term debts were statistically significant and had negative effect on the Altman's Z score indicating increase in financial distress while capital reserve and retained earnings were statistically significant and had positive effect indicating decrease in financial distress. Normality was accepted by both Kolmogorov-Smirnov and Shapiro-Wilk tests. Variance Inflation Factors and Tolerance values were below 10 and above 0.1 respectively, indicated no significant multicollinearity. Diagnostic tests confirmed no significant issues with heteroscedasticity or autocorrelation, validating the regression results. The findings suggested that policymakers and financial managers within SAGAs and SCs should focus on emphasizing the importance of a well-balanced financial structure and the need for prudent financial management to avoid alleviated financial distress mostly by enhancing retained earnings and capital reserve to improve financial stability. Further studies could explore the impact of other financial and non-financial factors on the financial health of SAGAs and SCs, as well as investigate sector-specific challenges and solutions.

ACKNOWLEDGEMENT

I thank the All-Powerful God for advancing my academic career to this point. It has been a journey, but my God has always been with me; glory is to his name.

I recognize and appreciate the support of my supervisor, Dr. Rogers Ocheng, for tirelessly guiding me. I acknowledge that many people contributed significantly to the accomplishment of this project through their focused efforts and cooperation. Again, my heartfelt appreciation goes to my dear wife, Josephine, my daughters, Miriam, Shannel, and my son Njagi for their unending backing and cheer about this study. God's blessings on you all.

TABLE OF CONTENTS

ABSTRACT	iii
ACKNOWLEDGEMENT	iv
DEDICATION	viii
LIST OF TABLES.....	ix
LIST OF FIGURES.....	ix
ABBREVIATIONS AND ACRONYMS	x
OPERATIONAL DEFINITION OF TERMS	xi
CHAPTER ONE.....	1
INTRODUCTION	1
1.1 Background of the Study	1
1.1.2 <i>Concept of financial structure</i>	8
1.1.3 <i>Financial structure and financial distress in public sector organizations</i>	10
1.1.4 <i>Public institutions under the ministry of agriculture in Kenya</i>	13
1.2 Statement of the Problem	16
1.3 Research Objectives	17
1.3.1 <i>General objective</i>	17
1.3.2 <i>Specific objectives</i>	17
1.4 Research Questions	18
1.5 Scope of the Study	19
1.7 Justification of the Study	21
1.8 Significance of the Study.....	24
LITERATURE REVIEW	29
2.1 Introduction	29
2.2 Theoretical Review	29
2.2.1 <i>Modigliani and Miller Theory</i>	29
2.2.2 <i>Trade-Off Theory</i>	31
2.2.3 <i>Pecking Order Theory</i>	33
2.2.4 <i>Resource-Based Theory</i>	35
2.2.5 <i>Liability Management Theory</i>	36
2.3 Empirical Review	38
2.3.1 <i>Capital reserve and financial distress</i>	39

2.3.2 <i>Retained earnings and financial distress</i>	41
2.3.3 <i>Long-term debts and financial distress</i>	44
2.3.4 <i>Short-term debts and financial distress</i>	45
2.3.5 <i>Financial structure and financial distress</i>	47
2.4 Conceptual Framework	49
2.5 Operationalization of Variables	52
RESEARCH METHODOLOGY	54
3.1 Introduction	54
3.3 Target Population	56
3.4 Sampling Design and Sample Size	56
3.5 Data Collection Procedure	57
3.6 Data Analysis and Presentation	58
3.7 Diagnostic Tests	60
3.8 Ethical Consideration	62
CHAPTER FOUR	63
RESEARCH FINDINGS AND DISCUSSIONS	63
4.1 Introduction	63
4.2 Descriptive Analysis Results	63
Regression Summary	66
4.3 Diagnostic Tests	69
4.3.1 <i>Hausman test</i>	70
4.3.2 <i>Normality tests</i>	70
4.3.3 <i>Autocorrelation</i>	72
4.3.4 <i>Multicollinearity tests</i>	72
4.3.5 <i>Heteroscedasticity tests</i>	75
4.4 Fixed Effect Regression Model	75
4.5.1 <i>Effect of short-term debt on financial distress</i>	77
4.5.2 <i>Effect of long-term debt on financial distress</i>	77
4.5.3 <i>Effect retained earnings on financial distress</i>	78
4.5.4 <i>Effect of Capital reserve on financial distress</i>	78
CHAPTER FIVE	79
SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS 5.1	
Introduction	79

5.2 Descriptive Analysis Results	79
5.2.1 Financial distress	79
5.2.2 Short-term debt	79
5.2.3 Long-term debt	80
5.2.5 Capital reserve	80
5.3 Diagnostic Tests	81
5.4 Regression Analysis	82
5.5 Summary of Findings	83
5.6 Implications	84
5.6.1 Implications for SAGAs and SCs	84
5.6.2 Implications for policymakers	85
5.6.3 Implications for researchers	86
5.7 Recommendations	87
5.7.1 Recommendations for SAGAs and SCs	87
5.7.2 Recommendations for policymakers	88
5.7.3 Recommendations for researchers	89
5.8 Future Research Directions	90
5.9 Conclusion	92
REFERENCES	93
Appendix 1	97

DEDICATION

This study is devoted to my family, which includes my beloved wife, Josephine, my daughters and son, Miriam, Shannel, and Njagi. I am grateful for their prayers, financial and emotional support in making this research project successful.

LIST OF TABLES

<i>Table 1 Operationalization of Variables</i>	53
<i>Table 2 Descriptive Statistics</i>	64
<i>Table 3 Model Summary</i>	66
<i>Table 4 ANOVA</i>	68
<i>Table 5: Normality test</i>	70
<i>Table 6 Coefficients for Collinearity Diagnostics</i>	72
<i>Table 7: Collinearity Diagnostics</i>	72
<i>Table 8: Regression Coefficients</i>	75

LIST OF FIGURES

Figure 2.1: Conceptual Framework	52
---	----

ABBREVIATIONS AND ACRONYMS

ADC	Agricultural Development Corporation
AFC	Agricultural Finance Corporation
EBIT	Earnings before Interest and Tax
EPS	Earnings per Share
GDP	Gross Domestic Product
KALRO	Kenya Agricultural and Livestock Research Organization
KEPHIS	Kenya Plant Health Inspectorate Services
KPCU	Kenya Planters Cooperative Union
AFA	Agriculture and Food Authority
NCPB	National Cereals and Produce Board
MCDM	Multi-Criteria Decision Making
MM	Modigliani and Miller
OLS	Ordinary Least Square
PCSE	Panel Corrected Standard Error
R&D	Research and experimental development
ROA	Return on Assets
ROE	Return on Equity
SAGAs	Semi-Autonomous Government Agencies
SCs	State Corporations
MOA	Ministry of Agriculture
KIPPRA	Kenya Institute for Public Policy Research and Analysis

OPERATIONAL DEFINITION OF TERMS

Financial Distress	Financial distress occurs when a company or individual lacks adequate revenue or income to cover its financial commitments. Abdiaziz (2022) describes it as a state where an entity is unable to fulfill its financial obligations due to insufficient income.
Financial Structure	The financial structure of a company refers to the blend of debt and equity utilized to finance its operations.
Retained Earnings	Retained earnings are the portion of a company's profits that are not distributed as dividends but are kept by the company to be reinvested in its operations or to serve as a reserve for future use or liquidation.
Long-Term Debt	Long-term debt consists of obligations that are due for repayment more than 12 months from the reporting date.
Capital reserve	Capital reserve is the total amount of money raised by a company through the issuance of shares to shareholders, usually in exchange for cash.
Short-Term Debt	This encompasses obligations due to mature within a year from the reporting date.
Total debt	According to Mugisha et al. (2020), total debt refers to all financial obligations incurred by a corporation during its regular operational cycles.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The general background is based on the thorough analysis of the literature review. The understanding begins with a global landscape and then gradually moves to the specific national/regional level. D'Alessandro et al., (2015) articulates that agriculture remains vital to Kenya's economic growth. It is also vital to the country's food security and poverty reduction efforts. Because the vast majority of Kenya's poor depend on smallholder agriculture for their livelihood, increasing their productivity can contribute at once to improving food availability, increasing rural incomes, lowering poverty rates, and growing the economy. Putting more and better seeds, fertilizers, and other inputs into the hands of farmers and pastoralists and finding ways to link them more directly to markets are among the key thrusts of current sector development policies. More broadly, Kenya's Vision 2030 aims in part to transform the country's agriculture from subsistence to a more competitive and commercially oriented sector, one that can meet the country's food needs, expand exports, and become a key engine for forward growth.

The global landscape of public sector financial management has undergone significant transformations over the past few decades. Countries across the world have faced varying degrees of financial distress within their public institutions, necessitating a closer examination of financial structures and management practices. In developed economies such as the United States and the European Union, stringent regulatory frameworks and advanced financial management systems have been pivotal in maintaining financial stability (International Monetary Fund, 2020). Conversely, emerging economies in Africa, Asia, and Latin America have grappled with challenges related to financial mismanagement, corruption, and economic

instability. For instance, countries like Venezuela and Argentina have experienced severe economic crises, partly due to unsustainable public debt levels and inefficient financial management practices (World Bank, 2019).

In Africa, nations such as Nigeria and Zimbabwe have faced similar challenges, exacerbated by political instability and reliance on volatile commodity markets (African Development Bank, 2021). These global examples highlight the critical importance of effective financial management in ensuring the stability and sustainability of public sector organizations. Most commercial state corporations in Kenya have challenges in financial management, which have remained below average, as evidenced by a streak of financial losses (Kenya National Audit Office, 2022). The poor performance has been attributed to lack of sound financial management, poor reporting, and insufficient internal controls among others (Mutinda 2021).

Kenya's agricultural sector has been the backbone of the nation's economy, contributing significantly to Gross Domestic Product (GDP) and employment. It employs a significant portion of the workforce and contributes substantially to the GDP. The sector's performance is vital for achieving national goals related to food security and economic stability. The agriculture sector continues to play a critical role in Kenya accounting for 20 percent of GDP and 27 percent indirectly through its linkages with other sectors. The sector also employs over 40 percent of the total population and more than 70 percent of the rural populace (Central Bank of Kenya, 2023). Historically, the sector has evolved from subsistence farming to a more commercial and diversified agricultural economy. The introduction of cash crops such as coffee and tea in the early 20th century marked a significant shift, driving economic growth and development. However, the sector has faced persistent challenges, including inadequate infrastructure, limited access to finance, and fluctuating global commodity prices.

Recent initiatives by the Ministry of Agriculture aim to address these issues through policy reforms, investment in technology, and enhanced support for smallholder farmers (Ministry of Agriculture, 2020). The government's Vision 2030 development blueprint identifies agriculture as a key sector for achieving economic growth and poverty reduction (Government of Kenya, 2007). The Agricultural Sector Development Strategy (ASDS) 2010–2020 outlines comprehensive plans to increase productivity, promote value addition, and enhance market access for Kenyan farmers (Ministry of Agriculture, 2010).

Agricultural policies consist of laws and regulations set by the government to control both domestic and foreign agricultural activities and the trade of agricultural and related products. The policies set by the government have both direct and indirect effects on the agricultural sector, which affects the food security state. Kenya has been on the frontline in fighting food insecurity but is far from becoming a food-secure country (Food and Agriculture Organization, 2021). To help improve the agricultural sector towards fighting food insecurity, there has been an establishment of various key policies over time. Economic Recovery Strategy (ERS), Agriculture Sector Development Strategy (ASDS), Strategy for Revitalizing Agriculture (SRA), Poverty Reduction Strategy Paper (PRSP), and Vision 2030 are some of the key policies put in motion to help fight against food insecurity (Njora and Yilmaz 2021).

However, despite its crucial role, there has been an increasing concern regarding the financial stability of the Semi-Autonomous Government Agencies (SAGAs) and State Corporations operating within this sector. The financial stability of Semi-Autonomous Government Agencies (SAGAs) and State Corporations within this sector is crucial for its overall health. Despite their importance, these entities have been grappling with financial distress, characterized by inadequate liquidity, insolvency risks, and a reliance on government bailouts. This pattern of financial instability necessitates a closer examination of the underlying

causes and potential solutions, particularly in the context of their financial structures. The growing body of literature, like Habibniya et al., (2022) shows that it is essential for companies to have adaptability in their financial management strategies to be able to fulfil the emerging challenges.

1.1.1 Concept of financial distress.

Gupta and Mahakud (2022) define financial distress as the inability of a person or organization to meet their financial duties as a result of inadequate income generation. Yana and Purwanto (2022) also agree, noting that it represents a situation where financial obligations surpass the ability to pay. Owino (2019) adds that financial distress encompasses difficulties in meeting financial commitments stemming from a lack of funds or revenue. Further, Walela, Omagwa, and Muathe (2022) articulate that in the public sector, financial distress manifests as an inability to balance budgets, deliver services, or sustain long-term responsibilities, with fiscal health being achievable through timely bill payments and satisfactory service provision. Lastly, a financial crisis is often characterized by a scenario where an organization's cash flows are insufficient to cover its immediate liabilities within a specified period.

Financial distress in public sector organizations can have far-reaching consequences, from undermining the capacity to deliver essential services to contributing to broader economic instability. In light of these challenges, it becomes imperative to examine the underlying causes of financial distress, with a specific focus on the role of financial structures. Right (2019) points out that careful planning of financial structure can create value of the company in addition to its ability to withstand market upheavals. Though this, Ball (2019) indicates that even though quite a few companies worldwide have a liquidity and solvency problem due to their poor cash flow projections, by that, it is possible to reduce big financial losses. Biger (2018) has proven

significant of the company financial structures and debt that can impact earnings more than that excessively long-term borrowing are damaging.

Downing and Rogers (2021) show why across a ten-year territory within the major financial centres in Europe tend to run in the groove of history. The report also discusses how the soil in Sub-Saharan Africa has imperceptibly become a more complicated situation as a result of market liberalization. Apart from that, the Johannesburg Stock Exchange is known to be at the forefront when it comes to issuing green bonds, which otherwise would be used to finance environmentally friendly ventures (Johannesburg Stock Exchange, 2020).

Lastly, Ruri (2019) zooms in on the Kenyan economy which is high in the agriculture sector. This study seemed to bridge the gap in literature that often overlooks the impact of financial structure on financial distress within public sector entities, especially in the agricultural domain. While previous research has extensively covered the financial performance of private corporations and non-agricultural public enterprises, there is a lack of focused study on agricultural SAGAs and State Corporations in Kenya. It was found that profitability had significant effect on financial distress of commercial and manufacturing state corporations (Kibe et al.,2023). Kibe et al.,2024 in their research, illustrated that size of State corporations did not influence financial distress. Financial distress equally affected both small and big Commercial and Manufacturing State Corporations contradicting the theory of small firms.

This research utilized quantitative methods to explore the relationship between financial structure variables and the financial distress of these agencies, aiming to provide empirical insights that could guide policy formulation and strategic financial planning. Tuda (2016) suggested that stakeholders in a firm can predict failure before it occurs by paying close

attention to liquidity, long-term profitability and leverage ratios. This will enable them avoid the losses associated with failures by taking appropriate actions in advance as financial strategy.

Effective financial management in SAGAs and State Corporations is essential for their sustainability and operational efficiency. Kamau and Simiyu (2019) stated that most of State owned enterprises are faced with a challenge of poor financial management as reflected in misuse of financial resources and inefficiencies in internal control systems. At the same time, they have consistently been making losses and some of the reasons cited are lack of sound financial management, poor reporting and tracking systems, lack of internal control systems and audit teams. Habibniya et al., (2022) have highlighted the need for adaptability in financial management strategies to meet emerging challenges. Similarly, Gul and Cho (2019) argue that a robust economy significantly influences the growth process, underscoring the differences in financial structures across countries.

According to Sheik and Wang (2018), an essential component of a firm's financial strategy is the balance between self-funding and external financing. This balance ensures financial strength and stability, as evidenced by Ardalan (2017) which demonstrates how finance supports a company's solidity and success. Financial distress in public sector organizations can undermine their capacity to deliver essential services and contribute to broader economic instability. Therefore, understanding the financial structures of these entities is critical for developing effective management strategies

The significance of this research was heightened by the strategic importance of the agricultural sector in Kenya. As the backbone of the economy, the stability of this sector is not just a matter of economic interest but also of national security and development (Kenya Institute for Public Policy Research and Analysis, 2018). Therefore, understanding how different

financial structures affect the likelihood of financial distress among the governing agencies is crucial for safeguarding the sector's viability and, by extension, the country's food security and economic resilience (Ministry of Agriculture, 2020).

Challenges in kenya's agricultural sector:

The agricultural sector in Kenya faces several challenges that impact its productivity and financial stability. Climate change poses a significant threat, with unpredictable weather patterns, prolonged droughts, and flooding affecting crop yields and livestock production (Food and Agriculture Organization, 2021). Additionally, pests and diseases, such as the fall armyworm and foot-and-mouth disease, have further exacerbated these challenges (Ministry of Agriculture, 2019).

Fluctuating market prices for agricultural commodities also pose risks to farmers and agribusinesses. Global price volatility can lead to income instability, making it difficult for farmers to plan and invest in their operations (World Bank, 2020). Furthermore, limited access to finance and credit constrains farmers' ability to adopt modern agricultural practices and technologies, reducing their competitiveness and productivity (African Development Bank, 2020).

In light of these challenges, it becomes imperative to examine the underlying causes of financial distress, with a specific focus on the role of financial structures. The concept of financial structure involves the mix of debt and equity financing, including short-term and long-term liabilities, retained earnings, and capital reserves. Each of these components plays a critical role in shaping an organization's financial health (Ardalan, 2017).

1.1.2 Concept of financial structure

Financial structure is a description of how a company utilizes a blend of borrowed funds (debt) and equity (owner-supplied funds) to run its operations. It represents the specific combination of debt and equity that a firm employs to support its business activities, as noted by Dinh and Pham (2020). As per the scholars Gambacorta, Yang, and Tsatsaronis, the financial structure of a company means from where the company raises its money (through borrowing, owner investments, or both) (Gambacorta et al., 2020). The financial side of a company may include its retained earnings, loans, and owner contributions (Siddik et al., 2019). Kerosi (2020) notes that financial structure is about a choice of borrowing money inside the company or getting from outside to sustain long-term business plans and growth.

Gul and Cho (2019) maintain the claim that a powerful economy plays a bigger role than finances in the growth process, and that financial structures differ from one country to another. Sheik and Wang (2018) indicate an essential component of the firm's financial strategy is both self-funding, as well as loans from outside. With these financial arrangements, a firm would have more financial strength and stability. A valuable case here is Ardalan (2017) who proves on board how finance supports a company to keep solid and financially successful.

The financial structure of an organization refers to the mix of debt and equity financing, including short-term and long-term liabilities, retained earnings, and Capital reserve. The concept of financial structure involves the mix of debt and equity financing, including short-term and long-term liabilities, retained earnings, and capital reserve. Each of these components plays a critical role in shaping an organization's financial health. Each component plays a critical role in shaping an organization's financial health. Gambacorta et al., (2020) emphasize that a well-planned financial structure can create value for a company and enhance its ability to withstand

market upheavals. However, poor cash flow projections can lead to significant financial losses (Ball 2019). Biger (2018) also highlights the importance of managing debt levels to avoid excessive long-term borrowing, which can negatively impact earnings.

In the context of public sector organizations, managing financial structures involves balancing various sources of capital, each with its own costs and risks. Companies need to decide the proportion of debt and equity that minimizes the cost of capital while maximizing shareholder value. The trade-off theory of capital structure suggests that there is an optimal level of debt where the tax benefits of additional debt equal the costs of potential financial distress (Modigliani & Miller, 1958). However, determining this optimal mix can be challenging, especially in dynamic and uncertain economic environments.

All the money a company gets from retained earnings, issuing bonds, taking loans, or receiving investments from funds like sovereign wealth funds or hedge funds is part of its financial structure (Kasomba, 2022). Hayes (2019) emphasizes the link between financial management and business leadership and strategic decisions, which ultimately, can add to the company's financial performance. One of the sources of finance for state-owned companies is loans from banks, income from their operations, grants from governments, or funds from international organizations (Kiiru, 2018).

Kimani (2022) highlights the roles that financial structures play, which are accumulating savings, managing investments, providing reliable payment systems, guiding corporate decisions, diminishing risks, and granting economic funds. Such activities of factors of production, therefore, direct businesses and economies of a country to the efficient use of resources which enhances productivity and economic growth through channels like banks and stock markets.

Abdiaziz (2022) states that borrowing and pledging to pay the interest with the income from

the investment is the main way in which companies can finance their operations. The case in point is that financial structure is differently important in different countries; it constitutes less than 20% of a company's setup in the U.S. and more than 60% in Austria, Hungary, and New Zealand. Zinecker and Mokhova (2019) show that, for instance, in the Czech Republic, Slovakia, Poland, Hungary, Germany, France and Greece, the companies' financial health is in poor condition as a result of having too much overall and/or short term debt.

An issue raised by Yana and Purwanto (2022) is that the economic development of sub-Saharan African countries is not growing at the pace expected even though the countries have tried to improve their financial systems to boost growth. For instance, Kenya's annual economic growth was projected to increase from 4.1% in 1990 to 5.7% in 2022, while South Africa's growth was expected to improve from a decline of 0.3% in 1990 to an increase of 0.9% in 2018 (Gupta & Mahakud, 2022). The way a company organizes its finances has a direct effect on its value and the financial risks it faces.

1.1.3. Financial structure and financial distress in public sector organizations

Companies today have a range of financial options to support their operations. These include using retained profits, securing long-term funding through bonds and loans, and managing short-term debts like trade payables (Chu, 2020). Financial structure describes the mix of stable long-term debt, preferred stock, and common stock that businesses use to finance their assets. According to Brei, Ferri, and Gambacorta (2021), financial decisions are especially crucial in public sector organizations because they affect their viability and long-term earnings.

The decision on how to finance is considered one of the most important aspects of corporate finance because it lays the groundwork for raising and allocating the funds needed by businesses. The principles for managing capital structure are generally the same for both private

and public companies (Kiiru, 2021). However, the sources of financing can vary greatly; some companies prefer debt financing where they borrow money from investors and repay it with interest, while others opt for equity financing where they raise money from shareholders who then share in the ownership and potentially profit through dividends or increased stock value (Allen, Gu, & Kowalewski, 2018).

Companies tailor their mix of debt and equity based on their needs, costs, and the expectations of their investors. Both private and public companies use similar frameworks to develop their financial structures, though there are differences in how they issue equity. Private equity is typically raised from select investors rather than the public stock market, and private companies might go through multiple rounds of equity financing that can influence their market valuation. Meanwhile, established companies might offer shares to the public through an investment bank, which handles the pre-marketing and initial valuation of the shares (Allen, Gu & Kowalewski, 2018).

Brei, Ferri, and Gambacorta (2021) found that differences in financial structures across companies often relate to factors like ownership types and the balance between short-term and long-term debts. In larger firms, finance departments focus on cost management, budget operations, and internal audits. As companies expand globally, new financial challenges and opportunities arise, complicating the roles of Chief Financial Officers (CFOs). These CFOs not only make decisions about the overall mix of debt and equity but also navigate complex policies on capital structure and profit repatriation within different subsidiaries (Chu, 2020). Several studies highlight financial mismanagement and poor financial structures as key contributors to financial distress in public institutions. The Kenya National Audit Office (2022) noted that most commercial state corporations in Kenya face challenges in financial management, which has led to persistent financial losses. Research indicated that the financial structures of these

agencies, which often involve high levels of debt and limited internal revenue generation, contribute significantly to their financial distress. Studies such as Kibe et al. (2023) underscored that profitability significantly affects financial distress in state corporations, with poorly structured organizations, whether large or small, equally prone to distress. This aligns with the Pecking Order Theory, which suggests that firms with poor internal funding mechanisms like insufficient retained earnings are more likely to experience distress due to over-reliance on debt financing.

This trend can be connected to the financial structure of these organizations. Many of them have high levels of short-term debt and excessive reliance on government funding, which impacts their financial sustainability. Waweru (2018) examined the financial stability of Kenyan state corporations and identified inefficiencies in financial management, including poor capital allocation and over-reliance on government subsidies. Mutinda, P. (2021) delved into the financial management challenges facing state-owned enterprises in Kenya. This study examines the financial mismanagement and lack of effective internal controls in Kenyan state corporations, particularly focusing on financial reporting and decision-making inefficiencies. Kibe et al., (2023) focused on Impact of profitability on the financial distress of state corporations in Kenya.

However, these studies did not focus specifically on the agricultural sector, leaving a gap in understanding how these issues manifest in state-owned agricultural agencies. Kiiru (2021) focused on the capital structure of state corporations in Kenya but did not delve into the role of specific financial structure components like short-term debt, long-term debt, retained earnings, and capital reserves in financial distress. The relationship between these variables in the context of state-owned agricultural agencies remains unexplored. Studies like those by Tuda (2016) and Kamau and Simiyu (2019) focus on financial mismanagement in state-owned enterprises in

general, they fail to address the unique challenges faced by agricultural SAGAs, such as market volatility and climate-related risks. This research focuses on the correlation between profitability and financial distress among commercial and manufacturing state corporations, offering valuable insights but not addressing the agricultural sector. This research intends to fill the gap by examining the specific impact of financial structures on the financial distress of SAGAs in Kenya's agricultural sector, a critical area due to its contribution to food security and economic growth. The specific effects of short-term and long-term debt, retained earnings, and capital reserves on financial stability have not been adequately addressed. This study intends to fill this gap by providing insights into the relationship between these financial structure components and the financial distress of agricultural state corporations.

1.1.4 Public institutions under the ministry of agriculture in Kenya

According to KIPPRA (2022), state corporations are legal entities established under specific laws, either through parliamentary acts or under the Companies Act. In these entities, the government usually holds most or all of the shares. State-owned companies, on the other hand, operate under state corporations and are subsidiaries of these entities. Semi-Autonomous Government Agencies (SAGAs) are organizations separate from ministries that provide government services and regulate activities within specific sectors. These agencies work independently of the government and play roles in regulation, service provision, and policy execution.

Agriculture is a cornerstone of the Kenyan economy, contributing significantly to GDP and employing a large portion of the workforce, especially in rural areas (Economic Survey, 2021). To support agricultural activities, the Kenyan government has established state corporations and semi-autonomous agencies through parliamentary acts and agency acts. These entities,

classified under the Ministry of Agriculture, regulate agricultural activities and undertake activities such as crop and livestock farming.

While some of these agencies and corporations receive funding from the government, others are self-funded or receive grants. It is crucial for these entities to have a robust financial system to ensure their continued operation and meet their obligations effectively. However, despite their solid asset bases, many of these organizations have been operating at a loss in recent years, requiring continuous capital injections from the government (Economic Survey, 2021).

Most state corporations fall under the oversight of parent ministries that oversee their operations and set performance standards in line with their legal mandates. The Ministry of Agriculture in Kenya oversees several such corporations that play critical roles in the agricultural sector, such as enhancing productivity, ensuring food security, and promoting sustainable practices (Mungai, 2019). These entities range from research institutes focusing on agricultural innovations to marketing boards that facilitate the sale of agricultural products both locally and internationally. The effective management and financial health of these corporations are vital for the overall success and stability of Kenya's agricultural sector.

Despite the strategic importance of these corporations, many face significant financial challenges, including liquidity issues, high levels of debt, and reliance on government bailouts. These financial difficulties can hinder their ability to carry out their mandates effectively and can have broader implications for the sector's performance and the country's economic stability (Mwangi, 2021).

The global landscape has seen corporate failures due to poor financial arrangements, such as the collapses of Enron, WorldCom, Parmalat, GM, and CIT, all linked to financing structures. In Kenya, both private and state-owned commercial establishments have experienced financial

distress, with companies like Uchumi, Chemelil Sugar, and Kenya Airways facing challenges. This background underscores the importance of investigating how financial structure affects the financial distress of semi-autonomous government agencies and state corporations in Kenya's agricultural sector.

Managing the financial structure involves balancing various sources of capital, each with its own costs and risks. Companies need to decide the proportion of debt and equity that minimizes the cost of capital while maximizing shareholder value. The trade-off theory of capital structure suggests that there is an optimal level of debt where the tax benefits of additional debt equal the costs of potential financial distress (Modigliani & Miller, 1958). However, determining this optimal mix can be challenging, especially in dynamic and uncertain economic environments.

Public sector organizations, in particular, face unique challenges in managing their financial structures. Unlike private companies, they often have limited flexibility in raising capital and are subject to stringent regulatory and oversight requirements. Additionally, they may have non-financial objectives, such as social welfare or environmental sustainability, which can complicate financial decision-making (KIPPRA, 2022).

Effective financial structure management requires a comprehensive understanding of the various factors influencing capital costs, including interest rates, market conditions, and the organization's risk profile. It also involves strategic planning to align financial policies with long-term objectives and to ensure that the organization can weather economic fluctuations and financial shocks (Kiiru, 2021).

In conclusion, the financial structure of public sector organizations, particularly those in the agricultural sector in Kenya, plays a crucial role in determining their financial stability and ability to fulfil their mandates. Understanding the relationship between financial structure and

financial distress is essential for developing effective financial management strategies and policies. This study aimed to provide empirical insights into this relationship, contributing to the broader body of knowledge on financial management in the public sector and informing policy formulation and strategic planning to enhance the sustainability and performance of agricultural SAGAs and State Corporations in Kenya.

1.2 Statement of the Problem

Amjed (2020) emphasizes that a company's financial growth heavily depends on decisions related to its financial structure, requiring careful consideration by management to promote sustainable growth. However, financing choices often vary and can be unpredictable across businesses, as noted by Kimani (2022). In Kenya, public sector organizations have long faced challenges such as inefficiencies, low customer focus, bloated workforces, corruption, and underutilized assets, leading to underperformance.

The agricultural sector plays a critical role in Kenya's economy, employing a large portion of the population and contributing significantly to GDP. It also serves as the primary income source for many rural households and is integral to the country's economic performance. The Kenyan government relies heavily on the sector's growth to achieve broader economic development and ensure national food security (KIPPRA, 2022).

Despite the sector's importance, state-owned agricultural agencies and corporations have increasingly faced financial distress in recent years. This distress, as reported by the National Treasury and Planning of Kenya (2021), manifests in weak financial performance, high indebtedness, mounting arrears, and contingent liabilities, which negatively affect Kenya's overall economy (Kenya National Audit Office, 2022).

While studies have examined the financial performance of various sectors in Kenya, there remains a gap in understanding the specific relationship between financial structure factors such as short-term debt, long-term debt, retained earnings, and capital reserves and financial distress in the agricultural sector's state-owned entities. Previous research has explored aspects like organizational composition, financial stability, and equity financing, but the impact of these key financial structure components on financial distress remains unclear (Waweru, 2018).

Addressing this gap, the current study seeks to investigate the effect of the financial structure on the financial distress of state-owned agricultural agencies and corporations in Kenya. This research will provide insights that can help improve financial management practices and contribute to the financial sustainability of these entities, ensuring that they can continue playing a pivotal role in the agricultural sector and Kenya's broader economic landscape.

1.3 Research Objectives

1.3.1 General objective

The study's overarching goal was to determine the effect of financial structure of semi-autonomous government agencies and state corporations in Kenya's agriculture sector on their financial distress.

1.3.2 Specific objectives

The following precise goals served as the study's direction:

- i. To investigate the effect of Capital reserve/Government funding on financial distress of SAGAs and SCs in Kenya's agricultural sector.

- ii. To examine the effect of retained earnings on financial distress of SAGAs and SCs in Kenya's agricultural sector.
- iii. To explore the effect of long-term debts to financially distressed of SAGAs and SCs in Kenya's agricultural sector.
- iv. To determine the effect of short-term debts on financial distress of SAGAs and SCs in Kenya's agricultural sector.

1.4 Research Questions

- i. The research aimed to respond to the following questions:
- ii. What is the **effect** of retained earnings on the financial distress of SAGAs and SCs in Kenya's agricultural sector?
- iii. What is the **effect** of long-term debt on the financial distress of SAGAs and SCs in Kenya's agricultural sector?
- iv. What is the **effect** of short-term debt on the financial distress of SAGAs and SCs?

Research Hypotheses

The research hypotheses for the study were:

***H01:** Retained earnings have no significant effect on financial distress of SAGAs and SCs in Kenya's agricultural sector.*

***H02:** Short term debt has no significant effect on financial distress of SAGAs and SCs in Kenya's agricultural sector.*

***H03:** Long term debt has no significant effect financial distress of SAGAs and SCs in Kenya's agricultural sector.*

H04: Capital reserve has no significant effect on financial distress of SAGAs and SCs in Kenya's agricultural sector.

1.5 Scope of the Study

The scope of this study encompasses several key dimensions that define the boundaries and focus of the research. Understanding these dimensions is crucial for clarifying the extent of the investigation, the aspects it will cover, and the areas it will not address. This study specifically focuses on the impact of financial structure on the financial distress experienced by Semi-Autonomous Government Agencies (SAGAs) and State Corporations (SCs) within the agricultural sector in Kenya. Here are the detailed components of the scope

The study is geographically confined to Kenya, focusing particularly on SAGAs and SCs that operate under the Ministry of Agriculture. This includes organizations located throughout various regions of the country, but all data collection and analysis are restricted to these entities within the national boundaries of Kenya.

The research examines data from a five-year period, from 2017 to 2021. This timeframe was chosen to provide recent and relevant financial data post-implementation of significant policy changes in Kenya's agricultural sector and to capture the effects of these changes on the financial health of the agencies and corporations involved.

The study specifically investigates how different components of financial structure—such as Capital reserve, retained earnings, long-term debt, and short-term debt—affect the financial distress of the targeted entities. The study will measure financial distress using established financial distress indicators like Altman's Z-score, which provides a comprehensive view of financial health and potential bankruptcy risk.

This research will cover only Semi-Autonomous Government Agencies and State Corporations under the Ministry of Agriculture in Kenya. It includes diverse organizations, each with its unique financial structure, making them ideal subjects for studying the impact of different financial strategies on organizational stability.

The study is anchored in several financial management theories, including the Trade-Off Theory, Pecking Order Theory, and Modigliani and Miller's Theory of Capital Structure. These theories provide the conceptual framework to analyse the impact of various financial structures on the financial stability of organizations.

The research employs a quantitative approach using secondary data sourced from official financial statements and reports of the SAGAs and SCs. The analysis involves statistical methods, primarily regression analysis, to understand the relationship between financial structure variables and financial distress outcomes. While the study aims to provide comprehensive insights into the impact of financial structures on financial distress, there are some limitations within its scope:

Data Accessibility: The research depends on the availability and accuracy of financial data reported by the SAGAs and SCs. Incomplete data or non-disclosure of financial details by some entities could limit the comprehensiveness of the analysis.

External Factors: The study focuses on internal financial structures and their direct impact on financial distress, which means external economic factors such as market conditions, governmental policy changes, and global economic trends are not primarily analysed.

Generalizability: The findings from this study, while significant for Kenya's agricultural sector, may not necessarily be applicable to other sectors or countries due to differing regulatory environments and economic conditions.

In conclusion, the scope of this study is clearly defined to ensure a focused investigation into the financial structures and distress of SAGAs and SCs within Kenya's agricultural sector. By adhering to this scope, the research aims to yield meaningful insights that can contribute to improved financial management practices within these organizations.

1.7 Justification of the Study

The rationale for this study is grounded in several critical considerations that highlight its significance for various stakeholders in Kenya's agricultural sector and beyond.

Policy Relevance

The Government of Kenya has identified food security as a priority within its "Big Four" agenda, crucial for economic growth and societal well-being. Despite ongoing efforts, SAGAs and SCs under the Ministry of Agriculture (MOA) have encountered persistent financial challenges that impede progress toward this goal. This study's importance lies in its potential to inform policies and strategies aimed at effectively addressing these challenges. By understanding how financial structures impact financial distress, policymakers can develop targeted interventions to enhance the financial stability of these entities. This, in turn, will contribute to the overall resilience and productivity of Kenya's agricultural sector, ensuring food security and economic stability.

Gap in Existing Research

While financial distress in corporations and companies has been extensively studied, there is a noticeable gap in understanding financial difficulties within SAGAs and SCs specifically operating within the MOA. Previous research has primarily focused on individual corporations or listed companies, leaving a knowledge gap regarding these government entities. This study aims to fill this void by investigating the financial structures and challenges faced by SAGAs and SCs within the MOA. By providing empirical insights into the relationship between financial structures and financial distress, this research contributes to a more comprehensive understanding of public sector financial management, which has been relatively underexplored in academic literature.

Theoretical Framework

The study utilizes a robust theoretical foundation, drawing from various financial theories such as Pecking Order Theory, MM Theory, Trade-Off Theory, Resource-Based Theory, and Liability Management Theory. These theories provide a comprehensive lens through which to analyse the financial structures of SAGAs and SCs. By applying these theories to real-world data, the study offers practical insights that can contribute to financial management practices. The theoretical framework also facilitates a deeper understanding of the dynamics between financial structure variables and financial distress, providing a solid foundation for the development of effective financial strategies and policies.

Practical Implications

The research holds practical implications for policymakers, government officials, and stakeholders involved in managing SAGAs and SCs within the agriculture sector.

Understanding how financial arrangements impact these entities' financial difficulties can facilitate informed decision-making, leading to improved financial management practices and enhanced performance in achieving food security goals. Additionally, the findings can guide the development of training programs for financial managers, ensuring they are equipped with the necessary skills and knowledge to manage financial risks effectively. This, in turn, will enhance the operational efficiency and sustainability of SAGAs and SCs.

Data-Driven Approach

The study employs a data-driven approach, gathering data from 20 MOA-regulated SAGAs and SCs over five years (2017-2021). This comprehensive dataset enables rigorous analysis of financial structures and their influence on financial challenges. The use of statistical tools and data analysis techniques enhances the study's credibility and reliability. By providing empirical evidence on the impact of financial structures on financial distress, the study offers actionable insights that can inform policy formulation and strategic financial planning. This data-driven approach ensures that the findings are grounded in real-world evidence, making them relevant and applicable to the current challenges faced by SAGAs and SCs.

Contribution to Sustainable Development

By focusing on the financial health of SAGAs and SCs, the study contributes to broader sustainable development goals. Financially stable public sector entities are better positioned to implement effective agricultural policies, support smallholder farmers, and invest in sustainable agricultural practices. This, in turn, contributes to food security, poverty reduction, and economic growth. The study's findings can also inform the design of financial interventions that promote resilience and sustainability, aligning with global efforts to achieve sustainable development goals (SDGs).

In summary, this research is justified by its potential to address a critical issue in Kenya's agricultural sector: the financial difficulties faced by SAGAs and SCs. By examining the relationship between financial arrangements and these difficulties, the study provides valuable insights that can inform policies, improve financial management practices, and support the government's efforts to achieve food security and economic stability.

1.8 Significance of the Study

The study's findings offer substantial benefits to various stakeholders, including the government, managing directors of corporations, investors, lenders, creditors, suppliers, and the academic community. The significance of the study can be articulated through several key dimensions:

Government

For the government, the insights provided by this study are invaluable in identifying weaknesses in current policies and practices related to the financial management of SAGAs and SCs. The government can use the study's recommendations to initiate revisions and enhancements to existing policies, thereby improving the efficiency and financial stability of these entities. Furthermore, understanding the financial challenges and structures of SAGAs and SCs allows the government to make more informed decisions regarding funding allocations, ensuring that resources are directed toward initiatives that will most effectively address financial distress and promote sustainability.

Policymakers

Policymakers stand to benefit significantly from the study's findings, which highlight critical areas for regulatory and policy interventions. By identifying the financial structures that

contribute to financial distress, policymakers can design targeted regulations and frameworks that promote financial stability and transparency. This can include the development of guidelines for debt management, equity financing, and the retention of earnings, tailored specifically to the needs and characteristics of SAGAs and SCs in the agricultural sector. Additionally, policymakers can leverage the study's insights to advocate for more robust financial oversight mechanisms and capacity-building programs that enhance the financial management skills of public sector managers.

Managing Directors

For managing directors of SAGAs and SCs, the study offers early indicators of deteriorating performance, allowing them to intervene proactively and mitigate the risk of insolvency. The findings provide a diagnostic tool to assess the financial health of their organizations and implement strategies to sustain high performance. By understanding the impact of different financial structures on financial distress, managing directors can make more informed decisions about their organization's financing strategies, ensuring a balanced approach that maximizes financial stability and operational efficiency.

Investors

Investors, including those seeking partnerships with SAGAs and SCs, can use the study's analysis to make more informed investment decisions. By examining the key elements of financial structures that contribute to financial distress, investors can avoid high-risk investments and focus on opportunities with better financial health and growth potential. The study's findings on the relationship between financial structure variables and financial distress provide a valuable framework for assessing the financial viability of potential investment targets.

Lenders

Commercial banks and other lenders can utilize the study's insights to accurately evaluate a firm's financial status, thereby mitigating capital losses and counterparty risk charges. By monitoring the primary elements of financial structures linked to financial distress, lenders can make more informed lending decisions, setting appropriate terms and conditions that reflect the financial health and risk profile of the borrowing entities. This not only protects the interests of lenders but also ensures that borrowing entities receive financing that is aligned with their capacity to repay.

Creditors and Suppliers

Creditors and suppliers can track financial patterns to assess whether a financially distressed company is making progress towards recovery. This enables them to make informed decisions regarding credit extension and supply agreements, reducing the risk of non-payment and fostering more stable business relationships. The study's findings provide a framework for creditors and suppliers to evaluate the financial stability of their partners, ensuring that they engage in transactions that are financially sustainable.

Academic Community

The academic community stands to gain new insights and perspectives from this study, contributing to the broader field of public sector financial management. The study fills a gap in existing research by focusing on the financial structures and distress of SAGAs and SCs within Kenya's agricultural sector. The findings provide a foundation for further research, encouraging academics to explore related topics such as the impact of governance practices, external economic factors, and technological innovations on public sector financial health.

Guiding Future Research

This study also lays the groundwork for future research in several ways. It highlights areas where additional studies are needed, such as the impact of external economic factors on financial distress, or the role of innovative financial technologies in enhancing financial management. Researchers can build upon the findings to explore other dimensions of financial health not covered in this study, or to apply the study's insights to other sectors beyond agriculture.

Global Relevance

While focused on Kenya, the insights from this study have global relevance, particularly for other developing countries with similar economic structures and challenges. The lessons learned can inform other nations about best practices in financial management for public sector entities, contributing to global discussions on public financial management, sustainable development, and economic policy.

Overall Economic Impact

By addressing the financial distress of SAGAs and SCs, the study contributes to the overall economic stability and growth of Kenya. Financially stable public sector entities are better positioned to implement effective agricultural policies, support smallholder farmers, and invest in sustainable agricultural practices. This, in turn, enhances food security, reduces poverty, and promotes economic resilience, aligning with the country's broader development goals.

In conclusion, the significance of this study extends across multiple dimensions, providing valuable insights and recommendations that can enhance the financial management practices of SAGAs and SCs, inform policymaking, guide investment decisions, and contribute to the

academic understanding of public sector financial management. By addressing the financial challenges faced by these entities, the study supports the broader goals of economic stability, sustainability, and development in Kenya's agricultural sector

1.9 Organization of the Study

The background of the study was discussed in this chapter, as well as the financial structure and its impact on financially distressed SAGAs and SCs in Kenya's agricultural sector from several angles. The significance of the study, the problem statement, the objectives, and the research hypotheses were also discussed in this chapter. In addition, the study's justification and its scope were also considered. The second chapter is a review of the literature on the impact of financial structure on financial distress in a variety of circumstances. This section provides an overview of the relationship between the study variables, identifying research gaps and suggesting areas for further investigation. The theoretical literature as well as research gaps were also provided in this chapter. The methodological approach that was adopted to achieve the objectives was adequately discussed in chapter three. Research findings and discussions was also covered in chapter four. Chapter five summarizes the results of data analysis and findings while chapter six provides conclusion and recommendations based on the objectives.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this chapter, the conceptual framework, operationalization of variables, and theoretical underpinnings of the investigation are discussed. The implications of various types of financial crises on businesses are examined theoretically. The empirical literature review encompasses a broad range of topics related to financial structure, including the influence of various types of debt on a company's liquidity and solvency. The theoretical gaps associated with these factors are also identified.

2.2 Theoretical Review

Theoretical frameworks from Modigliani and Miller, Trade-Off Theory, Pecking Order Theory, Resource-Based Theory, and Liability Management Theory serve as the foundation of this research. These theories provided valuable insights and perspectives to help elucidate the study's objectives and findings.

2.2.1 Modigliani and Miller Theory

The Modigliani and Miller Theory, introduced by Modigliani and Miller in 1958, proposed the concept of capital structure irrelevance. Miller (1988) emphasizes the role of information asymmetry in business and suggests that the Modigliani-Miller theorem, which assumes financial structure irrelevance, is predicated on this concept.

In essence, this theory suggests that in a perfect market with minimal income tax considerations, non-existent insolvency expenses, and negligible transaction costs, a

company's capital structure does not affect its overall value. It posits that, under these ideal conditions, using debt to finance operations should yield the same value as having no debt at all. Additionally, the theory assumes equal access to information among different types of investors. Miller and Modigliani extended this theory in 1963 with the proposition that a firm's financing structure for an investment decision does not impact the value of that investment. However, these propositions are based on idealized market conditions.

Based on this theory, financial structure; short-term debts, long-term debts, retained earnings, and capital reserve, should not affect SAGA's and SC's value in a perfect market. The study examines how financial structures in semi-autonomous government agencies and state corporations in the Kenyan agricultural sector may cause financial distress in a non-ideal market, challenging the assumptions of the theory.

In practice, it has been realized that organizations come up with capital structures of their own principles and different necessities, thereby questioning the 'correct capital structure.' Real-world situations may include cases where government has direct interventions and/ or differing degrees of market openness, which are not always true with the ideal of Modigliani and Miller Theory.

Additionally, the theory was introduced with a view that service of interest costs is allowable for businesses. However, newer studies like Watson and Head (2010) established the need to make amendment to this postulation arguing that corporations could enhance the degree of equity by replacing it with debt since the cost could be lower in the long run once the corporation's tax shields are included.

Nonetheless, two limitations of the Modigliani & Miller Model are as follows: It ignores the option cost of bankruptcy and fails to genuinely consider the wager between the cost of debt

and equity in bankruptcy, which varies depending on the specific capital structure. Though, by applying debt to reduce capital investments the total value of the company will be improved while in the situation when interest on debt is subtracted from tax constitute the value will be lower. However, it raises questions on its application in practical scenarios.

In view of the objectives of the proposed research, the theoretical framework provided by the Modigliani and Miller Theorem is rather relevant. Nonetheless, it is crucial to note that its market conditions are ideally constrained to the face value of its theoretical reality and may not be reflective of the actual structure of financial reality within Kenyan agriculture. This is the gap that this research seeks to fill through the analysis of how the financial structures of publicly traded corporations may signify financial distress taking into consideration the practical realities that may arise during the analysis and do not reflect the theoretical model's perfect world assumptions.

2.2.2 Trade-Off Theory

The Trade Off Theory also known as the bankruptcy cost of tax-based theory is used to determine an optimal level that gives benefits in terms of tax deductions from debts, minimize agency costs and decrease the burden that will be bear by any firm or company for its expansion (Shahar et al., 2015). The trade-off theory of capital structure was primarily developed by Kraus and Litzenberger in 1973. The theory suggests that firms balance the benefits of debt, such as tax shields, with the potential costs, such as financial distress and bankruptcy, when deciding on their optimal capital structure. This creates a trade-off between the advantages and disadvantages of using debt financing. The trade-off theory was seriously taken under consideration after the debate on the theorem of Modigliani-Miller (Iqbal et al., 2012). Trade-off theory's original version came into being after the debate of Modigliani-Miller theorem.

According to this theory, SAGAs and SCs balance the tax benefits both short-term and long-term with the potential costs of financial distress. This theory explains why debt might lead to financial distress if poorly managed, helping to assess whether the government agencies balance their financial structures effectively.

Myers (1984) holds the view that apart from the benefits incurred through the tax-exempt status, the costs associated with these factors also encompass expenses linked with financial adversity and agency costs. Jahanzeb et al. (2014) avow that optimal leverage can be identified with the ability to relate interest costs against the benefits of interest payments. This theory understands that both downwards and upwards firm expansion depends on tax advantage, agency costs and financial pressure. In the context of Trade-Off theory, which was reviewed by Sheikh and Wang (2010), it is possible to define the primary purpose of the discussed concept as searching for the financial structure, through which business growth would be maximized and unfavorable impacts of the market imperfectness would be minimized. It is known for as the bankruptcy cost theory since it compares the benefits involved in tax deductions from debt and the costs entailed by leverage. Awan and Amin (2014) opine that possessing several types of income streams may present different risks and revenues that are crucial in determining an organization's solvency and cash flow. Lenders should be aware that organizations with higher tax shields tend to use more debt to accredited funding since losses from monetary adversities are backed up by tax losses (Chen, 2011). The following theory also recognizes that the concept of the optimal number of capital structure is not perfect and that every organization has to balance the options of having better and effective taxation with higher and costly leverages. Furthermore, the optimal amount of leverage is not constant even between companies, but it may also vary across countries because of institutional structures like financial systems, taxes and laws which govern bankruptcy.

While critics argue that debt increases financial risks and makes debt-financing choices more costly than equity (Fama & French, 2002), empirical evidence suggests that the right capital structure can indeed affect a company's value. Debt financing is often more attractive than equity issuance for companies, as internal funds are typically less expensive in terms of transaction costs. However, businesses with significant intangible assets may prioritize equity financing to avoid losing value in liquidation. The Trade-Off Theory helps explain why many companies opt for a combination of debt and equity financing.

This research explores how firms navigate the advantages of debt, such as tax benefits, against the associated costs, and how these decisions impact their financial stability. It sheds light on the complexities of capital structure decisions, particularly in the agricultural sector in Kenya, where various factors influence the optimal balance between debt and equity financing.

2.2.3 Pecking Order Theory

The Pecking Order Theory was introduced by Stewart C. Myers and Nicholas Majluf in 1984. The theory suggests that companies prioritize their sources of financing based on the principle of least resistance or least cost, preferring internal financing (retained earnings) first, then debt, and finally issuing new equity as a last resort. This is due to the asymmetric information between managers and investors, where issuing new equity might signal that the firm's stock is overvalued. This theory implies that SAGAs and SCs prefer retained earnings over debt, and debt over issuing capital reserves. This theory explains the tendency of firms to rely on retained earnings and the implications of using more debt versus equity on their financial health and the risk of financial distress.

Myers and Majluf (1984) opined that external capital have costs higher than internal capital because, firms and external investors are different, and the former party, holds private

information on the worth of current operations and future expected earnings. In a nutshell, the Pecking Order Theory implies that there is a way to eliminate information imbalance and it lies in the avoidance of the issuance of securities and instead use internally generated cash resources to finance Enterprise. Upon the increasing division between the insiders and outsiders of the company, there is a tendency that the cost on the new shares of the stock raises and the value of the security decrease.

Based on the Pecking Order Theory, the situation with a firm's debt can be comprehensively described. This is normally through the use of funds generated by the business enterprise usually through the flow back of retained profit. They rely on internal generated funds first and only use external sources in case the internal funds are inadequate, whether this would mean borrowing funds or selling shares (Serrasqueiro & Caetano, 2015). The argument here is that less indebted firms, especially those with high investment opportunities, which they can self-finance using retained profits, should have lower leverage ratios than less lucrative firms (Fama and French (2002)). In this theory, companies are ranked and usually rely on internal capacity to source funds before going to the outside world for capital. Hence, a company can use internal funds as the last resource after exploring outside resources such as debts or equity sales (Seifert & Gonenc, 2019).

This research question seeks to find out whether, as postulated by the Pecking Order Theory, highly profitable corporations indeed use retained earnings as their main source of finance. This must be the case for the listed financial institutions on the NSE since they mostly use equity (retained earnings) rather than debts hence should be able to record lower interest. On the other hand, low efficiency and profitability make organizations rely on debt financing that result in high cost of interest. As everybody knows long term consequences of this decision define further development of a particular company. Thus, achieving the third objective, or this

research, it is essential to ground the conclusions in the Pecking Order Theory then analyze whether the companies targeting high profitability actually prioritize retained earnings as their main source of funding and what outcomes this decision may involve for their financial health.

2.2.4 Resource-Based Theory

The Resource-Based Theory was first developed by Birger Wernerfelt in 1984 and further refined by Barney in the early nineties and is quite insightful in the view of a company's competitive advantage. It postulates that firm heterogeneity originates from a firm's differential access to resources that are varied and can form the basis of strategies with reference to such disparities. This theory is more concerned with developing and improving the existing resources of an organization, to turn them into precious assets for the firm, hence, the focus on giving the firm a sustainable competitive advantage. According to this theory, SAGAs and SCs with strong retained earnings and capital reserves are better positioned to handle external shocks and avoid financial distress. The theory supports the role of capital reserves and retained earnings in mitigating financial distress by providing financial flexibility and stability.

This theory also revolves around a central concept known as the resource base which forms the foundation of a firm's competitive strength when enterprise assets, skills, abilities, and various other resources are analyzed. As Postulated by Petružis (2018), It is the theory that aims at capturing the sense that a firm can harness its resource base to obtain a competitive advantage that is reflected by enhanced performance. This means that when a company has been able to identify the key areas in which they can offer superior value over other players in their chosen industry, they are positioned to gain a competitive advantage. For this advantage to be achieved, the available resources needed by a firm need to offer value, cannot be substituted and are relatively scarce. Thus, enterprises are seen as not only as receivers of

resources, but as actors who proactively contribute into their build-up, incorporation in various processes, and delivery. It therefore becomes imperative that firms plan with a view of enhancing and maintaining their core competencies and other important financial assets in order to achieve competitive advantage. The theory hinges on the paradox, in the production process it is a firm's knowledge, money, and technological capacities that are most important.

At its core, this theory states that a business can gain a long-term competitive edge if it leverages on its resources and capabilities to exploit the strengths of the business and avoid limitations and external threats of the operating environment. As they strive to achieve competitive advantage, companies aim to acquire, utilize, and exploit resources from various sources, enhancing their capabilities by integrating diverse resources. The theory emphasizes the significance of a company possessing essential resources for its operations. Access to resources such as financial capital and knowledge empowers a company to enhance its competitiveness in the market. Firms can leverage their available resources to seize emerging opportunities while mitigating potential threats that could disrupt their operations. This concept holds particular relevance in elucidating the influence of Capital reserve on the financial distress of SAGAs in Kenya. Our research aims to explore how companies harness their resources to achieve competitive advantages and how these dynamic impacts their financial stability.

2.2.5 Liability Management Theory

The principle of Liability Management that has origin in 1960 has had growth to be one of the principal structures of the discipline. According to Emmanuel (1997), other traditional liquidity measures like maintaining liquid assets and investment are not a necessity under this concept. In fact, the capital markets can easily accommodate finances for cash needed by the

financial institutions. The theory shows that efficient management of short-term and long-term debts, can prevent liquidity crises and reduce the likelihood of financial distress in SAGAs and SCs. The theory emphasizes that how government agencies manage their short-term and long-term debts plays a critical role in avoiding financial distress. But it is important to also acknowledge that when investors are unwilling to roll over their investments, investors no longer want to invest their money in the organization and thus will not allow extension of the maturity of the provided cash, this means that the organization can end up having no available cash. As pointed out by Diamond and Rajan (2001), the use of this approach means that firms take their assets as well as liabilities into account while determining their liquidity needs. It is used by many organizations inclusive of state enterprises and the semi-autonomous government agencies active in applying assets and liabilities to meet the liquidity demand most of which have recorded significant improvement in the accomplishment of the set goal.

Liability management define how business manage customer's fund received as well as borrow from the financial institutions, manage the maturity dating differences between assets and liabilities, and also how to hedge against changes in interest rates. Asset-liability management subsumes risk management especially balance sheet risk resulting from asset-liability transposition. Working capital management, relevant to our study, consists of the activity that utilizes assets and liabilities to meet the demand for cash. According to Monnie (1998), liquidity management is a process of safeguarding that a business has enough cash as well as other cash equivalents, required to meet cash consumers' demands and financial institution costs.

Liquidity management is essential to ensure that the risks of depositors' access to funds are monitored and controlled through daily, weekly, monthly, and yearly analysis and forecasting of cash inflows and outflows. An organization needs a strong Management Information System

(MIS) to come up with figures that can be used in the right projections regarding growth and operation liquidity to support efficiency in the functioning of a liquidity management system. Mobile money used in Kenya was more advanced than in other sub-Saharan nations due to the increased ownership of phones (Ingenico, 2012). Furthermore, Al-Khouri (2014) underscores that the proliferation of internet access and mobile phone subscriptions are significant drivers in the development of electronic payments.

Authorities and regulators must keep pace with these developments to effectively monitor the field (Akram & Allam, 2010). The transition from paper-based to electronic payments may result in fewer transactions for consumers due to the increased efficiency of electronic payment methods. Consequently, the banking industry stands to benefit from the shift away from generalist branches toward more specialized distribution channels (Ngumi, 2014). As the internet has rapidly reached all client levels, online banking has emerged as an alternative channel for banking services and products. The hypothesis suggests that innovations with fewer ambiguities are preferable to established methods and are more likely to be embraced and implemented.

This theory is of paramount importance due to the significant roles of both immediate and future debt in precipitating financial difficulties for state corporations and semi-autonomous government agencies. By aligning these theories with our research objectives, we aim to provide a comprehensive understanding of the factors influencing the financial distress of SAGAs and SCs in Kenya's agricultural industry.

2.3 Empirical Review

This empirical review provided an overview of research on the impact of various types of debt on a company's financial difficulties, covering long-term and short-term debt, retained

earnings, and Capital reserve. The aim was to illustrate the significance of the financial framework during economic downturns and align this research with the broader field.

2.3.1 Capital reserve and financial distress

Chindengwike (2022) conducted a study across East African Community (EAC) countries to explore the effect of perceived fairness on the financial performance of small and medium-sized businesses (SMBs). The target population included businesses registered with the Small Industries Development Organization (SIDO) and the Business Registrations and Licensing Agency (BRELA). Data was collected through a cross-sectional survey and a panel data survey. Data analysis involved evaluating the impact of equity on financial performance using Return on Capital Employed (ROCE) and Return on Equity (ROE) as key indicators. The study revealed that equity negatively affected SMB performance, but a self-developed assessment tool for financial performance based on Return on Assets (ROA) showed a positive impact on SMBs.

Akbarpour (2019) focused on companies listed on the Tehran Stock Exchange between 2005 and 2010 to investigate the relationship between financial development and accounting performance measures such as ROA and ROE. This cross-sectional study gathered data from financial statements and applied regression analysis to test the relationship. Findings indicated a curvilinear relationship between financial development and ROA, while the relationship with ROE was weaker, suggesting that financial development impacts return on assets more than equity.

El-Sayed and Ebaid (2019) analyzed the influence of capital structure on business performance using ROA and ROE as performance indices and short-term, long-term, and total debt as capital structure indices. The study targeted companies listed on the Egyptian Stock

Exchange, collecting data through a panel survey and analyzing the relationships through correlation analysis. Their findings demonstrated high correlations between ROA, Z-SCORE, and capital reserve with long-term debt, suggesting that adjustments in capital structure significantly affect business performance.

Meuleman et al. (2020) examined the role of equity capital in mitigating financial distress among commercial banks in the United Kingdom. The study utilized data from banks' financial reports and applied regression analysis to determine the effect of equity capital on financial health. The findings revealed that financing through equity reduced financial distress, and profitability, along with the age of tangible assets, were key factors in minimizing financial vulnerabilities.

Nzilani, Omagwa, and Wamugo (2021) explored the relationship between equity and bonds on the financial outcomes of Collective Investment Schemes (CISs) in Kenya. The study analyzed financial data from various CISs using regression techniques. The results showed that equity investments had a negligible effect on ROA but positively impacted CIS liquidity levels, indicating that equity investments contributed more to liquidity than profitability.

Noor (2020) studied the effect of equity financing on the financial performance of small and medium-sized enterprises (SMEs) in Garissa County, Kenya. Data was collected from SMEs through surveys and financial statements, and regression analysis was used to evaluate the relationship. The findings revealed that retained earnings were a common funding source for SMEs, and reinvesting profits emerged as a significant contributor to financial performance.

Finally, Mutie, Muturi, and Njeru (2019) investigated how different financing approaches, including equity and debt, influence the economic performance of SMEs in Kenya. The study targeted SMEs across various sectors and used financial surveys to collect data. Multiple

regression analysis revealed that equity funding had a statistically significant relationship with the success of SMEs in Kenya, demonstrating its importance in fostering growth and financial stability.

2.3.2 Retained earnings and financial distress

In a more recent study, Tanuar et al., (2021) examined the impact of non-current assets on the profitability of Malaysian construction companies. Their target population consisted of construction industry companies listed in Bursa Malaysia, covering the years 2011 to 2017. Data collection involved the use of company financial reports, while Descriptive Analysis, Correlation Analysis, and a Fixed Effects Model were used as data analysis techniques. The study found that the Return on Assets (ROA) and Return on Equity (ROE) were positively affected by increased fixed asset turnover (FATO). However, total asset turnover (TATO) had a positive but insignificant impact on ROE, and asset tangibility (ASTA) had no effect on either ROA or ROE.

Santosa (2020) conducted a study focused on the relationship between firm size and financial performance in Islamic companies listed on the Indonesian stock market. The hypothesis aimed to explore the connection between business size and firm performance. The study's target population was Islamic companies listed in Indonesia, and data was collected through financial records. Multiple regression analysis was used for data analysis, and the findings revealed that firm size had a significant effect on financial performance.

Al-Slehat (2020) carried out an assessment of the impact of financial leverage, firm size, and asset structure on the value of firms in the Jordanian manufacturing sector. Using financial reports from the manufacturing companies as the data collection tool, the study applied regression analysis as its data analysis method. The findings showed that larger businesses rely

on markets and basic resources to determine their value, and the cost of capital was a significant determinant.

Dahanajodi and Sujarwadi (2018) studied the effect of firm size on capital structure decisions and performance. They targeted firms in various industries and used financial records for data collection. The study applied regression analysis, and the findings indicated that firm size substantially influences access to loans and performance, making it a critical factor in determining capital structure.

Hirdinis (2019) examined the advantages large firms enjoy over small firms in terms of lower cost per unit output, more stable cash flow, and superior credit conditions. The study was conducted on firms of varying sizes in Indonesia, with data collected through financial records and analyzed using regression analysis. The findings revealed that large firms are less affected by financial shocks.

Darmawan and Supriyanto (2018) focused on mining companies in Indonesia and their financial distress. Data was collected through financial reports and analyzed using regression techniques. The study found that retaining earnings in the asset ratio had a favorable impact on reducing financial distress.

Shome and Verma (2020) used the Altman Modified Z-score model to predict insolvency in the Indian aviation industry. The study's target population was aviation companies in India, with data collected from financial statements and analyzed using the Z-score model. The findings suggested that the model was useful in predicting insolvency, but the current study lacked depth in evaluating other models.

Smith (2019) examined the financial challenges small businesses face due to their reliance on short-term funding. The study collected data through financial records of small businesses and used regression analysis to explore the findings. It was found that small businesses had higher leverage ratios compared to larger firms, which face challenges in raising equity or long-term debt.

Irungu et al., (2018) studied asset tangibility and its impact on the financial performance of companies listed on the Nairobi Securities Exchange. The target population consisted of all 64 companies listed on the exchange, with panel data collected over a period and analyzed using panel regression techniques. The findings revealed a positive and statistically significant relationship between asset tangibility and financial performance.

Oktaviarni and Suprayitno (2018) claimed that firm size is a vital determinant of value, as large firms have easier access to capital. Their study involved companies across various industries, with data collected through financial statements and analyzed using regression models.

Yemi and Seriki (2018) investigated the relationship between retained earnings, dividend payout, and company value. Their target population was firms listed in Nigeria, and the study employed financial data analysis. The findings revealed a positive correlation between retained earnings, dividend payout, and firm value.

Sheik and Wang (2018) qualitatively explored the relationship between asset tangibility and financial performance. They collected data through case studies and interviews, and their analysis indicated that firms with lower levels of tangible assets face difficulties in offering collateral, negatively impacting their financial performance.

2.3.3 Long-term debts and financial distress

In his study, Mohammadzadeh (2019) explored the Effects of Capital Structure on Profitability in the Pharmaceutical Sector in Iran. The target population consisted of 30 of the largest pharmaceutical companies listed on the Tehran Stock Exchange (TSE) between 2010 and 2018. Financial records were collected as the primary data collection tool, and data analysis was carried out using regression analysis. The findings indicated that both short-term and long-term debt had a significant influence on profitability, supporting the pecking order theory, which asserts that firms prefer debt over equity.

Salawu and Agboola (2018) conducted a study titled Determinants of Capital Structure: Evidence from Nigeria, targeting major firms in the Nigerian financial sector, specifically 33 finance companies listed on the Nigeria Stock Exchange between 1990 and 2004. The study used financial records as the data collection tool and employed panel data analysis techniques to examine factors influencing capital structure, such as profitability, tangibility, and firm size. The results were consistent with the trade-off theory, showing that these factors significantly impacted overall debt levels.

Meshack et al. (2022) conducted research on Long-term Debt Financing and Firm Performance in Nigerian Manufacturing Firms. The study targeted nine manufacturing firms listed on the Nigerian Exchange Group, focusing on data from 75 non-financial companies between 2010 and 2019. The researchers used a retrospective research method, collecting secondary data from financial records, and employed regression analysis to evaluate the impact of long-term debt on firm performance. Their findings revealed that long-term debt enhanced the return on equity (ROE) but negatively affected TOBINQ, showing mixed effects on performance.

In a study Shikumo et al., (2020), titled Effect of Long-term Debt on Financial Growth of Non-financial Companies in Kenya, the focus was on 45 non-financial companies listed on the Nairobi Securities Exchange (NSE) from 2008 to 2017. Quantitative analysis was conducted using descriptive statistics and panel data analysis. The data collection tool was financial records, and the analysis found that long-term debt contributed significantly to financial growth, particularly in terms of earnings per share (EPS) growth and increased market capitalization. This supported the conclusion that long-term debt played a critical role in corporate growth.

2.3.4 Short-term debts and financial distress

Kholisoh and Dwiarti (2020) conducted a study titled The Impact of Macroeconomic Indicators and Organizational Factors on Financial Crisis Prediction. The target population was 80 publicly traded manufacturing companies from 2013 to 2016. Data were collected using financial statements, and multiple regression analysis was used to determine the relationships between variables. Their findings indicated a significant correlation between profitability and dividend distribution. The study also observed an increase in short-term debt financing due to decreases in long-term debt, equity financing, and funding from suppliers for accounts payable.

Teruel and Solane (2018) examined liquidity management among Spanish small and medium-sized enterprises (SMEs) in their study titled Liquidity Management in Spanish SMEs: The Role of Short-Term Debt. The study targeted Spanish SMEs and employed descriptive survey methods to collect data. Descriptive and inferential statistics were used in the data analysis. Their findings revealed that SMEs with higher levels of short-term debt maintained larger cash reserves as a precautionary measure, emphasizing the need for effective liquidity management. The study recommended a future shift of focus to the public sector.

Mugisha et al., (2020) explored the relationship between short-term debt and financial performance in their study titled *Short-Term Debt and Financial Performance of SMEs in Uganda*. Their target population included 453 SMEs, and data were collected using descriptive cross-sectional research methods. The study utilized regression analysis, revealing that a heavy reliance on short-term loans had a negative impact on financial performance, particularly in terms of return on assets (ROA).

Kiprotich (2022) investigated the effects of short-term loan financing on SME performance in Bomet County in a study titled *Short-Term Loan Financing and Financial Performance of SMEs in Bomet County*. Data were gathered from 59 SMEs between 2017 and 2021 using descriptive research methodologies. The study employed regression analysis and found a strong connection between short-term loans and financial success, with a combination of factors explaining a significant portion of the variability in performance.

Mboi et al., (2018) conducted a study titled *The Impact of Short-Term Debt on Financial Performance in Medium and Large Companies in Kenya*. The target population was 90 medium and large companies, and financial data spanning six years were collected. The analysis, using regression techniques, showed that an increase in the ratio of short-term debt to total assets significantly decreased both return on equity (ROE) and return on assets (ROA).

Finally, in a study titled *Effect of Short-Term Loans on Financial Growth of Non-Financial Firms Listed on the Nairobi Securities Exchange* et al., (2020) analyzed data from 45 non-financial firms listed on the Nairobi Securities Exchange over a period of ten years. Data collection was conducted using financial statements, and regression analysis revealed that short-term debt positively influenced financial growth, specifically through increases in earnings per share and market capitalization.

2.3.5 Financial structure and financial distress

Farooq et al., (2023) conducted a study titled *Cost of Financial Distress in Non-Financial Firms: Evidence from Pakistan* focused on non-financial firms listed on the Pakistan Stock Exchange between 2010 and 2018. The target population consisted of these listed firms, with data collected from financial reports. The study employed a fixed effect model for data analysis, revealing that long-term borrowing and assets helped reduce financial distress, while short-term debt had no significant effect. Furthermore, ownership structure played a moderating role in shaping the cost and duration of financial distress.

Yana and Purwanto (2022), in their study titled *The Effect of Financial Distress, Capital Structure, and Firm Size on Firm Value in Property Sector Firms*, analyzed property companies listed on the Indonesia Stock Exchange from 2016 to 2020. The target population comprised 19 companies, with purposive sampling used to collect financial data from annual statements. The researchers employed descriptive statistics, traditional assumption tests, and multiple linear regression analyses. They found that financial distress and capital structure had significant effects on firm value, but company size did not significantly influence valuation.

Gupta and Mahakud (2022), in their study titled *Financial Distress and Internal Cash Flow Sensitivity in Indian Firms*, investigated the impact of financial distress on internal cash flow sensitivity (ICFS) of Indian companies from 2001 to 2019. The target population was Indian companies, and data was collected using financial records and financial distress indicators such as Ohlson's bankruptcy technique and Altman's Z-score model. The generalized method of moments (GMM) was used for data analysis. The study found that financial distress increased ICFS, negatively affecting investment, with variations across company sizes.

Kasomba (2022), in the study *Financial Structure and Performance of Domestic and Commercial Airlines in Kenya*, examined the relationship between financial structure and financial performance of airlines, with a focus on Kenya Airways. Using a quantitative approach, the target population was Kenya's domestic and commercial airlines. Regression analysis revealed that debt financing significantly improved profitability, while lease and share financing did not have a notable effect on performance. Retained earnings also had a significant impact on financial performance.

Muringi (2021), in the study *Economic Pressure and Financial Performance in Manufacturing and Construction Firms in Kenya*, analyzed the effect of economic pressure on firms listed on the Nairobi Securities Exchange. The target population consisted of nine manufacturing and five construction firms, with data collected from their financial statements. The study employed correlation analysis and found that liquidity positively correlated with return on assets, while asset structure negatively correlated with performance. Leverage and firm size had no significant correlation with return on assets.

Kimani (2022), in the study *Financial Structure and Growth of Financial Companies Listed on the Nairobi Securities Exchange*, focused on financial companies listed between 2010 and 2017. The study utilized financial data from these firms, and multiple regression analysis was used. The findings showed that short-term debt positively influenced financial development, while long-term debt negatively impacted earnings growth. Additionally, retained earnings were significantly correlated with revenue growth.

Finally, Abdiaziz (2022), in the study *Financial Structure and Financial Distress in Publicly Listed Non-Financial Enterprises in Kenya*, analyzed the relationship between loans, retained earnings, and shareholders' capital in 11 publicly listed companies over five years. The study

collected financial data and employed Altman's Z-score for financial distress analysis. The findings showed significant trends in financial distress and highlighted the role of debt composition and retained earnings in shaping financial distress in Kenyan companies.

2.4 Conceptual Framework

A conceptual framework is a theoretical framework that explains and describes the possible relations between the concepts under study. In their works, researchers gain from theoretical frameworks for the reason that they enable them to define the problem, identify independent and dependent variables, formulate the research area, and hunt for relevant literature. The study's conceptual framework spells out the existing interaction relationships among variables. The model under consideration shows that proportion like retained earnings, long-term debt to shareholders, and short-term debt can cause financial distress. The conceptual framework is designed to capture the interplay between various elements of financial structure such as Capital reserve, retained earnings, long-term debt, and short-term debt and their impact on financial distress. Financial distress is measured using Altman's Z-Score, a widely recognized metric for assessing the likelihood of bankruptcy.

Key Variables and Their Relationships

1. Independent Variables (Financial Structure Components):

Short-term Debts: Debt obligations due within a year

Long-term Debts: Debt obligations due after one year

Retained Earnings: Profits reinvested in the firm rather than distributed as dividends.

Capital Reserve: Equity generated from non-operating income, typically used for future expansion or as a buffer for financial challenges.

2. **Dependent Variable:**

Financial Distress: A condition where an organization struggles to meet its debt obligations, often leading to operational disruptions, insolvency, or bankruptcy. Commonly measured through Altman's Z-score.

Theoretical Foundation

1. **Modigliani and Miller Theory:**

This theory argues that in a perfect market (without taxes, bankruptcy costs, and asymmetric information), a firm's value is unaffected by its capital structure. However, real-world imperfections (like taxes and financial distress) mean financial structure can affect firm outcomes. This theory provides a baseline for understanding capital structure choices and their impacts on financial distress in practice.

2. **Trade-Off Theory:**

The trade-off theory suggests that firms balance the tax benefits of debt against the risk of financial distress. In this context, semi-autonomous government agencies and state corporations may incur debt to benefit from tax shields but face the risk of financial distress if debt levels become too high. The theory provides insight into how organizations trade-off between short-term and long-term debt levels to avoid financial distress.

3. **Pecking Order Theory:**

This theory posits that firms prefer to finance with internal funds (retained earnings), followed by debt, and lastly equity, to avoid information asymmetry costs. For state corporations, reliance on retained earnings could signal a strong financial health, whereas high debt levels could indicate a higher risk of financial distress.

4. **Resource-Based Theory:**

This theory emphasizes the importance of a firm's internal resources, such as retained earnings and capital reserves, in achieving and maintaining competitive advantage. Well-managed financial resources may help state corporations in Kenya's agricultural sector to withstand financial distress, as these resources are critical for long-term sustainability.

5. **Liability Management Theory:**

This theory highlights the importance of managing liabilities (short-term and long-term debts) efficiently to avoid liquidity crises and financial distress. Poor liability management could lead to cash flow problems, exacerbating the risk of financial distress.

Hypothesized Relationships:

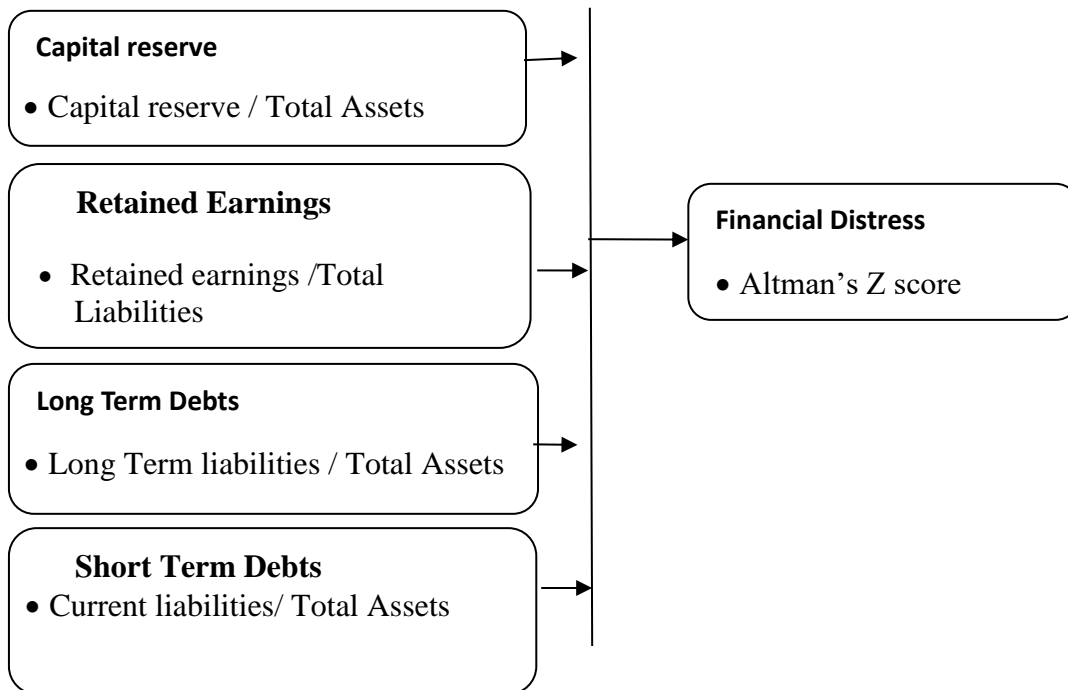
Short-term Debts and Financial Distress: According to the Liability Management Theory, high levels of short-term debt increase the likelihood of financial distress, as they create immediate repayment obligations, putting pressure on cash flow.

Long-term Debts and Financial Distress: The Trade-Off Theory suggests that while long-term debts can provide tax benefits, excessive long-term debt increases the risk of financial distress, especially in volatile economic conditions.

Retained Earnings and Financial Distress: Based on the Pecking Order Theory and Resource-Based Theory, a higher reliance on retained earnings is expected to reduce the likelihood of financial distress, as internal financing reduces dependency on external creditors and decreases financial risk.

Capital Reserve and Financial Distress: According to Resource-Based Theory, capital reserves can act as a financial cushion during periods of economic downturn or operational challenges, helping organizations avoid financial distress.

Figure 2.1: Conceptual Framework



2.5 Operationalization of Variables

Table 1 Operationalization of Variables

Variable	Type of Variable	Indicator	Formula	Measurement Scale
Capital reserve	Independent Variable	Equity Ratio	Capital reserve / Total Assets	Ratio
Retained earnings	Independent Variable	Retained earnings ratio	Retained earnings / Total Liabilities	Ratio
Long-term debts	Independent Variable	Long-term debt ratio	Long-Term Liabilities / Total Assets	Ratio
Short-term debts	Independent Variable	Current Ratio	Current liabilities/ Total Assets	Ratio
Financial Distress	Dependent Variable	Altman's Z score	$Z = X1A + X2 B + X3 C + X4 D + E$	Ratio

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the methodology employed in this study to investigate the impact of financial structures on financial distress among Semi-Autonomous Government Agencies (SAGAs) and State Corporations (SCs) in Kenya's agricultural sector. The methodology encompasses the research design, target population, sampling procedures, data collection methods, data analysis techniques, and ethical considerations. A detailed approach ensures the reliability, validity, and replicability of the study's findings. The study's methodology including the rationale, data sources, location, study population, sample size, sampling techniques, instruments, validity, data analysis, presentation of results, and the limitations are explained.

3.2 Research Design

The research design includes participant selection, study sites, and data collection methods to design a study that addresses the research questions well. The efficiency of research execution was something that was not underestimated because it helps to complete several projects with a minimal number of resources thus; the person can have a deep knowledge of the subject. For this investigation, the descriptive research methodology was used, which intended to give a detailed description of the selected behavioural trait in its natural environment. Descriptive research is conducted when a detailed account of given behaviour in its natural setting is required (Cooper & Schindler, 2014); therefore, questions such as "what," "who," "where," and "how," are central to descriptive research designs. This is because they yield the most accurate depiction of the people, places, and things being studied (Mugenda &

Mugenda, 2018). Cooper & Schindler (2011) argue that researchers can shed more light on relationships using descriptive study design since it allows for a more precise description of the sample's features. Descriptive study designs contribute to the exact depiction of characteristic sample features through the discovery of relationships. The choice of a descriptive research design is justified by its ability to provide a comprehensive picture of the current state of SAGAs and SCs in Kenya's agricultural sector.

The descriptive research plan is to communicate the reasons and ways in which one variable is causing the change of the other variable, to complete the survey, or to interview a sample or population at a time or for a limited time. A combination of quantitative and qualitative approaches was applied, allowing for the observation of interrelationships among different factors at one time. Hence, the research findings can be implicated in other circumstances where financial crises are experienced by SAGAs and SCs in Kenya's agricultural sector.

Characteristics of Descriptive Research Design

Observational Nature: The research design involves observing and describing the behaviour of the subject without influencing it in any way. This ensures that the data collected is an accurate reflection of the current state of affairs.

Cross-Sectional Analysis: The study is cross-sectional, examining data from the selected entities at a single point in time. This provides a snapshot of the financial health and structures of SAGAs and SCs within the specified period.

Quantitative Approach: The study employs a quantitative approach, using numerical data to identify and analyze patterns. This involves the use of statistical tools to quantify the relationships between different financial variables.

3.3 Target Population

Research populations are a category of people who are alike in some ways, often in terms of shared experiences or characteristics. As Kothari (2011) supposed, this is the number of study participants who we expect to recruit. In the terminology of "target population," we are talking about the particular group of people in which the study is most interested from which the data necessary for the study is more likely to be obtained. The target population for this study includes all state-owned agricultural agencies and corporations in Kenya. These organizations are vital to Kenya's economy and food security, making them an ideal focus for the study.

Financial statements and annual reports were collected from the entities' websites, government portals, and direct requests to the organizations. This ensured that all relevant financial data for the period 2017 to 2021 was compiled.

3.4 Sampling Design and Sample Size

The 20 SAGAs and SCs that are under the supervision of Kenya's Ministry of Agriculture were the main group that the study concentrated on (Muringi, 2021). This research was focused on the SAGAS and state corporations that are under the jurisdiction of the Kenyan Ministry of Agriculture. The selection of SAGAs and SCs under the Ministry of Agriculture is motivated by their significant impact on Kenya's agricultural sector. These entities are instrumental in implementing government policies and programs aimed at enhancing agricultural productivity and sustainability. Understanding their financial structures and the associated financial distress is crucial for improving their performance and, by extension, the sector's contribution to the economy.

The period of research was five (5) years from 2017 to 2021, and the entities are analyzed in this group. This time frame was enough to prove the statements with certainty, and in this case, the financial strategies of the SAGAs and state corporations under the Ministry of Agriculture, Kenya, made a contribution to their financial problems. The last stage was to choose the latest period and study current trends and the variables that are being considered. In the current context, collecting data from the past five (5) years was of utmost importance to ensure its applicability in the present. The report enumerated the details of all the residents of SAGA and those of the Ministry of Agriculture. This study captured the complete enumeration of the SAGAS and state corporations that report to the Ministry of Agriculture. Before data collection began, necessary permissions were obtained from KCA University and the relevant SAGAs and SCs. This involved securing consent from the entities to access their financial statements and reports.

3.5 Data Collection Procedure.

The study relied on the secondary data which was gathered from SAGAs and SCs under the Ministry of Agriculture in Kenya. The main purpose for data collection was to obtain the critical financial data from these organizations, which was necessary for the study on the financial structure as a factor for their vulnerability to financial challenges. In order to make the target population and the information to be collected clearer, I employed a data collection sheet with a structure to capture the required financial data.

I obtained an approved consent form from KCA University to collect data from the SAGAS and the national corporations linked to the Ministry of Agriculture in Kenya. The SAGAs and state corporations were informative as I went through their financial statements and what was available on the government website. Information on the websites of the state corporations

under the Ministry of Agriculture, Kenya, was collected alongside that. To address missing data for organizations not found in government reports accessible on websites, the researcher:

1. communicated with the organizations directly, requesting the necessary data.
2. If the other party did not engage, then tried to reach the relevant regulatory bodies.
3. Wherever essential data imputation was needed, transparency of reporting was not compromised.
4. If any limitation was due to a gap of data, it was put out in the public domain. In cases where data is missing or incomplete, the researcher communicated directly with the organizations to request the necessary information. If needed, regulatory bodies were also contacted to obtain additional data.
5. Conducted sensitivity analysis to estimate the effect of unnoticed information on the outcomes.
6. The extensive use of multiple approaches guaranteed data completeness and research reliability. The accuracy and completeness of the collected data was verified by cross-referencing with multiple sources. This includes checking for consistency in the financial figures reported across different documents.

3.6 Data Analysis and Presentation

The rational and standardized approach of my data analysis allowed me to make relevant conclusions. In this regard, I used SPSS version 26 for both descriptive and inferential statistics. Descriptive statistics, comprising of mean, standard deviation, percentage, and frequency, were used to make the statistics meaningful. The tool of inferential statistics was used to infer correlation and regression analysis between variables. Analyzing the panel data was one of the major issues in my analysis where data was collected on one variable over different time points. This method allowed me to include information

about trends, cycles, seasonality, etc. in the data. First of all, I performed the correlation analysis among the variables and the time series regression analysis to determine the interrelationships between the independent and dependent variables. This particular research applied Altman's Z score to measure a company's financial leverage which was a significant indicator of the financial performance of a company. Multiple linear regression was the model used to explain the dependency between a continuous dependent variable and one or more independent variables, which were observed over time. The regression equation was:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$$

Where:

Y represents the Financial Distress

X1, X2, X3, and X4 represents the values of the independent variables (Capital reserve, Retained Earnings, Long-Term Debts, and Short-Term Debts) in different years.

α is the intercept of the regression equation.

$\beta_1, \beta_2, \beta_3, \beta_4$ are coefficients that measure the impact of each independent variable on the dependent variable.

e represents the error term at time t, capturing the difference between the predicted and actual values.

3.7 Diagnostic Tests

In this research, I performed tests of significance to establish if there is a notable correlation between the variables.

3.7.1 Hausman test

The Hausman test is a statistical test used to determine whether to use fixed effects or random effects models in panel data regression analysis. It helps check if the unique errors are correlated with the independent variables in the model. The Hausman test tests the null hypothesis that the preferred model is random effects. If the p-value is less than 0.05, you reject the null hypothesis and conclude that the fixed effects model is more appropriate. If the p-value is greater than 0.05, you fail to reject the null hypothesis, meaning the random effects model is preferred.

3.7.2 Multicollinearity test

Multicollinearity testing is the most common practice in statistics, in linear regression, which is measuring the strength of the predictor variables relationship. Pearson correlation is the method to detect the linear relationship between predictor and response variables which may violate the linear regression assumption. Among the dataset of multicollinearity of multiple regression variables, the variance inflation factors (VIFs) are used to assess it. The VIF of an independent variable in a regression model is determined by dividing the total variance of the model by the variance of the model that contains only that independent variable. Severe multicollinearity is signalled by VIF greater than 5.

Recognizing the fact that sometimes the predicted variables are affected by other variables or are inversely proportional to them, is a key factor in determining the proper use of data for

hypotheses and estimations. As with linearity among predictor variables, multicollinearity diagnostics suffer this problem, and its severity, as indicated by a correlation of 0.5, can have a great impact on the results.

3.7.3 Normality test

Researchers run the test of normality to check whether their data is distributed in a bell-shaped curve, which means that there is no excessive skewness on the left or the right of the line of best fit and the data is converging towards the mean. They can figure out if their data follows the linear regression rules through scatter plots and best fit lines. To achieve the normality of data, the linear regression analysis was validated by the use Kolmogorov-Smirnov and Shapiro-Wilk test. In the case of the normal distribution, I assumed normalcy to be the hypothesis that the data follows a normal distribution. If the level of significance in the test is less than 0.05, the rejection of the null hypothesis is the case. I used t-tests to verify the 5% confidence level of the statistical significance. A link is thought to be weak and ignored if the p-value is higher than 0.05.

3.7.4 Heteroscedasticity test

The first step was the Classical Linear Regression Model which assumes a fixed variance of the error term. If the variance of the error term was not constant, I then would have been able to infer heteroscedasticity. Although the initial task was to determine the regression parameter estimates, the possibility of having skewed standard errors could arise when there is heteroscedasticity in the model. The scatter plot of residuals was done to check if the error variance was homoscedastic, that is, if the data had a consistent error variance. The null hypothesis in this study was the possibility of constant error variance.

3.7.5 Autocorrelation test

The data serial correlation was assessed by using Durbin Watson autocorrelation test. The autocorrelation test, which was applied to check whether the predictor variables were auto correlated.

3.8 Ethical Consideration

The study has the ethics already considered in its design. These include getting clearance from KCA University to collect the data and also ensuring that consent is secured from the institutions when it is necessary for the data to be acquired. Moreover, all the material that is taken from other authors as well as published works is appropriately cited within the body of the text, which complies with ethical standards of academic integrity and prevents plagiarism.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

The research variables (descriptive, diagnostic, and inferential) are presented in this chapter in the form of empirical findings. The study aimed to establish whether or not there is a relationship between the organization of the financial system and the level of financial stress for Semi-Autonomous Government Agencies and state corporations within the agriculture sector of Kenya. The findings were based on particular goals that included the following: to provide the impact that share equity has on the financial load; to find the effect that retained earnings have on the financial load; to discuss the effect that long-term debts have on the financial load; and to give the impact that short-term debts have on the financial load of SAGAs and SCs that are operating in the agricultural sector of Kenya.

4.2 Descriptive Analysis Results

The independent study factors include: Capital reserve, retained profits, long-term loans, and short-term debts. In this research study, the dependent variable was the type of financial strains that SAGAs and SCs in the Kenyan agricultural industry had to deal with. Researchers found a statistically significant number of SAGAs and SCs in the agriculture industry to be the targets of the investigation. Agricultural Finance Corporation, Agro-Chemical and Food Company Limited, Kenya Agricultural and Livestock Research Organization, Chemelil Sugar Company Limited, Agricultural Development Corporation, Simalw Seeds Company Limited, and other bodies which constitute the total 20 SAGAs and SCs are the entities involved. The outcome was 73%. Kothari (2010) says that the answer rate of 50% is just enough for analyzing

data. Table 2 represents the information provided by the 20 SAGAS and SCs in the audited annual reports.

Table 2 Descriptive Statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Short Term Debts	100	.0013	1.7901	.181896	.3507406
Long Term Debts	100	.0064	3.3244	.524089	.8038608
Retained Earnings	100	-331.4346	14.1858	-3.370664	33.2456106
Capital Reserve	100	.0000	.6815	.088497	.1323757
Altman's Zscore	100	-19.0200	12.6500	1.719300	5.4965512
Valid N (listwise)	100				

Table 2 displays the descriptive statistics for the mean Semi-Autonomous Government Agencies' (SAGAs) financial performance on the variables above. The table above represent Short Term Debts, Long Term Debts, Retained Earnings, Capital reserve, and Altman's Z score.

The independent study factors include Capital reserve, retained profits, long-term loans, and short-term debts. In this research study, the dependent variable was the type of financial strains that SAGAs and SCs in the Kenyan agricultural industry had to deal with.

The descriptive statistics table 2 provides a summary of the key financial variables analyzed in this study. These statistics offer insights into the central tendencies and dispersion of the data collected from 100 observations of SAGAs and SCs within Kenya's agricultural sector. Here's a detailed explanation of each component in the table:

N (Number of Observations): This column indicates the total number of observations included in the analysis for each variable. In this study, there were 100 observations for each financial variable.

Minimum: The minimum value recorded for each variable. For instance, the lowest value of Short-Term Debts recorded was 0.0013 while for Long-Term Debts was 0.006

Maximum: The maximum value recorded for each variable. The highest maximum for Short-Term Debts recorded was 1.79 and the highest amount for Long-Term Debts was 3.324. These values indicate significant variability in the debt levels among the SAGAs and SCs.

Mean: The mean (average) value for each variable. The mean value of Short-Term Debts was approximately 0.18 indicating that, on average, the SAGAs and SCs had substantial short-term debt obligations. Similarly, the mean value of Long-Term Debts was approximately 0.52 suggesting notable long-term debt commitments.

Standard Deviation: The standard deviation indicates the dispersion or variability around the mean. A higher standard deviation implies greater variability in the data. For instance, the standard deviation for Short-Term Debts was approximately 0.35 indicating a wide range of short-term debt levels among the entities. The standard deviation for Long-Term Debts was approximately 0.80 also reflecting considerable variability.

Altman's Z-Score: This score is a measure used to predict the likelihood of financial distress. The minimum Altman's Z-Score recorded was -19.02, and the maximum was 12.65. The mean Z-Score was 1.72, with a standard deviation of 5.49, indicating substantial variability in financial health among the SAGAs and SCs.

The wide range and high standard deviations for Short-Term Debts and Long-Term Debts indicate that the SAGAs and SCs in Kenya's agricultural sector have highly variable debt levels, suggesting differences in financial management practices and financial health.

The negative mean value for Retained Earnings indicates that, on average, the entities may be experiencing financial difficulties, retaining insufficient earnings to support their operations.

The variability in Altman’s Z-Score, with many entities having a lower score indicating financial distress, highlights the financial challenges faced by these organizations.

These descriptive statistics provide a foundational understanding of the financial conditions of the SAGAs and SCs, setting the stage for further inferential analysis to explore the relationships between these financial variables and financial distress.

The result on Altman’s Z score was calculated by the formulae

$$\text{Altman's Z score} = 1.2X1 + 1.4X2 + 3.3X3 + 0.6X4$$

Regression Summary

The regression summary and ANOVA tables provide key statistics that help to understand the relationship between the dependent variable (financial distress) and the independent variables (Capital reserve, long-term debts, retained earnings, and short-term debts). Here is an explanation of each component in these tables:

Table 3 Model Summary

Model Summary										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
					R Square Change	F	df1	df2	Sig. F Change	Durbin-Watson
1	.973 ^a	.947	.945	1.2931400	.947	423.412	4	95	.000	.653

a. Predictors: (Constant), Capital Reserve, Retained Earnings, Short Term Debts, Long Term Debts

b. Dependent Variable: Altman's Z score

The output indicates that test correlation value for Pearson coefficient is 0.973. Thus, the R^2 value associated is 0.947. Similarly, the test Durbin-Watson variance is 0.653, too. This means that the dependent variable and the fixed one follow a positive auto-ordering.

R (Correlation Coefficient): The correlation coefficient (R) measures the strength and direction of the linear relationship between the dependent variable and the independent variables. In this case, R is 0.973, indicating a strong positive correlation between financial distress and the financial structure variables.

R Square (Coefficient of Determination): R Square (R^2) indicates the proportion of the variance in the dependent variable that can be explained by the independent variables. An R^2 value of 0.947 means that only 94.7 % of the variation in financial distress can be explained by the financial structure variables in this model. This suggests that other factors not included in the model may have a significant impact on financial distress.

Adjusted R Square: Adjusted R Square adjusts the R^2 value based on the number of predictors in the model, providing a more accurate measure when multiple independent variables are involved. In this case, the Adjusted R^2 is 0.945, which is positive and suggests that the model fit the data well

Std. Error of the Estimate: This value represents the standard deviation of the residuals (errors) in the model. A smaller standard error indicates a better fit of the model to the data. In this case, the standard error is 1.2.

Table 4 ANOVA

		ANOVA^a				
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2832.135	4	708.034	423.412	.000 ^b
	Residual	158.860	95	1.672		
	Total	2990.995	99			

a. Dependent Variable: Altman's Zscore

b. Predictors: (Constant), Capital Reserve, Retained Earnings, Short Term Debts, Long Term Debts

Sum of Squares: Regression Sum of Squares (SSR): Measures the variation explained by the regression model. In this case, it is 2832.135

Residual Sum of Squares (SSE): Measures the variation not explained by the model (errors). Here, it is 158.860.

Total Sum of Squares (SST): The total variation in the dependent variable, which is the sum of SSR and SSE. In this case, it is 2990.995

df (Degrees of Freedom): Regression df: The number of independent variables (predictors) in the model. Here, it is 4.

Residual df: The total number of observations minus the number of predictors minus 1. Here, it is 95.

Total df: The total number of observations minus 1. Here, it is 99.

Mean Square: Mean Square Regression (MSR): The average variation explained by the model, calculated as SSR divided by the regression df. Here, it is 708.034

Mean Square Error (MSE): The average variation not explained by the model, calculated as SSE divided by the residual df. Here, it is 1.672.

F-Statistic: The F-value tests the overall significance of the regression model. It is calculated as MSR divided by MSE. Here, the F-value is 423.412. This value compares the model fit against a model with no predictors (intercept only).

Sig. (p-value): The p-value tests the null hypothesis that all regression coefficients are equal to zero (i.e., the model has no explanatory power). In this case, the p-value is 0.00, which is less than the common alpha level of 0.05. This indicates that there is a statistically significant relationship between the independent variables and the dependent variable in this model.

The regression summary and ANOVA table collectively suggest that the independent variables (Capital reserve, long-term debts, retained earnings, and short-term debts) significantly explain the variation in financial distress among the SAGAs and SCs in Kenya's agricultural sector. The low R^2 value and high p-value indicate that other factors not included in this model may play a more significant role in influencing financial distress. The F-value of 423.412 and a p-value of 0.00 which is less than 0.05 suggested that model was a good fit.

4.3 Diagnostic Tests

The ANOVA results indicate that the F-statistics value for this analysis is $F(4, 99) 423.412$, with then corresponding p-value of the test <0.05 . This agrees with the assumption that the test is good, and thus the selected independent variables are highly significant and therefore can be regarded as the ones which have a significant impact on the Altman's Z score, and thus can be considered crucial for predicting the financial distress of semi-autonomous government agencies.

4.3.1 Hausman test

Hausman Test Results was Chi-squared: 9.9386, Degrees of Freedom (df): 4, p-value: 0.04147.

The null hypothesis of the Hausman test is that the random effects model is appropriate

The alternative hypothesis suggests that the random effects model is inconsistent

Since the p-value (0.04147) is less than 0.05, you reject the null hypothesis, suggesting that the random effects model may not be appropriate and the fixed effects model is preferred.

In conclusion, based on the Hausman test results, I used the fixed effects model for my analysis of Altman's Z score, as it provided consistent estimates while the random effects model may produce biased results.

4.3.2 Normality tests

The findings of evaluating if the data follows a normal distribution, I ran a normality test for the data after the data was transformed using ranking and the Inverse Distribution Function to test the data for normality.

Table 5: Normality test

	Tests of Normality					
	Statistic	Kolmogorov-Smirnov ^a			Shapiro-Wilk	
		df	Sig.	Statistic	df	
STD	.017	96	.200*	.998	96	1.000
LTD	.016	96	.200*	.998	96	1.000
RE	.012	96	.200*	.998	96	1.000
CR	.063	96	.200*	.977	96	.091
Zsc	.019	96	.200*	.995	96	.981

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Normality tests are crucial in statistical analysis to determine whether a data set is well-modelled by a normal distribution. The normality of data is an underlying assumption for many statistical tests, including t-tests and ANOVA, which require the data to be approximately normally distributed to produce valid results.

In this study, two common tests for normality were employed: the Kolmogorov-Smirnov test and the Shapiro-Wilk test.

Kolmogorov-Smirnov Test

The test compares the sample distribution with a reference probability distribution (in this case, the normal distribution). The p-values for the Kolmogorov-Smirnov test were; short term 0.2, long term debts 0.2, retained earnings 0.2, Capital reserve 0.2. Significant p-values (greater than 0.05) indicated that the sample followed a normal distribution.

Shapiro-Wilk Test

This test specifically evaluates that the data was drawn from a normal distribution. The p-values for the Shapiro-Wilk test were; short term 1.00, long term debts 1.00, retained earnings 1.00, Capital reserve 0.091, Altman's z score 0.981. Similar to the Kolmogorov-Smirnov test, p-values (greater than 0.05) indicated that the data was normally distributed.

Both tests indicated that the data did not deviate from a normal distribution. Since the p-values for both tests were greater than the common alpha level of 0.05, I concluded that the data was normally distributed.

Conclusion

The normality tests conducted in this study provide a comprehensive assessment of whether the data follows a normal distribution. The significant p-values from both the Kolmogorov-Smirnov and Shapiro-Wilk tests indicate that the data was normally distributed.

4.3.3 Autocorrelation

The Durbin-Watson statistic tests for autocorrelation in the residuals. A value close to 2 indicates no autocorrelation, while values closer to 0 or 4 indicate positive or negative autocorrelation, respectively. The Durbin-Watson value of 0.653 suggested that there is a significant autocorrelation in the residuals, meaning the model's errors are independent.

4.3.4 Multicollinearity tests

The purpose of the multicollinearity test is to determine whether or not one or more of the research's variables are significantly related to other factors that explain the results of the investigation. Table 6 and 7 displays the findings of the collinearity test that was performed.

Table 6 Coefficients for Collinearity Diagnostics

Model	Coefficients	Collinearity Statistics	
		Tolerance	VIF
1	Short Term Debts	.509	1.966
	Long Term Debts	.500	2.002
	Retained Earnings	.987	1.014
	Capital Reserve	.924	1.082

a. Dependent Variable: Altman's Z score

In the analysis of multicollinearity, the objective is to determine whether independent variables are highly correlated, which can inflate the variance of the coefficient estimates and make the model

unreliable. In this study, collinearity diagnostics were performed using Variance Inflation Factors (VIF) and Tolerance values.

VIF measures how much the variance of an estimated regression coefficient increases if your predictors are correlated. A VIF value greater than 10 is typically considered an indication of severe multicollinearity. The table reports the following VIF values: Capital reserve 1.082, Retained Earnings 1.014, Short-Term Debts 1.966 and Long-Term Debts 2.002. Since Capital reserve, retained earnings, short-term and long-term debt have VIF values below the threshold of 10, it can be concluded that multicollinearity was not a significant problem in this analysis. This means that these independent variables do not have a high degree of linear relationship with each other, and that the regression coefficients are reliable.

Tolerance is another measure used to detect multicollinearity, and it is the inverse of VIF. A tolerance value below 0.1 indicates serious multicollinearity problems. The reported tolerance values are: Capital reserve 0.924, Retained Earnings 0.987, Short-Term Debts 0.509 and Long-Term Debts 0.500. Since all tolerance values for Capital reserve and retained earnings are well above 0.1, this further supports the conclusion that multicollinearity was not an issue in the model.

Table 7: Collinearity Diagnostics

Collinearity Diagnostics									
Mode	I	Dimension	Eigenvalue	Condition Index	(Constant)	Variance Proportions			
						Short Term Debts	Long Term Debts	Retained Earnings	Capital Reserve
1	1		2.344	1.000	.06	.05	.05	.00	.03
	2		1.129	1.441	.04	.06	.04	.04	.31
	3		1.001	1.530	.00	.00	.00	.92	.04
	4		.313	2.738	.72	.27	.00	.04	.56
	5		.213	3.318	.18	.62	.91	.01	.07

a. Dependent Variable: Altman's Z score

The table 7 also presents the collinearity diagnostics, which include:

Eigenvalue: Represents the amount of variance explained by each principal component.

Condition Index: Measures the sensitivity of the regression coefficients to small changes in the data. A condition index above 30 indicates severe multicollinearity.

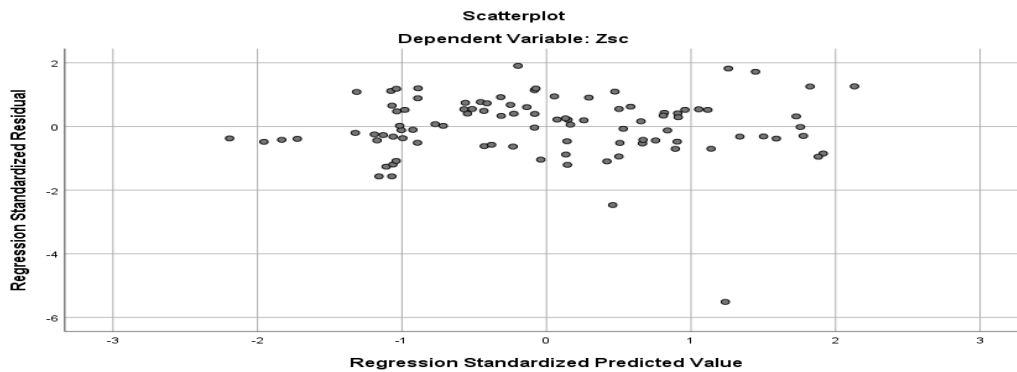
Variance Proportions: Show the proportion of variance of each coefficient accounted for by each principal component.

Eigenvalue: Ranges from 0.213 to 2.344, **Condition Index:** The highest condition index is 3.3, which is well below the critical value of 30. **Variance Proportions:** Indicate how much of each variable's variance is concentrated in the same component. The diagnostic table reveals that there is no significant concentration of variance in any single dimension, suggesting that multicollinearity is not present.

Summary

The results of the collinearity diagnostics show that multicollinearity was not a concern in this study. The VIF values are below 10, and the tolerance values are above 0.1, indicating that the independent variables do not exhibit strong linear relationships with each other. Additionally, the collinearity diagnostics table supports this conclusion, with low condition indices and well-distributed variance proportions. Therefore, the regression model's coefficient estimates are stable and reliable, and the independent variables can be considered to independently explain the variation in the dependent variable without significant multicollinearity issues.

4.3.5 Heteroscedasticity tests



The Scatter plot of residuals above shows that residuals are evenly spread, there is no evidence of heteroscedasticity in the model. This is a desirable outcome because it means that the residuals do not vary systematically with the independent variables, and the standard errors of my regression coefficients are accurate.

4.4 Fixed Effect Regression Model

Table 8: Regression Coefficients

Parameter	Estimates of Fixed Effects					95% Confidence Interval	
	Estimate	Std. Error	df	t	Sig.	Lower Bound	Upper Bound
Intercept	4.751049	.171330	86.485	27.730	.000	4.410484	5.091614
Short Term Debts	-4.460431	.465794	89.623	-9.576	.000	-5.385865	-3.534997
Long Term Debts	-4.912464	.204939	89.030	-23.970	.000	-5.319671	-4.505257
Retained Earnings	.018015	.005277	20.672	3.414	.003	.007031	.028999
Capital Reserve	4.169583	.922223	88.203	4.521	.000	2.336918	6.002248

a. Dependent Variable: Altman's z score.

Replacing the regression coefficients, the equation for this analysis is:

$$Y = -4.4X_1 - 4.9X_2 + 0.018X_3 + 4.17 X_4$$

An unequal funding mix, according to Maina and others corroborated the research findings. Kaumbuthu (2011) revealed that the debt ratio of listed businesses is crucial in forecasting financial hardship. Kondongo (2013) argued that mismanagement and financial structure decisions significantly contribute to the financial distress of many delisted firms. Muchiri, Muturi, and Ngumi (2016) also confirmed that capital structure plays a major role in financial distress.

Their findings align with those of Kholisoh and Dwiarti (2020) and Zulkarnain (2015), who identified an inverse relationship between financial distress and the ratio of short-term obligations to assets. Pratheepkanth (2011) found no significant relationship between short-term debt and financial distress, whereas Mbai (2018) observed a strong correlation between short-term debt and financial distress. Moreover, many state-owned government agencies (SAGAs) and state corporations (SCs) prefer short-term borrowing over long-term debt.

Susanti et al. (2020) noted that long-term debt exacerbates financial distress, a view supported by Václav and David (2017), who found a strong correlation between long-term debt and financial distress. Khoja, Chipulu, and Jayasekera (2019) also linked long-term debt to increased financial distress, while Songhor (2018) found a negative correlation between long-term debt and financial distress.

Additionally, the studies suggest that an enterprise's chances of avoiding financial trouble increase when internal funds are not used to settle charges such as taxes. Nketiah (2017) showed that retained income has a lower probability of causing financial hardship. Shome and Verma (2020) identified retained earnings as a significant predictor of financial distress. Darmawan and Supriyanto (2018) found that retaining earnings in the asset ratio positively affects a company's financial difficulty.

Meuleman et al. (2020) discovered a negative correlation between equity financing and financial distress among enterprises. This finding is echoed by Turaboglu et al. (2017) and Ikpesu and Eboiyehi (2018), who also found negative correlations between Capital reserve and financial distress. Wesa and Otinga (2018) identified a significant correlation between Capital reserve and financial distress. Conversely, Muigai (2016) demonstrated that while financial leverage exacerbates firms' financial distress, Capital reserve and long-term debt alleviate it.

4.5.1 Effect of short-term debt on financial distress

The results of regression model (-4.46, $0.00 < 0.05$) indicated that Short Term Debts had a negative and statistically significant effect on Altman's Z-score. The standardized coefficient indicated that Short Term Debts was a strong predictor. This suggested that, STD had significantly influenced the t-statistics value score. The results shows that one unit in the Short-Term Debts, affects the Z-score by -4.46, assuming all other variables remain constant.

4.5.2 Effect of long-term debt on financial distress

According to the findings presented in Table 8, the model indicated that the long-term debts had a coefficient of -4.91 and a 0.0 significant level. long term debts had a negative and statistically significant effect on Altman's Z-score. It was the strongest predictor with the highest negative impact on the Z-score. One unit in long term debts decreases the alman's Z score by -4.91, assuming all other variables remain constant. The study agreed with Susanti et al. (2020), who focused on companies listed on the Indonesian Stock Exchange, that having long-term debt makes financial crisis more severe. It also agreed according to the findings of Mselmi et al. (2017), long-term debt has a considerable impact on financial hardship. Václav and David (2017) concluded that a high ratio of long-term debt is substantially correlated with

a distressed financial situation. Long-term loans were found to have a considerable impact on a person's level of financial distress, according to Khoja, Chipulu, and Jayasekera (2019).

4.5.3 Effect retained earnings on financial distress

According to the findings shown in Table 8, retained earnings had a coefficient of 0.018 and P value of 0.003. This indicated that retained earnings positively and significantly impacted Altman's Z-score, but it was a weaker predictor compared to the other variables. Higher retained earnings were associated with a higher Z-score. The findings agreed with Shome and Verma (2020) evidence of the hypothesis that retained earnings were an important factor in determining the severity of a company's financial predicament.

4.5.4 Effect of Capital reserve on financial distress

According to the findings shown in Table 8, Capital reserve had a coefficient of 4.17 and a significant level of 0.00 which showed that it had a positive and statistically significant effect on Altman's Z-score and it was a moderate predictor, suggesting that changes in Capital reserve were reliable indicator of impending financial hardship hence, the more Capital reserve an organization have, the higher the Z-score.

These findings offer valuable insights into the financial dynamics of SAGAs and SCs in Kenya's agricultural sector, emphasizing the importance of a well-balanced financial structure and the need for prudent financial management to avoid or alleviate financial distress. The research contributes to the understanding of financial risk factors within these corporations and provides a basis for making informed financial decisions to ensure their financial health and stability.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS 5.1

Introduction

In this chapter, I presented the results of the data analysis and discussed the findings in the context of my research objectives and hypotheses. The focus of the analysis is on the relationship between various financial structure variables Capital reserve, Retained Earnings, Long-Term Debts, and Short-Term Debts and the level of financial distress in semi-autonomous government agencies (SAGAs) and state corporations (SCs) within Kenya's agricultural sector.

5.2 Descriptive Analysis Results

5.2.1 *Financial distress*

The use of Altman's *Z* score as an indicator of financial distress revealed that a notable portion of semi-autonomous government agencies (SAGAs) and state corporations (SCs) in Kenya's agricultural sector were either experiencing financial distress or were on the brink of encountering it in the foreseeable future. This discovery resonates with earlier research that underscored the financial hurdles encountered by organizations within the agricultural sector.

5.2.2 *Short-term debt*

The analysis of short-term debt (STD) aimed to assess its influence on financial distress. The results uncovered a notable and statistically significant negative impact of STD on the Altman's *Z* score. Essentially, an increase in one unit of short-term debt was linked to a -4.46 increase in the financial well-being of these organizations. This refutes the widely accepted

idea that an elevated level of short-term debt can reduce financial distress. These findings underscore the importance of caution among semi-autonomous government agencies (SAGAs) and state corporations (SCs) when it comes to relying heavily on short-term debt for their financing needs. It emphasizes the need for prudent financial management practices, including maintaining a balanced debt structure.

5.2.3 Long-term debt

Long-term debt (LTD) was examined to assess its influence on financial distress. The results indicated that LTD had statistically significant negative impact on the Altman's Z score. One unit in long term debts decreases the alman's Z score by -4.91. This finding demonstrated a negative relationship between long-term debt and financial distress. It showed that an increase in long term debts led to increased financial distress.

5.2.4 Retained earnings

The analysis of retained earnings showed statistically significant positive impact on the Altman's Z score. An increase in retained earnings was associated with a reduction in financial distress, indicating that organizations with higher retained earnings were better positioned to mitigate financial strain. This finding underscores the importance of building and retaining earnings as a financial buffer to handle unforeseen challenges.

5.2.5 Capital reserve

Capital reserve was examined to determine its impact on financial distress. The analysis found a statistically significant influence of Capital reserve on financial distress, it had a positive impact on financial distress. Increased Capital reserve led to a company to be financially stable.

5.3 Diagnostic Tests

Before conducting the regression analysis, several diagnostic tests were performed to ensure that the assumptions for regression were not violated.

5.3.1 Hausman test

The test was done and fixed effects model was appropriate for my analysis of Altman's Z score, as it provided consistent estimates while the random effects model may produce biased results.

5.3.2 Normality tests

The normality tests conducted in this study provide a comprehensive assessment of whether the data follows a normal distribution. The significant p-values from both the Kolmogorov-Smirnov and Shapiro-Wilk tests indicate that the data was normally distributed.

5.3.3 Multicollinearity tests

The results of the collinearity diagnostics show that multicollinearity was not a concern in this study. The VIF values are below 10, and the tolerance values are above 0.1, indicating that the independent variables do not exhibit strong linear relationships with each other. Additionally, the collinearity diagnostics table supports this conclusion, with low condition indices and well-distributed variance proportions.

5.3.4 Heteroscedasticity tests

Heteroscedasticity tests were conducted to determine if there were issues with non-constant error variance. The Scatter plot of residuals above shows that residuals are evenly

spread, there is no evidence of heteroscedasticity in the model. This is a desirable outcome because it means that the residuals do not vary systematically with the independent variables, and the standard errors of my regression coefficients are accurate.

5.3.5 Autocorrelation tests

The Durbin-Watson test was done to determine autocorrelation which suggested that there was autocorrelation in the residuals, meaning the model's errors were independent.

5.4 Regression Analysis

The random-effects regression model was applied to investigate the relationships between the financial structure variables and financial distress.

5.4.1 Effect of short-term debt on financial distress

The regression analysis showed that short-term debt had statistically significant negative impact on the Altman's Z score. This indicated that an increase in short-term debt led to financial distress, rejecting the hypothesis that short-term debt has no significant effect on financial distress of SAGAs and SCs in Kenya's agricultural sector. This agreed with Nyongesa (2023) which indicated that short term debt had significant negative influence on Kenyan commercial state corporations' financial performance.

5.4.2 Effect of long-term debt on financial distress

Long-term debt showed a statistically significant negative impact on the Altman's Z score. This result rejected the hypothesis that long term debt has no significant effect financial distress of SAGAs and SCs in Kenya's agricultural sector which did not agree with Nyongesa (2023)

which indicated that long term debt had significant positive effect on Kenya commercial state corporations' financial performance.

5.4.3 Effect of retained earnings on financial distress

Retained earnings were statistically significant. An increase in retained earnings was associated with an improvement in the Altman's Z score, indicating a reduction in financial distress. This result rejected the hypothesis that retained earnings have no significant effect on financial distress of SAGAs and SCs in Kenya's agricultural sector.

5.4.4 Effect of Capital reserve on financial distress

Capital reserve had statistically significant positive impact on the Altman's Z score. Changes in Capital reserve was reliable indicator of impending financial distress. This finding rejected the null hypothesis that Capital reserve has no significant effect on financial distress of SAGAs and SCs in Kenya's agricultural sector.

5.5 Summary of Findings

The findings of this research provide valuable insights into the financial dynamics of SAGAs and SCs in the agricultural sector in Kenya. Key findings include:

1. A significant number of SAGAs and SCs in the agricultural sector in Kenya are experiencing or at risk of facing financial distress.
2. Short-term debt and long-term debt showed a significant negative impact on financial distress which exacerbates financial distress.
3. Retained earnings play a crucial role in alleviating financial distress.
4. Capital reserve also have a significant impact on financial distress.

These findings highlight the importance of managing debt levels, building and retaining earnings, and making informed financial decisions to ensure the financial stability and health of SAGAs and SCs in the agricultural sector. The results can inform financial management strategies and policies for these corporations in Kenya.

5.6 Implications

The research findings carry significant implications for SAGAs, SCs, policymakers, and the broader agricultural sector. Understanding and acting upon these implications can contribute to the financial health and sustainability of organizations in the agricultural sector:

5.6.1 Implications for SAGAs and SCs

The findings indicate that SAGAs and SCs need to adopt a more strategic approach to managing their financial structures. Effective financial management practices can mitigate the risk of financial distress and enhance overall performance. Key implications include:

a. **Financial Distress Awareness:** The research has unveiled a critical issue — a substantial number of SAGAs and SCs in the agricultural sector are grappling with financial distress or are at risk of encountering it. This finding underscores the urgency of instituting vigilant monitoring systems and early detection mechanisms for financial distress. Corporations must establish robust financial distress indicators to promptly identify and address financial challenges.

b. **Debt Management:** The study has emphasized that short-term debts can exacerbate financial distress. SAGAs and SCs should prioritize meticulous debt management. Striking a balance between short-term and long-term financing is crucial to prevent the negative repercussions of excessive debt.

c. **Retained Earnings:** The research demonstrates that retained earnings play a pivotal role in mitigating financial distress. Organizations should focus on bolstering their profitability and retaining earnings as a financial buffer during challenging times. Strategies for enhancing profitability and retaining earnings should be central to their financial management practices.

D. Capacity Building: Enhancing the financial management capacity within these entities by providing ongoing training and development for financial managers and staff. This will ensure they are equipped with the latest financial management tools and practices.

e. **Balanced Financing Mix:** Ensuring a balanced mix of debt and equity financing to optimize financial health. Entities should develop clear financial strategies that consider both short-term and long-term financing options

5.6.2 Implications for policymakers

Policymakers play a crucial role in shaping the financial landscape for SAGAs and SCs. The study's findings suggest several policy implications:

a. **Financial Support and Monitoring:** Policymakers hold a critical role in providing financial support and establishing close monitoring mechanisms for SAGAs and SCs in the agricultural sector. Timely financial interventions can help organizations evade financial distress, safeguarding the agricultural sector and the broader economy from adverse consequences.

b. **Financial Literacy and Training:** Policymakers should consider the implementation of financial literacy and training programs for the management teams and boards of SAGAs and SCs. Enhanced financial knowledge equips organizations to make informed financial decisions and manage their financial structures adeptly.

c. **Regulatory Framework:** Policymakers must craft a transparent regulatory framework that guides the financial activities of SAGAs and SCs. This framework should encompass comprehensive guidelines on debt management, financial reporting, and accountability, promoting responsible financial practices.

d. **Incentives for Best Practices:** Developing incentive schemes for SAGAs and SCs that adopt best financial management practices. This could involve tax benefits, grants, or preferential funding terms for entities demonstrating strong financial health.

5.6.3 Implications for researchers

The study contributes to the academic literature on financial management in the public sector. The findings highlight the need for further research in several areas:

a. **Further Research:** The research findings serve as a foundation for further exploration in the domain of financial distress within the agricultural sector. Researchers can delve deeper into specific factors contributing to financial distress, the influence of government policies, and comparative analyses across different regions and agricultural sub-sectors. Conducting sector-specific studies to understand the unique financial challenges and opportunities in different industries. Researchers can explore how financial structures impact other public sector entities beyond agriculture.

b. **Longitudinal Studies:** Longitudinal studies that trace the financial performance and distress of SAGAs and SCs over several years can yield valuable insights into trends and patterns within the agricultural sector. This longitudinal perspective can enhance our understanding of financial dynamics.

c. Comparative Studies: Comparing the financial management practices of SAGAs and SCs in different countries to identify best practices and lessons learned. Cross-country comparisons can reveal how different regulatory environments and economic conditions influence financial health.

5.7 Recommendations

Drawing from the implications highlighted, the following recommendations are put forth to guide the actions of corporations, policymakers, and researchers:

5.7.1 Recommendations for SAGAs and SCs

a. Develop Financial Distress Indicators: SAGAs and SCs should develop, implement, and regularly monitor financial distress indicators. These indicators serve as early warning systems for potential financial challenges, allowing organizations to take proactive measures.

b. Diversify Financing Sources: Organizations should explore a diverse range of financing sources to reduce their reliance on short-term debt. This diversification may include seeking grants, subsidies, and equity investments to enhance financial stability.

c. Financial Training: Provide comprehensive financial training for management teams and board members. Elevating financial literacy and decision-making capabilities is essential for prudent financial management.

d. Optimize Financial Structure: Adopt a strategic approach to optimize the mix of debt and equity financing. Regularly review and adjust financial structures to align with organizational goals and market conditions.

e. Enhance Cash Flow Management: Implement robust cash flow management practices to ensure liquidity and the ability to meet short-term obligations. Develop cash flow forecasts and monitor cash flow regularly.

f. Strengthen Financial Oversight: Establish strong financial oversight mechanisms, including regular audits and financial performance reviews. Ensure transparency and accountability in financial reporting.

g. Leverage Technology: Utilize financial management software and technology to improve accuracy and efficiency in financial reporting and analysis. This can help in timely identification and mitigation of financial risks.

5.7.2 Recommendations for policymakers

a. Financial Support Programs: Policymakers should institute financial support programs for SAGAs and SCs, including grants, low-interest loans, and debt relief mechanisms. These programs can play a pivotal role in helping corporations overcome financial distress and contribute to a stable agricultural sector.

b. Regulatory Guidelines: Policymakers must establish clear and transparent regulatory guidelines for financial management within the agricultural sector. These guidelines should address debt management practices, financial reporting standards, and auditing requirements.

c. Capacity Building: Invest in capacity-building initiatives aimed at enhancing the financial management skills of SAGAs and SCs. Building organizational capacities in financial management can help organizations navigate financial challenges more effectively.

d. Provide Financial Training: Develop and deliver training programs for financial managers in SAGAs and SCs to build their capacity in financial management. Topics should include debt management, cash flow forecasting, and financial planning.

e. Establish Support Mechanisms: Create support mechanisms, such as financial advisory services and technical assistance, to help SAGAs and SCs navigate financial challenges and improve their financial management practices.

f. Promote Public-Private Partnerships: Encourage public-private partnerships to leverage private sector expertise and resources in improving financial management practices in the public sector.

5.7.3 Recommendations for researchers

a. In-Depth Studies: Researchers should conduct comprehensive in-depth studies to explore the specific causes and drivers of financial distress in the agricultural sector. These studies can unveil nuanced insights into the complexities of financial challenges within this domain. Explore the financial management practices and challenges in specific sectors, such as healthcare, education, and infrastructure, to provide targeted insights and recommendations

b. Comparative Analysis: Comparative studies that assess the financial performance and distress of SAGAs and SCs across different regions and agricultural sub-sectors should be conducted. Such analyses can shed light on regional disparities and sector-specific dynamics.

c. Implement Longitudinal Studies: Undertake longitudinal studies to track the impact of financial structures on organizational performance over time. This approach can provide valuable insights into the long-term effects of financial decisions.

d. Investigate Governance Practices: Examine the impact of governance practices on financial health, focusing on board composition, management accountability, and stakeholder engagement.

5.8 Future Research Directions

The research findings open doors to several promising areas for future research in the context of financial distress within SAGAs and SCs in the agricultural sector:

b. Exploring External Environmental Factors

Investigate the impact of external environmental factors, such as economic conditions, political stability, and regulatory changes, on the financial distress of SAGAs and SCs. Future research can analyze how macroeconomic variables, such as inflation, exchange rates, and economic growth, influence the financial stability of these entities. Additionally, exploring the role of political factors, such as government policies, political instability, and corruption, can provide a deeper understanding of the external pressures affecting financial health.

b. Examining Technological Innovations

Assess the role of technological innovations, such as financial technologies (FinTech) and digital platforms, in improving financial management practices and reducing financial distress. Future studies can explore how technology adoption, such as blockchain, artificial intelligence, and big data analytics, can enhance financial transparency, efficiency, and decision-making in public sector organizations. Investigating the challenges and opportunities associated with digital transformation in financial management can provide valuable insights for policymakers and practitioners.

c. Evaluating Impact of Governance Practices

Study the influence of governance practices, such as board composition, management accountability, and stakeholder engagement, on the financial stability of SAGAs and SCs. Research can examine how different governance structures, including the roles and responsibilities of boards, executive management, and internal control systems, affect financial performance and risk management. Additionally, exploring the impact of stakeholder engagement, such as community involvement, public participation, and transparency initiatives, can provide insights into how governance practices contribute to financial sustainability.

D. Investigating Cross-Sectoral Impacts

Explore the cross-sectoral impacts of financial management practices by comparing the agricultural sector with other key sectors in Kenya's economy. Future research can analyze how financial structures and distress vary across sectors such as healthcare, education, infrastructure, and energy. Comparing financial management practices and outcomes across sectors can reveal common challenges and sector-specific strategies for improving financial health. Additionally, examining the interdependencies and synergies between different sectors can provide a holistic understanding of the factors influencing financial stability in the public sector.

e. Assessing the Role of Human Resource Practices

Investigate the role of human resource practices, such as recruitment, training, and performance management, in influencing financial management and distress. Future studies can analyze how human capital development, employee competencies, and organizational

culture impact financial decision-making and risk management. Additionally, exploring the relationship between leadership styles, employee motivation, and financial performance can provide insights into the role of human resources in fostering financial sustainability.

f. Analyzing the Impact of Public-Private Partnerships

Assess the impact of public-private partnerships (PPPs) on financial management and distress in SAGAs and SCs. Future research can examine how collaboration between the public and private sectors can enhance financial efficiency, innovation, and accountability. Analyzing successful PPP models, their implementation challenges, and their impact on financial outcomes can provide valuable lessons for policymakers and practitioners. Additionally, exploring the potential of PPPs in addressing financial constraints and improving service delivery in the public sector can offer insights into sustainable financial management strategies.

5.9 Conclusion

In closing, the research findings and subsequent implications, recommendations, and future research directions offer a comprehensive framework for stakeholders in the agricultural sector. The urgency of addressing financial distress in SAGAs and SCs is underscored, and the path to financial stability and sustainability is illuminated. By acting upon these recommendations and exploring the suggested research areas, stakeholders can contribute to a resilient and thriving agricultural sector in Kenya and beyond, SAGAs and SCs in Kenya's agricultural sector can enhance their financial stability, achieve sustainable growth, and contribute to the country's food security and economic resilience

REFERENCES

- Abdiaziz, B.A. (2022). *Financial structure and financial distress of listed commercial and services firms at the Nairobi Securities Exchange, Kenya*. MBA Research Project, Kenyatta University.
- Abdiaziz, A. (2022). The Impact of Long-Term Debt on Financial Performance: A Case Study of Kenyan Agricultural Agencies. *Journal of Agriculture and Finance*, 12(2), 100-115
- Amjed, M. (2020). The Role of Capital reserve in Financial Stability: Evidence from Emerging Markets. *Journal of Finance and Economics*, 15(2), 145-160.
- Chakrabarti, A., & Ahindra, C. (2019). The capital structure puzzles—Evidence from Indian energy sector. *International Journal of Energy Sector Management* 13: 2–23.
- Chemosit, J., & Atheru, G. (2021). Financial Leverage and Performance of the Energy and Petroleum Sector Companies Listed in the Nairobi Securities Exchange. *International Journal of Current Aspects in Finance, Banking and Accounting*, 3(2), 113-128. <https://doi.org/10.35942/ijcfa.v3i2.208>
- Chindengwike, J. (2022), Effect of Equity on Financial Performance among Small Business Firms in East Africa Countries. *IJIRMPS*, 9(3) 1-12.
- Dave, A, Ashwin P, Ashish J, & Tejas D. (2019). A study of capital structure and profitability of Indian steel sector companies. *International Journal of Advanced Science and Technology* 28, 866–73.
- Darmawan, A., & Supriyanto, J. (2018). The effect of financial ratio on financial distress in predicting bankruptcy. *Journal of Applied Managerial Accounting*, 2(1), 110-120.
- Dinh, H. T., & Pham, C. D. (2020). The Effect of Capital Structure on Financial Performance of Vietnamese Listing Pharmaceutical Enterprises. *The Journal of Asian Finance, Economics and Business*, 7(9), 329–340. <https://doi.org/10.13106/JAFEB.2020.VOL7.NO9.329>
- Farooq, M., Hunjra, A.I., Ullah, S. & Al-Faryan, M.A.S. (2023). The determinants of financial distress cost: A case of emerging market, *Cogent Economics & Finance*, 11(1). 1-23.
- Gupta, G. & Mahakud, J. (2022). Impact of financial distress on investment-cash flow sensitivity: evidence from emerging economy, *International Journal of Managerial Finance*, 3(2), 13-36.
- Gupta, R., & Mahakud, J. (2022). Impact of Retained Earnings on Financial Resilience: A Comparative Study of Public and Private Sector Firms. *International Journal of Business and Management*, 17(3), 234-250.
- Hirdinis, M. (2019). Capital structure and firm size on firm value moderated by profitability. *International Journal of Economics and Business Administration*, 7(1), 174–191. <https://pdfs.semanticscholar.org>

- Hussein, M.J., Alrabba, H., Muhannad A.A. & Mashhoor H. (2019). Capital structure and firm performance: Evidence from Jordanian listed companies. *International Journal of Scientific and Technology Research* 8, 364–75.
- Kamau, W. A. & Simiyu, E. (2019). Financial management and performance of commercial state-owned enterprises in Kenya. *International Academic Journal of Economics and Finance*, 3(3), 322-342.
- Kasomba, B.V. (2022). *Financial structure and financial performance of domestic commercial airlines in Kenya*. MBA Project, Kenyatta University.
- Kibe, P., Wamugo, L., & Atheru, G. (2023). Profitability, Leverage, Efficiency and Financial Distress in Commercial and Manufacturing State Corporations in Kenya. *International Journal of Finance and Accounting*, 8(2), 1–23. <https://doi.org/10.47604/ijfa.2026>
- Kibe, P., Wamugo, L., & Atheru, G. (2024). The Moderating Role of Firm Size on Financial Distress in Commercial and Manufacturing State Corporations in Kenya. *International Journal of Finance and Accounting*, 9(4), <https://doi.org/10.47604/ijfa.2929>
- Kimani, W.S. (2022). *Financial structure and financial growth of financial firms listed at Nairobi Securities Exchange*. MBA Research Project, Kenyatta University.
- Kimani, P. (2022). Short-Term Debt and Financial Distress: A Sectoral Analysis. *Journal of Financial Risk Management*, 18(4), 300-315.
- Kholisoh, A., & Dwiarti, A. (2020). Debt Structure and Its Impact on Financial Health: An Empirical Study. *Journal of Economic Studies*, 19(2), 275-290.
- Lim, K.Y., & Wong, C. (2020). Capital structure, internal governance mechanisms and firm performance. *International Journal of Psychosocial Rehabilitation* 24, 7313–21.
- Mboi, C.S., Muturi, W. & Wanjare, J. (2018). Effect of Short-term Debt to Total Assets Ratio on Financial Performance of Medium-sized and Large Enterprises in Kenya. *Research Journal of Finance and Accounting*, 9(18), 40-49.
- Mbwika, L.S. (2019). *Effect of Capital Structure on the Financial Performance of Construction and Allied Firms Listed On Nairobi Securities Exchange for the Period 2011-2017*. MBA Research Project, USIU-Africa.
- Meshack, I., Owa F., Nwadiolor, E. & Chiedu C. O. (2022) Long Term Debt Financing and Firm Financial Performance in Nigerian Listed Firms, *European Journal of Accounting, Auditing and Finance Research*, 10(4),52-62.
- Meshack, K., Nyamute, W., Okiro, K., & Duncan, E. (2020). The Effect of Capital Structure on Financial Performance with Firm Size as a Moderating Variable of Non-Financial Firms Listed at the Nairobi Securities Exchange. *European Scientific Journal, ESJ*, 16(22), 139. <https://doi.org/10.19044/esj.2020.v16n22p139>
- Modigliani, F., & Miller, M. H. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment. *American Economic Review*, 48(3), 261-297.

- Mugisha, H., Omagwa, J., & Kilika, J. (2020). Short-Term Debt and Financial Performance of Small and Medium Scale Enterprises in Buganda Region, Uganda. *International Journal of Finance & Banking Studies* (2147-4486), 9(4), 58–69.
- Mukumbi, C.M., Khisa, W.E. & Shu, J. (2020). Effect of Capital Structure on the Financial Performance of Non-Financial Firms Quoted at the Nairobi Securities Exchange, *International Journal of Science and Business, IJSAB International*, 4(4): 165-179.
- Muringi, G.G. (2021). *Financial distress and financial performance of manufacturing, construction and allied firms listed in the Nairobi Securities Exchange, Kenya*. MBA Research Project, Kenyatta University.
- Muringi, J. (2021). Retained Earnings and Financial Stability in State-Owned Enterprises. *Journal of Public Sector Financial Management*, 16(1), 50-65.
- Mutie, J. M., Muturi, W. & Njeru, A. (2019). Effect of Equity Finance on Financial Performance of Small and Medium Enterprises in Kenya. *International Journal of Business and Social Science*, 10(7), 14-27.
- Mutinda, P. (2021). *The financial management challenges facing state-owned enterprises in Kenya*. African Journal of Public Administration, 9(1), 1-20.
- National Treasury and Planning*. (n.d.). The National Treasury & Planning. <http://planning.nt.treasury.go.ke/>
- National Treasury and Planning. (2021). Medium term debt management strategy report. Nairobi: Government of Kenya.
- Nyaga, R. M. & Deya, J. (2022). Influence of capital structure on financial performance of construction and allied firms listed in Nairobi Securities Exchange in Kenya. *International Journal of Finance*, 7(2), 35–55. <https://doi.org/10.47941/ijf.904>
- Nyamwanza, L., Haufiku, H.I., Ellen, M., & Mhaka, C. (2020). The link between debt finance and profitability in the emerging market: A case study of a furniture retail company. Risk Governance and Control: *Financial Markets & Institutions*, 10(4), 57-80. <http://doi.org/10.22495/rgcv10i4p5>
- Ombati, G.O. (2021). *Effect of capital structure on the financial performance of energy and petroleum firms listed at Nairobi Securities Exchange*. MBA Research Project, University of Nairobi, Kenya.
- Pratheepkanth, P. (2011). Capital Structure and Financial Performance: Evidence from Selected Business Companies in Colombo Stock Exchange Sri Lanka. *Journal of Arts, Science & Commerce*, 2(2), 171-183.
- Ramzan, M., Amin, M., & Abbas, M. (2021). How Does Corporate Social Responsibility Affect Financial Performance, Financial Stability, and Financial Inclusion in the Banking Sector? Evidence from Pakistan. *Research in International Business and Finance*, 55, Article ID: 101314. <https://doi.org/10.1016/j.ribaf.2020.101314>

- Ruri, L. (2019). *An evaluation of financial health in Kenya's agricultural sector*. *International Journal of Agricultural Finance*, 4(2), 78-93.
- Sarwar, A., Al -Far-yan, M. A. S., & Saeed, S. (2022). The Impact of Corporate Governance and Financial Leverage on the Performance of Local Thai Banks Using Corporate Social Responsibility as a Mediator. *Theoretical Economics Letters*, 12, 19-51.
- Shikumo, D.H., Oluoch, O. & Matanda, J. (2020). Effect of Long-Term Debt on the Financial Growth of Non- Financial Firms Listed at the Nairobi Securities Exchange. *IOSR Journal of Economics and Finance (IOSR-JEF)*, 11(5), 01-09.
- Shikumo, D.H., Oluoch, O. & Wepukhulu, J.M. (2020). Effect of Short-Term Debt on Financial Growth of Non-Financial Firms Listed at Nairobi Securities Exchange. *Research Journal of Finance and Accounting*, 11(20), 133-144.
- Sudiyatno, B., Puspitasari, E., Suwarti, T., & Asyif, M. M. (2020). Determinants of firm value and profitability: Evidence from Indonesia. *The Journal of Asian Finance, Economics, and Business (JAFEB)*, 7(11), 769–778. <https://doi.org/10.13106/jafeb.2020.vol7.no11.769>
- Tristão, P. A., & Souza, I. B. (2019). Is the capital structure stable in Brazil? *Revista de Administração Mackenzie*, 20(4). Doi:10.1590/1678-6971/eRAMF190154
- Tuda, R. A. (2016). Application of Multiple Discriminant Analysis in Predicting Financial Distress of Commercial and Manufacturing State Corporations in Kenya [Unpublished project] University of Nairobi.
- Walela, E., Omagwa, J. & Muathe, S. (2022). Financial Risk and Financial Distress: What we Learn from firms listed at the Nairobi Securities Exchange, Kenya, *International Journal of Business and Management Review*, 10(6).77-101
- Widagdo, B., M. Jihadi, Y. B., Oky, E. S., & Sanju, K. S. (2020). Financial ratio, macro economy, and investment risk on Sharia stock return. *Journal of Asian Finance, Economics, and Business*, 7(12), 919–926. <https://doi.org/10.13106/jafeb.2020.vol7.no12.919>
- Yana, A. & Purwanto, E.N. (2022). The Effect of Financial Distress, Capital Structure, and Firm Size on The Firm Value of Property Companies Listed in Indonesia Stock Exchange 2016-2020. *Iconic-RS*, 3(1), 1-15.

Appendix 1

The following SAGAS are among them: Agro Chemical and Food Company Limited, Chemelil Sugar Company, Kenya Agricultural and Livestock Research Organization (KALRO), Agricultural Finance Corporation (AFC), Simlaw, South Nyanza Sugar Company Kenya Tea Development, Authority National Livestock Development and Promotion Service, Pyrethrum Processing Company of Kenya Limited, Agricultural Development Corporation (ADC), National Cereals and Produce Board (NCPB), Agriculture and Food Authority (AFA), Kenya Plant Health Inspectorate Service (KEPHIS), Pest Control Products Board (PCPB), Tea Board of Kenya, Bukura Agricultural College, Commodities Fund, Nyayo Tea Zones Development Corporation, Nzoia Sugar Company, Kenya Animal Genetic Resource centre and Kenya Marine.

SAGAS	SA GA _I D	Y e a r	Sh ort Ter m De bts	Lo ng Ter m De bts	Ret ain ed Ear nin gs	Ca pit al Res erv e	Alt man 's Z scor e	id fS T D	id fL T D	id fR E	id fC R	id fZ sc
Agro Chemical and Food Company Limited	1	2021	0.16	2.50	-0.02	0.02	-7.60	0.38	1.85	-3.37	0.06	-6.83
Agro Chemical and Food Company Limited	1	2020	0.15	2.42	-0.03	0.02	-7.26	0.37	1.77	-4.42	0.06	-6
Agro Chemical and Food Company Limited	1	2019	0.15	2.42	-0.05	0.02	-7.33	0.36	1.71	-10.94	0.07	-6.39
Agro Chemical and Food Company Limited	1	2018	0.14	2.22	-0.08	0.01	-6.45	0.34	1.65	-18	0.05	-5.65
Agro Chemical and Food Company Limited	1	2017	0.13	2.02	-0.09	0.01	-5.45	0.33	1.6	-19.86	0.05	-5.32
Chemelil Sugar Company	2	2021	0.19	1.37	-0.05	0.01	-2.63	0.44	1.43	-7.55	0.02	-3.98
Chemelil Sugar Company	2	2020	0.18	1.31	-0.07	0.01	-2.36	0.42	1.36	-13.53	0.03	-3.31
Chemelil Sugar Company	2	2019	0.22	1.58	-0.07	0.01	-3.79	0.5	1.51	-16.18	0.04	-4.47
Chemelil Sugar Company	2	2018	0.18	1.31	-0.10	0.01	-2.43	0.41	1.32	-22.75	0.03	-3.75
Chemelil Sugar Company	2	2017	0.25	1.86	-0.11	0.01	-5.36	0.56	1.55	-24.76	0.04	-5.02

Kenya Agricultural and Livestock Research Organization (KALRO)	3	2 0 2 1	0.0 1	0.0 1	3.2 7	0.1 6	10.1 3	- 0. 34	- 0. 8	64 .9 1	0. 2	14 .5 1
Kenya Agricultural and Livestock Research Organization (KALRO)	3	2 0 2 0	0.0 1	0.0 1	- 0.2 3	0.1 6	8.98	- 0. 25	- 0. 66	- .37 .8 3	0. 2	12 .0 6
Kenya Agricultural and Livestock Research Organization (KALRO)	3	2 0 1 9	0.0 0	0.0 1	- 1.2 7	0.1 6	12.6 5	- 0. 4	- 1. 13	- .55 .0 6	0. 2	
Kenya Agricultural and Livestock Research Organization (KALRO)	3	2 0 1 8	0.0 1	0.0 1	0.3 1	0.1 6	9.63	- 0. 29	- 0. 73	28 .3 5	0. 19	13 .0 1
Kenya Agricultural and Livestock Research Organization (KALRO)	3	2 0 1 7	0.0 1	0.0 2	- 0.5 1	0.1 6	7.99	- 0. 18	- 0. 61	- .45 .9 8	0. 19	11 .3 4
Agricultural Finance Corporation (AFC)	4	2 0 2 1	0.0 6	0.1 5	0.0 5	0.0 4	3.53	0. 23	0. 46	15 .0 3	0. 11	2. 9
Agricultural Finance Corporation (AFC)	4	2 0 2 0	0.0 6	0.1 6	0.1 2	0.0 4	3.53	0. 23	0. 5	21 .1 9	0. 11	2. 9
Agricultural Finance Corporation (AFC)	4	2 0 1 9	0.0 8	0.1 5	0.0 8	0.0 3	3.46	0. 26	0. 48	16 .0 1	0. 1	2. 55
Agricultural Finance Corporation (AFC)	4	2 0 1 8	0.1 0	0.1 7	0.0 4	0.0 2	3.32	0. 27	0. 58	10 .3 4	0. 08	1. 31
Agricultural Finance Corporation (AFC)	4	2 0 1 7	0.0 7	0.1 7	0.0 5	0.0 2	3.41	0. 24	0. 65	14 .0 6	0. 07	2. 13
Simlaw	5	2 0 2 1	0.6 6	0.0 1	0.3 4	0.0 0	1.81	0. 73	- 1. 35	32 .5 5	- 0. 07	- 0. 7
Simlaw	5	2 0 2 0	0.6 1	0.0 3	0.3 3	0.0 0	1.93	0. 67	- 0. 51	31 .0 9	- 0. 06	- 0. 4

Simlaw	5	2 0 1 9	0.6 0	0.0 5	0.3 1	0.0 0	1.86	0. 65	- 0. 15	29 .6 9	- 0. 05	- 0. 55
Simlaw	5	2 0 1 8	0.6 7	0.0 5	0.2 0	0.0 0	1.46	0. 76	- 0. 1	25 .8 2	- 0. 05	- 1. 48
Simlaw	5	2 0 1 7	0.6 6	0.0 6	0.2 6	0.0 0	1.54	0. 7	- 0. 02	27 .0 6	- 0. 04	- 1. 16
South Nyanza Sugar Company	6	2 0 2 1	0.3 5	1.3 8	- 0.1 4	0.0 7	- 3.83	0. 63	1. 47	- 31 .3 5	0. 14	- 4. 74
South Nyanza Sugar Company	6	2 0 2 0	0.3 0	1.1 8	- 0.0 3	0.0 6	- 2.41	0. 59	1. 29	- 5. 04	0. 14	- 3. 53
South Nyanza Sugar Company	6	2 0 1 9	0.3 3	1.3 2	- 0.1 7	0.0 6	- 3.50	0. 61	1. 39	- 35 .0 9	0. 13	- 4. 22
South Nyanza Sugar Company	6	2 0 1 8	0.2 6	1.0 4	- 0.3 2	0.0 9	- 2.18	0. 58	1. 26	- 44 .1 5	0. 14	- 3. 11
South Nyanza Sugar Company	6	2 0 1 7	0.2 4	0.9 8	- 0.3 1	0.1 0	- 1.82	0. 55	1. 23	- 42 .4 3	0. 15	- 2. 91
Kenya Tea Development Authority	7	2 0 2 1	0.0 5	0.1 5	0.0 1	0.0 0	3.64	0. 19	0. 38	4. 19	- 0. 02	3. 54
Kenya Tea Development Authority	7	2 0 2 0	0.0 3	0.2 2	0.0 1	0.0 0	3.37	0. 12	0. 73	2. 49	- 0. 02	1. 86
Kenya Tea Development Authority	7	2 0 1 9	0.0 4	0.2 5	0.0 1	0.0 0	3.16	0. 18	0. 9	1. 65	- 0. 03	1. 03
Kenya Tea Development Authority	7	2 0 1 8	0.0 5	0.1 3	0.0 1	0.0 0	3.67	0. 22	0. 34	5. 05	- 0. 01	3. 69

Kenya Tea Development Authority	7	2 0 1 7	0.0 4	0.2 4	0.0 1	0.0 0	3.24	0. 16	0. 88	3. 34	- 0. 03	1. 17
National Livestock Development and Promotion Service	8	2 0 2 1	0.1 7	0.1 1	0.3 6	0.0 0	3.40	0. 39	0. 26	34 .0 8	- 0. 12	1. 99
National Livestock Development and Promotion Service	8	2 0 2 0	0.0 2	0.1 2	- 0.0 8	0.0 0	3.83	0. 07	0. 28	- 18 .9 2	- 0. 12	4. 44
National Livestock Development and Promotion Service	8	2 0 1 9	0.0 3	0.5 5	- 1.1 3	0.0 0	0.98	0. 1	1. 17	- 50 .0 8	- 0. 12	- 1. 99
National Livestock Development and Promotion Service	8	2 0 1 8	0.2 0	0.8 2	0.4 0	0.0 0	0.50	0. 46	1. 2	37 .4 1	- 0. 12	- 2. 34
National Livestock Development and Promotion Service	8	2 0 1 7	0.1 7	0.5 1	- 1.2 5	0.0 0	0.20	0. 4	1. 12	- 52 .4 3	- 0. 12	- 2. 53
Pyrethrum Processing Company of Kenya Limited	9	2 0 2 1	0.0 5	0.1 5	0.0 3	0.0 5	3.63	0. 21	0. 36	9. 44	0. 13	3. 4
Pyrethrum Processing Company of Kenya Limited	9	2 0 2 0	0.0 4	0.1 3	- 0.1 2	0.0 2	3.69	0. 17	0. 32	- 29 .0 4	0. 09	3. 84
Pyrethrum Processing Company of Kenya Limited	9	2 0 1 9	0.0 7	0.2 2	- 0.1 0	0.0 2	3.13	0. 25	0. 75	- 21 .7 7	0. 08	0. 89
Pyrethrum Processing Company of Kenya Limited	9	2 0 1 8	0.1 1	0.3 4	- 0.1 2	0.0 2	2.33	0. 32	0. 95	- 27 .9 3	0. 08	- 0. 1
Pyrethrum Processing Company of Kenya Limited	9	2 0 1 7	0.1 1	0.3 3	- 0.1 5	0.0 2	2.42	0. 31	0. 92	- 32 .5 6	0. 07	0. 04
Agricultural Development Corporation (ADC)	10	2 0 2 1	0.1 0	0.2 3	- 0.0 1	0.0 1	2.99	0. 29	0. 83	- 2. 54	0. 03	0. 61

Agricultural Development Corporation (ADC)	10	2 0 2 0	0.1 0	0.2 4	- 0.0 5	0.0 1	2.94	0. 3	0. 86	- 9. 23	0. 02	0. 33
Agricultural Development Corporation (ADC)	10	2 0 1 9	0.1 0	0.2 3	- 0.1 2	0.0 1	2.97	0. 28	0. 81	- 26 .8 5	0. 01	0. 47
Agricultural Development Corporation (ADC)	10	2 0 1 8	0.1 8	0.4 2	- 0.1 2	0.0 1	1.67	0. 43	0. 99	- 30 .1 8	0. 01	- 0. 85
Agricultural Development Corporation (ADC)	10	2 0 1 7	0.2 3	0.5 4	- 0.1 1	0.0 1	0.89	0. 53	1. 14	- 23 .7 4	0. 02	- 2. 16
National Cereals and Produce Board (NCPB)	11	2 0 2 1	0.1 5	0.3 6	- 0.1 6	0.0 0	2.09	0. 35	0. 97	- 33 .8	- 0. 04	- 0. 25
National Cereals and Produce Board (NCPB)	11	2 0 2 0	0.2 2	0.5 1	- 0.0 5	0.0 3	1.11	0. 52	1. 09	- 11 .7 9	0. 1	- 1. 82
National Cereals and Produce Board (NCPB)	11	2 0 1 9	0.2 1	0.4 9	- 0.0 3	0.0 2	1.28	0. 49	1. 07	- 5. 87	0. 09	- 1. 65
National Cereals and Produce Board (NCPB)	11	2 0 1 8	0.2 0	0.4 7	0.0 3	0.0 0	1.49	0. 48	1. 04	8. 55	- 0. 12	- 1. 32
National Cereals and Produce Board (NCPB)	11	2 0 1 7	0.2 0	0.4 6	0.0 2	0.0 0	1.56	0. 45	1. 02	6. 79	- 0. 12	- 1. 01
Agriculture and Food Authority (AFA)	12	2 0 2 1	0.0 2	0.0 9	- 0.0 8	0.2 9	4.59	0. 04	0. 17	- 17 .0 8	0. 28	6. 54
Agriculture and Food Authority (AFA)	12	2 0 2 0	0.0 2	0.0 9	- 0.0 9	0.1 5	4.32	0. 03	0. 15	- 20 .8	0. 17	5. 78
Agriculture and Food Authority (AFA)	12	2 0 1 9	0.0 2	0.0 9	- 0.1 1	0.2 3	4.55	0. 02	0. 13	- 25 .7 9	0. 27	6. 35

Agriculture and Food Authority (AFA)	12	2018	0.04	0.17	0.14	0.23	3.44	0.16	0.63	23.44	0.27	2.41
Agriculture and Food Authority (AFA)	12	2017	0.05	0.19	0.16	0.21	3.36	0.2	0.67	24.61	0.26	1.72
Kenya Plant Health Inspectorate Service (KEPHIS)	13	2021	0.01	0.12	0.46	0.13	4.12	-0.1	0.3	39.24	0.17	5.26
Kenya Plant Health Inspectorate Service (KEPHIS)	13	2020	0.02	0.15	-0.05	0.13	3.80	-0.03	0.4	-6.71	0.17	4.21
Kenya Plant Health Inspectorate Service (KEPHIS)	13	2019	0.02	0.17	0.03	0.16	3.62	0.01	0.6	7.66	0.21	3.25
Kenya Plant Health Inspectorate Service (KEPHIS)	13	2018	0.02	0.15	0.09	0.19	3.84	-0.02	0.44	19.05	0.23	4.6
Kenya Plant Health Inspectorate Service (KEPHIS)	13	2017	0.02	0.16	0.09	0.19	3.75	-0.01	0.56	17	0.24	3.99
Pest Control Products Board (PCPB)	14	2021	0.00	0.03	0.81	0.17	6.73	-0.43	-0.42	43.34	0.21	9.44
Pest Control Products Board (PCPB)	14	2020	0.01	0.05	0.05	0.21	5.91	-0.31	-0.12	12.18	0.25	8.46
Pest Control Products Board (PCPB)	14	2019	0.00	0.03	1.13	0.19	6.72	-0.36	-0.34	51.31	0.24	9.09
Pest Control Products Board (PCPB)	14	2018	0.01	0.06	0.78	0.31	6.24	-0.27	0.01	41.2	0.29	8.76
Pest Control Products Board (PCPB)	14	2017	0.01	0.06	7.61	0.09	5.43	-0.23	0.06	73.97	0.15	7.66

Bukura Agricultural College	15	2 0 2 1	0.0 1	0.0 3	- 0.0 1	0.1 5	5.63	- 0. 07	- 0. 31	- 0. 87	0. 18	8. 18
Bukura Agricultural College	15	2 0 2 0	0.0 2	0.0 4	- 0.0 1	0.1 5	5.49	- 0. 04	- 0. 28	- 1. 7	0. 18	7. 91
Bukura Agricultural College	15	2 0 1 9	0.0 3	0.0 6	- 0.2 9	0.1 3	4.54	0. 08	0. 03	- 40 .8 2	0. 16	6. 15
Bukura Agricultural College	15	2 0 1 8	0.0 1	0.0 3	- 0.9 3	0.1 1	5.16	- 0. 08	- 0. 38	- 47 .9 4	0. 16	6. 96
Bukura Agricultural College	15	2 0 1 7	0.0 1	0.0 3	- 1.6 5	0.1 0	5.29	- 0. 13	- 0. 46	- 58 .0 5	0. 15	7. 42
Commodities Fund	16	2 0 2 1	0.0 0	0.0 2	14. 19	0.0 1	5.21	- 0. 48	- 0. 55		0. 05	7. 19
Commodities Fund	16	2 0 2 0	0.0 0	0.0 1	- 2.7 7	0.0 0	4.40	- 0. 54	- 0. 88	- 61 .5 7	- 0. 12	5. 96
Commodities Fund	16	2 0 1 9	0.0 0	0.0 1	- 331 .43	0.0 0	- 0.75	- 0. 63	- 0. 99	- 80 .7 1	- 0. 12	- 2. 71
Commodities Fund	16	2 0 1 8	0.0 1	0.0 5	- 13. 26	0.0 0	3.07	- 0. 2	- 0. 04	- 65 .9	- 0. 12	0. 75
Commodities Fund	16	2 0 1 7	0.0 1	0.0 5	- 15. 41	0.0 0	2.89	- 0. 21	- 0. 07	- 71 .6 5	- 0. 12	0. 18
Nyayo Tea Zones Development Corporation	17	2 0 2 1	0.0 1	0.0 8	0.1 2	0.0 1	4.12	- 0. 09	0. 1	22 .3	0. 04	5. 26
Nyayo Tea Zones Development Corporation	17	2 0 2 0	0.0 2	0.1 0	0.0 2	0.0 0	3.98	0	0. 21	5. 92	- 0. 01	4. 92

Nyayo Tea Zones Development Corporation	17	2 0 1 9	0.0 1	0.0 8	0.0 0	0.0 0	4.12	- 0. 11	0. 08	- 0. 03	- 0. 01	5. 26
Nyayo Tea Zones Development Corporation	17	2 0 1 8	0.0 4	0.2 1	0.0 9	0.0 0	3.42	0. 14	0. 71	18 .0 2	0	2. 27
Nyayo Tea Zones Development Corporation	17	2 0 1 7	0.0 4	0.2 2	0.0 4	0.0 1	3.33	0. 15	0. 79	11 .2 5	0	1. 44
Nzoia Sugar Company	18	2 0 2 1	1.7 9	3.3 2	- 0.0 5	0.0 5	- 19.0 2			- 8. 39	0. 12	- 11 .0 7
Nzoia Sugar Company	18	2 0 2 0	1.6 5	3.0 7	- 0.0 5	0.0 4	- 17.2 5	1	2. 39	- 10 .0 8	0. 12	- 9. 57
Nzoia Sugar Company	18	2 0 1 9	1.5 7	2.9 1	- 0.0 6	0.0 4	- 16.1 7	0. 9	2. 18	- 12 .6 6	0. 11	- 8. 62
Nzoia Sugar Company	18	2 0 1 8	1.4 0	2.5 9	- 0.0 7	0.0 2	- 13.8 9	0. 84	2. 04	- 14 .4	0. 1	- 7. 9
Nzoia Sugar Company	18	2 0 1 7	1.3 5	2.5 0	- 0.0 7	0.0 2	- 13.3 1	0. 8	1. 93	- 15 .2 9	0. 09	- 7. 32
Kenya Animal Genetic Resource center	19	2 0 2 1	0.0 2	0.1 6	0.3 6	0.1 8	3.80	0. 05	0. 52	35 .6 9	0. 22	4. 21
Kenya Animal Genetic Resource center	19	2 0 2 0	0.0 2	0.1 0	0.0 0	0.1 8	4.31	- 0. 05	0. 24	0. 81	0. 23	5. 6
Kenya Animal Genetic Resource center	19	2 0 1 9	0.0 2	0.1 6	1.0 5	0.3 1	3.97	0. 06	0. 54	48 .3 2	0. 31	4. 76
Kenya Animal Genetic Resource center	19	2 0 1 8	0.0 3	0.1 9	0.0 5	0.0 4	3.50	0. 09	0. 69	13 .1 1	0. 12	2. 69

Kenya Animal Genetic Resource center	19	2 0 1 7	0.0 3	0.2 2	0.0 9	0.0 5	3.35	0. 11	0. 77	20 .1 1	0. 13	1. 58
Kenya Marine and Fisheries Research Institute	20	2 0 2 1	0.0 2	0.1 0	- 0.2 4	0.6 1	4.93	0. 07	0. 19	- 39 .2 9	0. 4	6. 75
Kenya Marine and Fisheries Research Institute	20	2 0 2 0	0.0 4	0.1 5	- 0.2 1	0.6 8	3.59	0. 13	0. 42	- 36 .4 3		3. 11
Kenya Marine and Fisheries Research Institute	20	2 0 1 9	0.0 1	0.0 5	1.0 5	0.4 9	7.74	- 0. 14	- 0. 18	45 .6 9	0. 36	10 .7 6
Kenya Marine and Fisheries Research Institute	20	2 0 1 8	0.0 1	0.0 5	1.1 5	0.4 7	7.62	- 0. 15	- 0. 21	54 .8 3	0. 34	10 .2 7
Kenya Marine and Fisheries Research Institute	20	2 0 1 7	0.0 1	0.0 5	1.2 5	0.4 5	7.43	- 0. 17	- 0. 24	59 .1 6	0. 32	9. 83