# DETERMINANTS OF FINANCIAL DISTRESS IN DEPOSIT-TAKING SAVINGS AND CREDIT COOPERATIVE ORGANIZATIONS IN KENYA

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# Determinants of Financial Distress in Deposit-Taking Savings and Credit Cooperative Organizations in Kenya

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**A Thesis Submitted in Partial Fulfilment of the Requirements for the Degree of Doctor of Philosophy in Business Administration of the Jomo Kenyatta University of Agriculture and Technology**

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## DECLARATION

This thesis is my original work and has not been presented for a degree at any other university.

Signature …….. ……. Date …….....

**Susan Jepkorir**

This thesis has been submitted for examination with our approval as University Supervisors.

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## DEDICATION

I dedicate this thesis to the soul of my father, my beloved mother, husband and children who have stood with me and granted moral support during the time I was doing the research. I also dedicate this research thesis to my friends for their tireless encouragement.

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## ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| **CBK** | Central Bank of Kenya |
| **CCC** | Cash Conversion Cycle |
| **DEA** | Data Envelopment Analysis |
| **DT-SACCOS** | Deposit-taking Savings and Credit Cooperative Organizations |
| **EFA** | Exploratory Factor Analysis |
| **FOSA** | Front Office Service Activity |
| **GDP** | Gross Domestic Product |
| **GLS** | General Least Square |
| **KUSCCO** | Kenya Union of Saving and Credit Co-operatives |
| **MOCD& M** | Ministry of Co-operative Development and Marketing |
| **OLS** | Ordinary Least Square |
| **PEARLS** | Protection, Effective Finance Structure, Asset Quality, Rates of Return and Cost, Liquidity and Signs of Growth |
| **ROA** | Return on Asset |
| **ROE** | Return on Equity |
| **RPT** | Related Party Transaction |
| **SACCOs** | Savings and Credit Cooperative Organizations |
| **SASRA** | SACCO Societies Regulatory Authority |
| **SSEs** | Small-Scale Enterprises |

**UNISAP** Federation of rural and urban SACCOs in Mexico

**WCM** Working Capital Management

## DEFINITION OF TERMS

**Capital** The amount of money or equivalent contributed by a firm to support its investments (Athanasoglou, Sophocles, & Matthiaos, 2013).

**Exchange Rate Exposure** refers to the sensitivity of firms' cash flows, the real domestic currency value of assets, liabilities, or operating incomes to unanticipated changes in exchange rates. The current study will adopt exchange rate exposure as the sensitivity of the value of the firm, proxied by the firm's stock return to unanticipated changes in exchange rates (Chow, Lee & Solt, 1997).

**Financial Distress** Refers to a situation where institutions or organizations experience financial difficulties in maintaining their normal operations and in the most severe conditions are potential candidates for bankruptcy proceedings (Baharin & Sentosa, 2013). In the current study, the definition was adopted to mean DT-SACCO societies facing bankruptcy leading to total closure.

**Interest Rates Spread** Refers to the amount received about an amount loaned, generally expressed as a ratio of shillings received per hundred shillings lent (Radha 2011). For the current study, the net interest rate spread is the difference between the interest rate a bank pays to depositors and the interest rate it receives from loans to consumers.

**SACCOs** Refers to financial institutions that are an autonomous association of persons united

| | |
|---|---|
| | voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly owned and democratically controlled enterprise and are registered with the department of cooperatives (SASRA, 2011). |
| **Firm size** | This is a measure of how much in value the SACCOs holds in terms of members' deposit (SASRA, 2011). |
| **Non-Performing Loans** | These are loans that have been advanced by a lending institution such as commercial banks but they have not been repaid for a period exceeding three months (Dolam&Collender, 2001). |
| **Related Party Transactions** | refers to a transaction between two parties who are joined by a special relationship before the transaction (Srinivasan, 2013). The current study adopted the definition to mean transaction of the DT-SACCO directors' transaction with the same SACCO societies. |

## ABSTRACT

Deposit-taking saving and credit cooperative organizations in Kenya are failing with depositors' funds and worsening the poverty level among the co-operators who are members of the deposit-taking SACCOs. The widespread failure of DT SACCOs in Kenya is likely to lead to a loss of confidence among the current and potential members of the DT SACCOs in Kenya and eventually threaten to kill the sector. Past studies on determinants of financial distress in SACCOs have been inconclusive about the determinants and hence the need for the current study. The study was guided by the following objectives; to examine the effect of related party transactions on financial distress in DT-SACCOs in Kenya; to determine the effect of interest rate spread on financial distress in DT-SACCOs in Kenya; to establish the effect of non-performing loans on financial distress in DT-SACCOs in Kenya; to assess the moderation effect of firm size on the relationship between the determinants and financial distress in savings and credit cooperative organizations in Kenya; to assess the moderation effect of amendments on the determinants of financial distress in DT-SACCO s in Kenya. The study adopted the following theories as the basis for analyzing the collected data; wrecker's financial distress theories, Keynes Liquidity Theory, Information Asymmetric Theory, Neoclassical Theory, and Agency theory. The study was based on the relationship between the independent variables, dependent variables, and moderating variables. The study sought to establish the effect of related party transactions, interest rate spread, and non-performing loans on the financial distress of deposit-taking SACCOs in Kenya. The study adopted a positivist research philosophy and descriptive research design. The target population was 176 DT-SACCOs in Kenya, that is 164 duly registered DT-SACCOs and 12 with restricted licenses between 2013-2020, individual deposit-taking SACCOs in Kenya under study (Source: SASRA Annual Report, 2022). Secondary data was obtained from SACCOs records as published by SASRA. The study used a systematic sampling technique to obtain the appropriate sample size of 68 DT SACCOs. Data were analyzed using STATA computer software. Data collection covered nine (9) a year from 2013 to 2020, this period of seven years was selected for the study because SASRA 2016 amendment bill was enacted in 2016 therefore the justification for the choice of the study period is 3 years before the Act was amended and 4 years after SASRA Act amendment bill. Multivariate panel regression approaches were used to test hypotheses and link the variables. The study established that related party transactions, interest rate spread, and non-performing loans had a significant effect on financial distress in DT SACCOs in Kenya. The implications of the findings are that; In terms of policy, DT- SACCO societies should invest more in government securities to secure the societies' liquidity. SASRA should re-look at loan provision and securities including interest spread policy to make the SACCOs protect the loans as a means of reducing non-performing loans. The government through SASRA should enact strict amendments to directors borrowing from SACCOs. In practice, The SACCO societies should carry out thorough loan appraisal procedures to determine repayment before the loans are awarded to clients.

# CHAPTER ONE

# INTRODUCTION

## 1.1 Background of the Study

Financial distress can be defined as a situation in which an institution is having operational, managerial, and financial difficulties (Adeyemi, 2011). The value of any company reduces through the costs it undergoes during the period of distress. Direct costs of insolvency include auditor's fees, legal fees, management commissions, and other payments while indirect costs are those costs related to the action of employees, suppliers, investors, and shareholders.

Financial distress decreases the incentives of the employees to work hard and stimulates them to renegotiate their compensation packages or leave the organization. Both declining productivity and replacement of employees are costly and destroy the organization's value. Competitors also may pursue an aggressive marketing and price strategy to attract customers of the vulnerable organization and, therefore, squeeze the troubled competitor out of the market. As a consequence, the distressed company suffers losses in sales leading to a loss of market share (Natalia, 2007).

Therefore, financial distress is destructive not only to the financial system of the organization but also impairs its organizational structure, and its relationship with external partners and negatively affects the attitudes of the employees towards their work. The loss of a sufficient amount of financial and human resources is dangerous and can cause the company to liquidate (Natalia, 2007). Thus, financial distress is a huge wastage of funds either directly or indirectly which needs to be detected earlier and possibly be eliminated.

### 1.1.1 Global perspective of Determinants of SACCOs Financial Distress

Global equity markets dropped more than 56% and there was a reduction in the equity value of more than $29 trillion in the recent global crisis (Bartram & Bodnar, 2009; Chen, Chen, & Lee, 2014; Lee, Lin, & Zeng, 2016) dues to worldwide financial distress. Despite the overall negative impact of the global financial crisis,

some companies profited during the market turbulence (Shakina & Barajas, 2014). This raises a fundamental question: what are the firm and macroeconomic determinants of firms' performance during crisis periods? In responding to the economic situation, governments and firm management adopted various policies or strategies to minimize the severity of the situation and to better cope with the challenges of the severe economic environment. Thus, the performance of the firm depends on not only its ownership structure, financial features, and disclosure quality, but also on external environments (period and macroeconomic elements).

Co-operatives societies have been in existence since earlier centuries in the world, for example, ancient records show that the Babylonians practiced cooperative farming and that the Chinese developed savings and loan associations similar to those in use today. In North America, clearing land in preparation for the planting of crops, threshing beans, and barn raisings all required cooperative efforts. In the United States, the first formal co-operative business is assumed to have been established in 1752, almost a quarter-century before the Declaration of Independence was signed (Cobia, 2008). In terms of financial management, previous research on cooperative finance during crises indicates that they tended to fare better than investor-owned savings and loans institutions, as they pursue more conservative investment policies (Chaddad & Cook, 2004). For instance, analysis from the IMF indicates that cooperative banks in developed countries tend to be more stable than commercial banks, especially during the financial crisis, as their investment patterns tend to be less speculative and returns are therefore less volatile (Hesse & Cihak, 2007). In developed countries, cooperative finance tends to have a supply of funding that is more stable and less responsive to monetary policy and market rates (Schenk, 2007).

International Monetary Fund (2018) expressed its concern about some lower-middle-income countries including Nigeria experiencing deteriorated loans as growth has debilitated and corporate financial positions have deteriorated quality in recent years. These recent trends in bad loans have provoked some concerns and questions among stakeholders, which include; why are the figures rising? What are the implications?

What role has internal abuse played in all these? What are the actions of the regulators? Is the Nigerian financial sector heading towards another financial crisis?

Bank regulation tends to play a vital role in the banking industry in providing oversight functions on related party transactions. Regulator functions can be considered as active monitory force, which could handicap the board's incentive to monitor (Grove et al., 2011). In the real sense, regulators tend to act in the best interest of the public and interfere in the banks' activities consequentially complicating corporate governance issues. The Basel Committee on Banking Supervision introduced a proposed Basel II Capital Accord in January 2001. The proposal navigates three pathways which include an improved requirement for minimum bank capital, better supervision practices, and more transparent information disclosed by the banks. The Committee believes that the adoption of the Best Practices will instigate growth and financial stability (Barth et al., 2004).

Alhadab, Abdullatif, and Mansour (2020) established that accrual earnings management is negatively associated with related party transactions which according to the current study are related to the parties interfering with transaction records which can lead to financial distress. Regarding the role of ownership structure, the presence of institutional investors is positively associated with using both related party transactions and real earnings management, whereas ownership concentration plays an efficient role to mitigate the use of both accrual earnings management and related party transactions. No statistically significant relations between real earnings management and related party transactions exist. This study was conducted in Jordan creating the literature gap that motivated the current study which analyzed the effect of related party transactions on DT-SACCO financial distress in Kenya.

Gordon, Henry, and Palia (2004) established that transactions between a firm and its managers, directors, principal owners, or affiliates are known as related party transactions. They studied related party transactions for a sample of 112 publicly-traded companies, including the types of transactions and parties involved. Such transactions, which are diverse and often complex, represent a corporate governance challenge. They first explore two alternative perspectives of related party

transactions: the view that such transactions are conflicts of interest that compromise management's agency responsibility to shareholders as well as directors' monitoring functions; and the view that such transactions are efficient transactions that fulfill rational economic demands of a firm such as the need for service providers with in-depth firm-specific knowledge.

Hamid and Rohani (2018) studied predicting financial distress: Importance of accounting and firm-specific market variables for Pakistan's the listed firms. The sample consists of 290 firms stretching from 2007 to 2016 and logit regression is applied to predict financial distress. Findings of the study provide that net income to total assets, retained earnings to total assets, and earnings before interest and tax to total assets are important profitability ratios in predicting financial distress. Results stress the importance of liquidity ratios and demonstrate that current assets to total liabilities, working capital to total assets, and current assets to current liabilities ratios are significant in predicting financial distress. Furthermore, total liabilities to total assets and interest coverage ratio are important to leverage ratios in predicting financial distress. The results show that out of three cash flow ratios, only cash flow from operations to sales ratio is a significant predictor of financial distress, while market ratios are irrelevant in predicting financial distress except for firm size. Results provide that big-size firms are less likely to face financial distress as compared to small-size firms. This study did not analyze the effect of related party transactions and Non-performing loans on DT-SACCO financial distress in Kenya, a literature gap filled by the findings presented in chapter four.

Prudential financial management also revolves around the SACCOs financial discipline with a profound influence on the success of all businesses conducted by the SACCOs (Mudibo, 2005). The major financial decisions involved in financial stewardship, for instance, include decisions on finance staff, loan management, asset management, and product innovation (Horne, 2003; Mudibo, 2005). The financial stewardship should be capable of working to increase SACCOs‟ wealth, sustain the SACCOs‟ value and satisfy the shareholders‟ demands. Further, the financial stewardship aspect is also responsible for updating accounts, ensuring the correctness of accounts, and planning and reporting to members.

India adopted an amendment that gave cooperatives a hybrid business alliance system that has enabled the cooperative-owned business to grow into the big empire of companies and own vast properties around and outside India (Fischer & Cuevas, 2006). UNISAP Federation is responsible for SACCO control in Mexico and has seen SACCOs grow to have lower risk than banks. The SACCOs have hence grown and patronized more than 60% of the total Mexican rural population (Be'roff, 2008). In the U.S credit unions were regulated by non-banking financial institution laws SEC (securities and exchange) Act. The system consists of complex rules that guide the operations of credit unions in the country. The system was introduced in the aftermath of the great depression of 1929 and was meant to improve public confidence in the financial institution; it has been in force to date (Kumar et al, 1997).

A non-performing loan is a significant factor used by regulators to determine financial stability and bank asset quality. Non-performing loans have contributed largely to prior bank failure and are envisaged as an indicator of the banking crisis (Us, 2017). An increase in non-performing loans signifies the unascertained banking crisis (Louzis et al., 2012). In addition, increased nonperforming loans relate to weaknesses in the financial system, which exposes the bank's vulnerability to credit risk. This has drawn the attention of several studies to explore the determinants of banks' asset quality such as bank-specific and macroeconomic factors in developing and developed economies (Maharmah & Saadeh, 2015; Wairimu & Gitundu, 2017).

Bhutta and Hasan (2013) examined the impact of firm size on the profitability of firms in Pakistan. The sample comprised firms listed in the food sector of the Karachi Stock Market for the period 2002–2006. The firm-specific factors include debt to equity, tangibility, growth, and size, and the macroeconomic factor was food inflation. They found a significant negative relationship between size and profitability, and an insignificant positive relationship between tangibility, growth, food inflation, and profitability. Similarly, an insignificant negative relationship is observed between the debt to equity ratio and firm profitability. This study did not analyze the effect of related party transactions and Non-performing loans on DT-

SACCO financial distress in Kenya, a literature gap filled by the findings presented in chapter four.

Chandrapala and Knápková (2013) studied the effect of firm-specific factors on financial performance in the Czech Republic. The sample comprised 974 firms over the period 2005–2008, using data from the Albertina database. They used pooled and panel designs for the analysis. They found that the firm size and sales growth had a significant positive impact on ROA. However, debt ratio and inventory had a significant negative impact on ROA. This study also did not analyze the effect of related party transactions and Non-performing loans on DT-SACCO financial distress in Kenya, a literature gap filled by the findings presented in chapter four.

### 1.1.2 Regional perspective of Determinants of SACCOs Financial Distress

The first SACCO Society was introduced in Africa by Father John Mcnulty in Ghana in 1959. The SACCO was intended to assist villagers to improve their economic conditions (Ng'ombe & Mikwamba, 2004). English-speaking nations were the first to adopt SACCOs. The first entrants into SACCO community include Ghana, Uganda, Nigeria, Tanzania, and Kenya. Most of the Non-English speaking nations in Africa started appreciating SACCOs in the 1960s, with a major influx into SACCO community in the 1970s (Mwakajumilo, 2011). SACCOs in Africa are still crawling as they are newcomers, among those offering savings and credit. The small share in providing financial services, and their market share are insignificant when compared to other players in financial service provision (Mwakajumilo, 2011).

In South Africa, the financial distress process is governed by each country's legislation. In SA, the previous "Judicial Management" under sections 327 to 440 of the Companies Act 1973 failed to assist financially distressed companies (Joubert, 2013). This led to the amended Companies Act, which aligned SA's rescue procedure with those of international jurisdictions such as the United States of America (USA), the UK, and Australia (Joubert, 2013). Adegboye, Ojeka and Adegboye (2020) conducted a panel data analysis using static and dynamic estimators to examine the sensitivity of nonperforming loans and corporate governance structure. From the empirical analysis, the corporate governance

structure of banks in Nigeria has a negative and significant influence on non-performing loans in Nigerian banks. This result reveals that a sound corporate governance structure enhances loan quality and bank stability. In addition, the study affirms that stringent policy imposed by the bank regulators has a negative impact on non-performing loans. Thus, an effective corporate governance mechanism and bank amendments could help to curb excessive risk appetite that could mutilate probable performance and loan quality. This study recommends that banks should continue to implement high-quality corporate governance mechanisms with positive effects on eliminating excessive risk-taking.

In Egypt, there is a statutory amendment of the credit union which is controlled strictly as the government sets the ceiling interest rate for issuing loans. Credit unions are also registered and managed directly by the ministry of economy hence few cases of mismanagement of the unions. The amendments are however too stringent hence leading to the rise of an underground lending market by unregistered individuals coming together and loaning money amongst themselves (Mahmoud & Wright, 2000). The SACCO amendment 2005 of Tanzania restricted SACCO with stringent rules on the composition and operations of SACCOs. This has caused a steady drop in the number of SACCOs and other microfinance institutions that have taken over. In this case of stringent amendment, the amendment was needed to revive the sector (Rubambey, 2005).

Owolabi (2017) examined the relationship between inflation, interest rate, and exchange rate and financial performance in Nigeria. The study established that interest rate was significant for only ROE, while all the variables (government expenditure, inflation, interest rate, and exchange rate) were significant for Tobin's $Q$. This study did not analyze the effect of related party transactions and Non-performing loans on DT-SACCO financial distress in Kenya, a literature gap filled by the findings presented in chapter four.

Mehari and Aemiro (2013) examined firm-specific factors that determine performance in Ethiopia. The sample comprised nine insurance companies for the period 2005–2010. The firm characteristics were: size, leverage, tangibility, loss ratio

(risk), premium growth, liquidity, and age. Performance was proxied as return on total assets (ROA). The results of regression analysis revealed that size, tangibility, and leverage were positive and statistically significant; however, the loss ratio (risk) was negative and statistically significant. Premium growth, age, and liquidity were statistically non-significant. This study did not analyze the effect of related party transactions and Non-performing loans on DT-SACCO financial distress in Kenya, a literature gap filled by the findings presented in chapter four.

Exchange rate fluctuations affect operating cash flows and firm value through translation, transaction, and economic effects of exchange rate risk exposure (Bartram, 2008). Firms dealing in multiple currencies face a risk (an unanticipated gain/loss) on account of sudden/unanticipated changes in exchange rates, quantified in terms of exposures. As businesses are increasingly interconnected globally, foreign exchange rate movements have been perceived as one of the most important sources of uncertainty to firms' cash flows and profitability (Afza & Alam, 2011). Changes in foreign currency exchange rates can affect firm value since they directly affect a firm's current and future cash flows. Evidence also suggests that this disparity results as many firms can manage their foreign exposure by passing through its effects to customers or by engaging in financial or operational hedging (Carter, Pantzalis, & Simkins, 2006; Bartram, Brown, & Minton, 2010). According to El-Masry (2006), changes in the exchange rate can influence a firm current and future expected cash flows and ultimately, stock prices. The direction and magnitude of changes in the exchange rate on firms' value are a function of a firm's corporate hedging policy which indicates whether the firm utilizes operational hedges and financial hedges to manage currency exposure and the structure of its foreign currency cash flows (Bartram, 2008).

### 1.1.3 Kenyan perspective of Determinants of SACCOs Financial Distress

The first Co-operative Society in Kenya was the Lumbwa Co-operative Society formed in 1908 by the European Farmers with the main objective of purchasing fertilizer, chemicals, seeds, and other farm inputs and then marketing their products to take advantage of economies of scale (Kenya Union of Saving and Credit Co-

operatives (KUSCCO, 2006). In 1930, Kenya Farmers Association was registered as a Co-operative Society to take over the role of supply of farm inputs played by the Lumbwa Co-operative Society (Gardeklint, 2009). Important to mention is that co-operatives were introduced, recognized, and controlled by the government of Kenya (KUSCCO, 2006).

In Kenya, the SACCO sub-sector has witnessed rapid growth in the last few years at the rate of about 25% per annum and now boasts of a savings mobilization of Shs.180 billion and an asset base of over KShs.200 billion (CBK, 2014). The savings mobilized by SACCOs represent 31% of the national savings. SACCOs have therefore played a key role in the mobilization of financial resources and will be a major player in the realization of the national Vision 2030. This sub-sector occupies a strategic position in the socio-economic development of Kenya (Ngaira, 2012). The SACCO sector operates under different regulatory regimes in Kenya with deposit-taking SACCOs being regulated by SASRA while non-deposit-taking SACCOs are regulated by the Department of Cooperatives.

On the issue of related party transactions, a prudent funds allocation strategy is an important financial practice function in any SACCO society. This aspect usually involves decisions to commit the SACCOs' funds to planned investment options. These decisions have a great influence on the growth of wealth. SACCOs need to make decisions to invest their funds more efficiently in anticipation of the expected flow of benefits in the long run. Such investment decisions generally include expansion, acquisition, modernization, and replacement of long-term assets (Maina, 2007). In all these cases, the SACCOs should strive to minimize costs and optimize benefits to ensure their operational sustainability, growth in SACCOs‟ wealth, and attractiveness to potential and present members.

In 1945, the Co-operative Ordinance Act was passed where the Government of Kenya (GoK) legally controlled the co-operatives. The act was amended in 1997 removing much of the control from the government through the Commissioner of Co-operatives under the Co-operative Societies Act 1997. This Act was enacted to provide a policy framework for cooperative development in Kenya, therefore,

delineating these co-operatives from the control of the Government by necessitating the withdrawal of state control over the cooperative movement. The aim was to make co-operatives autonomous, self-reliant, self-controlled, and commercially viable institutions. In the recent past Savings and Credit Co-operatives (SACCOs) have witnessed faster growth than other co-operatives in Kenya.

In terms of statutory amendments, the establishment of the SACCO Societies Act 2008 places the licensing, supervision, and amendment of deposit-taking under the armpit of the SACCO Societies Regulatory Authority (SASRA). Through this new legal framework, prudential amendments have been introduced to guide SACCO's growth and development (Barrales, 2012). Deposits-taking SACCOs are licensed and regulated by SASRA while non-deposit-taking SACCOs are supervised by the Commissioner for Cooperatives. SASRA licenses SACCOs that have been duly registered under the Cooperative Societies Act CAP 490 (SASRA, 2012). The SASRA is expected to set the minimum operational amendments and prudential standards for the SACCOs. Nevertheless, some provisions in the Act, such as the minimum capital requirement, are so stringent that some SACCOs may not be able to operate the FOSA activity (Wanyama, 2009).

The statutory amendments are important as they are meant to provide minimum operational and prudential standards in SACCO societies (Wanyoike, 2013). It is safe to regulate SACCOs as they take a deposit from the public and any mismanagement or embezzlement may cause financial problems to millions of people or even cause panic in the SACCO movement. The amendment will also help in customizing SACCOs to give uniform products hence avoiding cases of exploitatively interest rates. The regulator will also help in realizing that members who serve as staff in SACCOs are qualified to hold their current positions. This goes a long way toward realizing proper and quality services to SACCO members hence it is important to introduce the new amendments.

There are several types of Savings and credit cooperatives in Kenya for example Urban, Rural, Transport, and community-based SACCOs. Some rural and urban Savings and credit cooperatives operate Front Office Service Activity (FOSA). Only

a few of them have adopted strategic management practices. This is despite efforts to introduce the concept of strategic management in all Cooperative societies. Some consider strategic management to be out of reach owing to the scarcity of resources and their size while others have not found out the importance of its adoption despite its immense contribution to the economic and social welfare of many Kenyans (Mbaki, 2014).

### 1.1.4 DT-SACCOs in Kenya

In terms of membership, the total number of deposit-taking SACCOs was 215, of which 176 had been licensed as of December 2013. All deposit-taking SACCOs were in operation before the establishment of SASRA in 2009 and have applied to be considered for licensing as undertaking deposit-taking SACCOs business. Other shortcomings of the co-operative societies Act included failure to specify qualifications of the board members which lead to their election being based on popularity rather than on skills, to bring out rules that limit risk exposure and specify disclosure norms, specify liquidity reserves, state the audit report standards and establish the provision for writing off non-performing loans.

According to Adam, Collier, and Ndungu, (2012) Kenya's vision 2030 for financial services is to create a successful and globally competitive financial sector capable of promoting high levels of saving and financing for Kenya's investment needs thus enhancing financial management. The move to attain the vision 2030 has led the government through the act of parliament to establish a regulatory body to oversee the operations of all SACCOs that operate FOSA accounts. However, access to financial services is a stumbling block that has led to low investment culture in Kenya (Kiaritha, 2015). Deposit-taking SACCOs that have collapsed include.

Others that have also failed are; Nandi Hekima SACCO based in Kapsabet, Sukari SACCO in Mumias, Transcom SACCO, Ufundi SACCO in Nairobi, Maono Daima SACCO, Greenhills SACCO Nest SACCO and Milika SACCO based in Nairobi. According to Adam, Collier, and Ndungu, (2012) Kenya's vision 2030 for financial services is to create a successful and globally competitive financial sector capable of promoting high levels of saving and financing for Kenya's investment needs thus

enhancing financial management. The country's vision 2030 recognizes the role of financial services in moderating borrowing and investment. The move to attain the vision 2030 has led the government through the act of parliament to establish a regulatory body to oversee the operations of all SACCOs that operate FOSA accounts. However, access to financial services is a stumbling block that has led to low investment culture in Kenya (Kiaritha, 2015). With the rising of SACCOs, Kenyans need to seek the right information and guidance before investing in a majority of the avenues to avoid losing their life savings to conniving professional con artists.

In the year 2017, two DT-SACCOs had their licenses revoked and 12 DT-SACCOs were operating on conditionally restricted half-year licenses for failing to meet their financial obligations. In addition, even though total income in SACCOS had been increasing for the past five years, non-performing loans had been on the increase, having increased from 5.23% in 2016 to 6.14% in the year 2017 (SASRA, 2018).

Mwangi and Wekesa (2017) examined the influence of economic factors on firm performance in Kenya and found that economic factors had a significant effect on performance. Otambo (2016) examined the effect of macroeconomic variables on the financial performance of banks in Kenya and found that interest rates and exchange rates affect financial performance negatively while GDP affects financial performance positively. Inflation rates were not significant. Murungi (2014) also examined the relationship between macroeconomic variables and financial performance in Kenya and found that inflation rate, exchange rate, money supply, and size of assets were not statistically significant. This study was not conducted among the DT-SACCO in Kenya and did not analyze their financial distress, a literature gap filled by the findings presented in chapter four. The current study in the same light of the economic factors analyzed the effect of the exchange rate as an economic factor on the financial distress of the DT-Saccos in Kenya.

The SACCO Societies Act of 2008 established the SACCO Societies Regulatory Authority (SASRA). SASRA is a regulatory body that was established and launched in 2009. Its primary responsibility is to license, supervise, and regulate all deposit-

taking SACCO Societies in Kenya. The new SASRA amendments required SACCOs to source additional share capital from members to comply with core capital requirements set at 10 percent of their total assets. SACCOs were also forced to offer members incentives for raising capital that cannot be withdrawn from the institution (SASRA, 2018). Wanyoike (2013) carried out a study to establish the impact of SASRA Amendments on SACCOs' financial performance in Nairobi County. The study findings indicated that the quality of the Board of Directors was an important aspect in improving the SACCOs financial performance as per the SASRA amendments. The findings also revealed that SACCO staff competence had a strong influence on the financial performance of the SACCOs in the area. Corporate governance was also identified as the most significant effect of SASRA amendments on the SACCOs financial performance.

Waswa (2013) undertook a study to assess the effects of regulatory controls on interest rates of deposit-taking Savings and Credit Co-operative Societies (SACCOs) in Nairobi County and established that the regulatory controls inception led to a slight increase in interest rates on SACCO loans /credit. This was a result of increased compliance costs. The study observed that implementation of amendments in phases shall cushion SACCOs on operational costs and profitability variations. The SASRA amendments are not punitive as such but are likely to give a positive impact on SACCO sub-sector performance in the long run. The study did not specialize in DT-Taking SACCOs in Kenya which the current study analyzed and results presented in chapter four.

### 1.2 Statement of the Problem

With the registration of over 6700 SACCOs, the Kenyan government has made a significant initiative to support cooperative movements through legislation to achieve the millennium development goals and Vision 2030 objectives of increasing financial inclusion (Kiaritha, 2015). Despite the significant government initiative, a significant 3457 (51%) of the SACCOs have not been operational, whose high rate of failures continues to frustrate millennium development goals and vision 2030 objectives of increasing financial inclusion (Motompa, 2016). According to the Government of

Kenya (2009), despite the increased supervision of SACCOs in Kenya through various mechanisms such as the introduction of SASRA amendments, a significant number of SACCOs still face financial distress which has led to the winding up of these SACCOs (SASRA, 2018). Arising from the strategic position played by the SACCO sector in the Kenyan economy, it would therefore be prudent to establish the determinants of financial distress in SACCOs in Kenya to predict the future performance of SACCOs.

According to Njogu (2011), in Nairobi alone, about 24% of registered SACCOs in Nairobi County were still operational. The study attributed the dwindling numbers to financial distress. The study further noted that a closer look at the cooperative financial records reveals that the non-operational societies had a total debt of 3.4 billion with financial institutions. Arising from the strategic position played by the SACCO sector in the Kenyan economy, it would therefore be prudent to establish the determinants of financial distress in SACCOs in Kenya to predict the future performance of SACCOs. Studies have extensively focused on the prediction of bank failures globally with minimal research carried out on SACCOs despite their immense input to the economic systems of the host countries. Currently, savings have reached 490 billion in Kenya shillings which is about 33% of the national savings (Kiaritha, 2009) with many SACCOs being deregistered by SASRA due to their inability to be financially stable. However, there exists a knowledge gap as to the contribution of the factors that lead to the financial distress the SACCOs are facing.

Scholars Kiaritha (2009), Unal, Guclusoy and Franquesa (2009), Bhuyan (2007), Nyoro and Ngugi (2007), Chombo (2009), and Pollet (2009) have conducted studies on financial performance within the SACCO movement and using various variables where various factors contributing to success or failure of co-operatives were multifaceted and depended on the operating environment of the specific SACCO. Moreover, the studies evaluated just a handful of factors. In terms of statutory amendments, previous researchers Zeuli and Cropp (2013), Kioko (2012) and Wanyoike (2013) focused mainly on SACCO performance either financially or non-financial. However, the impact of direct control by the government through statutory

regulators like SASRA on the performance and sustainability of small SACCOs had not been fully addressed. Munene et al. (2020) established that composition, board education, and board tenure have a statistically significant and negative influence on financial distress. The causes of financial distress of the SACCO societies in Kenya is inclusive, some researchers found positive relationship others found a negative relationship between the contributing factors and financial distress. None of the empirical studies have analyzed the effect of related party transactions, non-performing loans, interest rate spread, exchange rate, SASRA regulation, and firm size on financial distress. This study, therefore, sought to bridge this research gap by ascertaining the effect of key determinants of financial distress on deposit-taking SACCOs in Kenya.

### 1.3 General Objective

The study seeks to examine the moderating effect of firm size on the determinants of financial distress in savings and credit cooperative organizations (SACCOs) in Kenya.

### 1.3.2 Specific Objectives

i. To examine the effect of related party transactions on financial distress in savings and credit cooperative organizations in Kenya.
ii. To establish the effect of interest rates spread on loans on financial distress in savings and credit cooperative organizations in Kenya.
iii. To determine the effect of nonperforming loans on financial distress in savings and credit cooperative organizations in Kenya.
iv. To examine the effect of exchange rate exposure on financial distress in savings and credit cooperative organizations in Kenya
v. To determine the controlling effect of the SASRA amendment on the determinants and financial distress in savings and credit cooperative organizations in Kenya.
vi. To assess the moderation effect of firm size on the relationship between the determinants and financial distress in savings and credit cooperative organizations in Kenya.

## 1.4 Hypotheses of the Study

**$H_0$1:** Related party transactions have no significant effect on financial distress in savings and credit cooperative organizations in Kenya.

**$H_0$2:** Interest rates spread on loans have no significant effect on financial distress in savings and credit cooperative organizations in Kenya.

**$H_0$3:** Nonperforming loans do not significantly affect financial distress in savings and credit cooperatives in Kenya.

**$H_{04}$4:** Exchange rate exposure has no significant effect on financial distress in savings and credit cooperative organizations in Kenya.

**$H_0$5:** SASRA Amendments have no controlling effect on the determinants and financial distress in savings and credit cooperative organizations in Kenya.

**$H_0$6:** Firm size has no moderating effect on the relationship between the determinants and financial distress in savings and credit cooperative organizations in Kenya.

## 1.5 Significance of the study

### 1.5.1 Regulators/Policymakers

The findings from the study would be used by various regulators in different jurisdictions to improve their financial distress management approaches and create additional prudential guidelines and policies. These measures would help to avoid unnecessary declines, bursts, and unnecessary receivership of DT SACCOs in Kenya. SASRA as a regulatory body will understand the importance of adjusting its amendments actively. The amendments would help to put the financial distress effect to manageable levels.

### 1.5.2 The Practitioners

The findings of this investigation would help the DT SACCOs in Kenya to screen the key monetary factors and comprehend; the degree to which financial distress can be controlled by DT SACCOs in Kenya. DT SACCOs in Kenya would effectively decide the need to truly consider the different market drifts and the extent that financial distress is worried to stay focused in the market. They can also help DT SACCOs in Kenya in seeing better the financial distress determinants' towards the equivalent. Information acquired from this study would help the investors and customers understand key financial distress determinants in the DT SACCOs in Kenya, likely strength in SACCOs in overcoming the effect of financial distress determinants, and how financial distress may lead to the risk of default or otherwise. As a result, they will make informed investment decisions.

### 1.5.3 Scholars

This study sought to fill the gap that existed in the literature concerning the effect of financial distress determinants in deposit-taking SACCOs in Kenya. The findings add to the already existing body of knowledge in the field of financial distress. In addition, the study provides opportunities for further research in the area of financial distress in deposit-taking SACCOs.

## 1.6 Scope of the Study

Data collection covered a seven (9) year period from 2013 to 2020, this period of seven years was selected for the study to establish the changes in deposit-taking SACCOs over time and to base the analysis on as recent data as possible.

This could also be important since several SARA amendments for SACCOs had been put in place while many financial distress determinants can affect deposit-taking SACCOs. The study only focused on the financial distress determents that have been used by earlier scholars, and those consistent with available theories and could be identified from the financial statement of deposit-taking SACCOs in Kenya. The study utilized secondary data.

## 1.7 Limitations of the Study

The current study focused on secondary data and thus omitted the qualitative aspects of the research. The SACCOs studied were deposit-taking and hence the findings are only limited to the 176 DT SACCOs and not the numerous non-DT SACCOs. Another limitation the study faced was the use of financial statements as a source of secondary data, although the financial statements are adversely affected by the judgment and estimates of accountants during their preparation. The researcher was therefore limited to the information available in the statements despite this weakness.

# CHAPTER TWO

# LITERATURE REVIEW

## 2.1 Introduction

This section presents related literature in the region of financial distress determinants as portrayed in the deposit-taking SACCOs. It begins by assessing theories on related party transactions, interest rates spread, and non-performing loans. After the literature review, a conceptual framework was developed which formed the basis and linkages in establishing existing relationships amongst the key variables in this study. The empirical review together with embedded critique existing in the literature was reviewed in this chapter, and a summary and research gap on financial distress were filled by this study.

## 2.2 Theoretical Framework Review

This segment presents the applicable theories in the region on determinants of financial distress in deposit-taking SACCOs. A theory is a systematic explanation of prevalence and a researcher ought to be conversant with those theories applicable to his place of research (Durham & Stokes, 2015; Shapira, 2011). For firmly grounding the observation theoretically, one or more theories had been reviewed for each variable. The theories reviewed relate to; related party transactions, interest rate spread, and non-performing loans. Wacker (1998) argued that precise theories have to be set up so one can support studies, based totally on the applicable guidelines, and every study's guideline presented is based upon 'right' theories' virtues. For the reason that 'exact' idea's virtues are weighed towards each other, judgment is essential to determine the relative significance of every virtue and each tenet. Nonetheless, principle-developers can use a couple of theory guiding principles to boom their research's importance (Wacker, 1998). Webster and Watson (2002) also argued that theories in research should clearly articulate the paper's contributions and ways of demonstrating contributions may include providing a new theoretical understanding that helps to explain previously confusing results. This is possible by

bringing together other different theoretical streams of work to help shed light on a phenomenon under study (Webster & Watson, 2002).

Key theories such as the wrecker's financial distress theories, Keyenes Liquidity Theory, Information Asymmetric Theory, and Neoclassical Theory of Investment were reviewed in respect to dependent and independent variables.

### 2.2.1 Wrecker's Theory of Financial Distress

Wreckers theory of financial distress After developing a reduced form default risk indicator, Campbell, Hilscher, and Szilagi (2005) present the hypothesis that stocks of distressed firms perform in a manner that is vastly inferior to stocks of financially healthy firms. The wreckers' theory of financial distress seeks to explain the benefits that may step out of financial distress to members. It is not necessary to attribute the negative excess returns of distressed firms to inefficient or irrational markets. Such negative excess returns can be shown to be the equilibrium outcome under efficiency in an environment where a subset of participants can draw returns (in kind) from distressed companies. For firms close to bankruptcy, non-cash returns to ownership may be the dominant form of a payout.

If markets are efficient, those returns must show up in stock valuation. This may be labeled the 'wreckers theory' of financial distress. It explains the entire pattern of results very well. They proceed to show how to test this hypothesis directly against the alternative of inefficient markets using the theory of convenience yields. It is hard to believe that financial market participants as a group can be that irrational or inefficient. Therefore, Campbell, Hilscher, and Szilagi (2005), take one step back and try to tell the story of "profiting from a ship wreckage" from a completely different perspective. They paint an illusion of a firm being hit by a series of negative shocks, making losses, and approaching a state of financial distress.

With higher leverage, volatility of share prices increases concerning private information; the ultimate fate of the firm depends on issues unknown to the general public. With information asymmetry becoming more important, uninformed investors – widows and orphans – will leave, as, from their perspective; it is a market

for lemons. Very soon, equity will be owned by insiders – market participants who have a specific advantage in obtaining and interpreting information related to the company in question. Two groups come to mind: managers themselves, and competing firms. A third possibility might be private equity or funds, working on a restructuring (Campbel, Hilscher, & Szilagyi, 2005). It is this group of well-informed insiders that can draw returns on their investment in other ways than receiving a cash dividend payout. With managers, this is obvious: there is a large body of literature on corporate governance which shows how difficult it is to prevent managers from taking undue advantage of the firm.

If the firm is distressed, it would not be wise for managers to realize hidden reserves generating a cash flow, as this cash presumably would go to the creditors (Campbel, Hilscher, & Szilagyi, 2005). Instead, the utility-maximizing managers will try to make use of the firms' resources more directly. Competitors, on the other hand, are those market participants that have the same use of the firm's material and non-material resources, among other things specialized labor, market information, technical and engineering information, and product knowledge. Much of these resources can be transferred by anybody who happens to have executive power. Of course, controlling the market behavior of the competing firm can also have a direct positive impact on the competitor's profits. This type of benefit will not necessarily deplete the resources of the company (Campbel, Hilscher, & Szilagyi, 2005). This leads to a crucial point: Equity is not only a right to receive dividends, it also confers control rights. These control rights have an economic value on their own, as they enable owners to draw a return in kind.

If control rights had no economic value, who would care to have them? The value of control rights makes equity comparable to a commodity. The return of a storable commodity consists of two parts: the capital gain and the "convenience yield", that is, the flow of services that accrues to the owner of a physical inventory but not to the owner of a contract on future delivery (Brennan, 1991). The convenience yield of corporate control comprises all non-cash economic benefits of ownership, by no means necessarily illegal ones. Although it does not show up in the books, the convenience yield of corporate control is economically equivalent to a dividend, and

it will be valued as such – not only by the ultimate beneficiary but also by all other market participants who try to form rational price expectations. The shares of distressed firms do generate returns that are consistent with their risk class, but only a subset of market participants can make use of the flows (Brennan, 1991).

The Wrecker's theory of financial distress tries to legitimize different advantages as a result of a financially distressed firm to shareholders. It isn't important to attribute the negative abundance returns of distressed organizations to inefficient or illogical markets; such negative overabundance returns can be shown to the equilibrium outcome under coherency in a financially distressed firm, at that point the members can be able to return in kind. Wrecker's theory of financial distress paints an illusion of a firm being hit by a progression of negative stuns, making losses, and moving toward a condition of financial distress. The shareholders expect output from the firm in form of dividend payments, credits, advances, and bank runs, hence influencing the asset quality due to low deposits and high nonperforming loans and advances as a result of huge withdrawals. In according with Wrecker's theory, therefore, asset quality is a huge factor in financial distress.

With higher use of leverage, share price volatility increases in favor of private information; hence the fate of the organization depends on issues obscure to the general public, Nyamboga et al., (2014). Since shareholders will begin demanding returns for their investments, there will be constant withdrawals in terms of credits, advances, and SACCO's runs; therefore the SACCOs will be financially distressed since it will be required to make colossal payments to the shareholders. The hypothesis is huge in this investigation in setting up the capacity of SACCOs in altering themselves from financial distress to monetarily reasonable organizations. The adjusting of the different variables finishing into the financial distress of the SACCOs would help in reducing the propensity of the organizations to be financially bothered. This theory was the basis upon which the dependent variable of the study, financial distress was statistically tested.

### 2.2.2 Keynes Liquidity Preference Theory

This theory was proposed by John Keynes and it indicates that most investors tend to prefer short-term securities over long-term securities (Keynes, 1973). In Keynes view, the crucial way that lending rates impact the level of cumulative output is via their influence on their scheduled investment disbursements. Dimand and Robert (2008) indicate that Profit-seeking organizations do their investment mainly through physical capital such as machinery and raw materials and expect to earn from them other than from the interest cost of the loan of investment finance. The lending rate has a center-stage role when it comes to the investment demand schedule. Keynes in the liquidity preference theory advocates for government to come up with an adequate monetary policy to manage interest rates. However, Keynes believes that other factors affect the investment demand schedule and therefore monetary policy alone cannot achieve the desired levels of investment and maintain full employment. Walsh (2010) also posited that there exists a relationship between investment demand and commercial banks' lending rates sensitive adjustments.

According to Panico and Carlo (2008), with the increase in consumer credit already known by the 1920s, the investment demand may not be the only use of the funds available for loans. For instance, Keynes neglected the fact that lending rates also allocate available funds for consumption purposes besides investments. Availability of funds at low lending rates influences the demand to consume and small monetary efforts may go a long way in altering the movements of the lending rates as desired since speculation will quickly come in to balance the market in the expected direction which arbitrage the following lending rates fluctuations on the foundation of the rate expected (Christiano et al., 2005). This theory informed the effect of interest rate spread on DT-SACCO distress and also the moderating effect of the SASRA amendment on the relationship between the determinants and DT-SACCO distress in Kenya.

Liquidity preference theory encompasses the need for liquidity (cash or near cash) in an economy by institutions and individuals i.e transaction motive, precautionary motive, and speculative motive. DT SACCOs need liquidity to be able to lend to

their members upon receiving loan requests and if DT SACCOs receive more loan requests than the available liquid assets the DT SACCOs are forced to borrow at high-interest rate from other lenders including commercial banks that may have more liquid assets. The high-interest rate on borrowed funds erodes the profit margin for DT SACCOs arising from the difference or spread between lending and borrowing interest rates and this small spread can cause financial distress in the DT SACCO.

### 2.2.3 Information Asymmetric Theory

Akerlof (1970) brought informational issues to the forefront of economic theory. He showed that information asymmetry could increase adverse selection in the market. Glosten and Harris (1988) found that adverse selection is positively associated with the degree of information asymmetry in the market. Subsequently, Stoll (1989) provided evidence that 43 percent of bid/ask spread is due to adverse information in the market. Gietzman and Ireland (2005) examined the relationship between disclosure and the cost of capital in the UK. They found a negative relationship between disclosure and the cost of capital, but this relationship exists only for firms adopting aggressive accounting policies. Zhang and Ding (2006) also found a negative relationship between disclosure and the cost of capital.

Myers and Majluf (1984) argue that managers know more about the firm's value of assets and opportunities than potential investors do. They also assume that managers act in the interests of existing shareholders. Since managers act in the interests of existing shareholders, there is an incentive to sell new equity when it is overvalued. Thus, selling equity on average conveys negative information about the firm, and the stock price drops at the equity issue announcement. Ambarish, John, and Williams (1987) showed that the announcement effect of new stock depends on the role of assets in place and investment opportunities. For instance, the announcement effect is negative for firms with private information primarily about assets in place, and positive for firms with inside information mainly about opportunities to invest. Some researchers have studied the leverage effect of financing activities. Modigliani and Miller (1963) argue that issuing new stocks reduces stock prices if debt levels are reduced.

According to this theory, issuing new stocks reduces financial leverage. Due to losing tax advantage because of equity financing, leverage decreases with stock prices, and the decrease in stock prices is positively associated with the relative size of the issue. Eberhart and Siddique (2002) studied long-run bond returns following securities offerings. Distinguishing between pure and partial wealth transfer, they showed that abnormal firm returns are negative following equity offerings, and much of the shareholder wealth loss represents a wealth transfer to bondholders, supporting the partial wealth transfer hypothesis. The special role of banks as financial intermediaries has received much attention in the literature. For instance, Diamond (1984) argued that the key advantage of banks for investors is their access to private information, reducing information asymmetry among different groups operating in the market. Mikkelson and Partch (1986), James (1987), and Lummer and McConnell (1989) showed that bank loan announcement creates positive abnormal stock returns for the borrowing firms.

James (1987) investigated the reaction of stock prices to bank loan announcements. He found that a positive stock price response to the announcement of new bank credit agreements is larger than the stock price response associated with Managing Global Transitions. He also found significantly negative returns for announcements of private placements and straight debt issues used to repay bank loans. Others followed up on this study. Lummer and McConnell (1989), for instance, distinguished between new bank loans and loan renewals. They found that the positive response of stock prices only holds for the latter, that is, loan renewals. Bharath, Pasquariello, and Wu (2009) found a significant positive relationship between information asymmetry and the use of debt in the capital structure of firms. Yumei, Chunfeng, and Zhenming (2007) studied the effect of information asymmetry on the financing of Chinese firms and found a significant positive relationship between information asymmetry and debt ratio (short-term, long-term, and total). Van Buskirk (2012) studied the effect of frequency of disclosure on the level of information asymmetry among investors. Studying a sample of firms in the US retail sector, he found that more detailed (greater quantity) disclosure is associated with reduced information asymmetry.

Francis, Nanda, and Olsson (2008) showed that the cost of equity is negatively related to the disclosure measure based on annual reports and 10-k filings, positively related to disclosure measures based on management forecasts and conference calls, and unrelated to press-release-based disclosure measures. Fama and French (2002) and George and Hwang (2010) found that leverage based on book value is associated with lower returns, while leverage based on market value is associated with higher returns. A recent study by Fulghieri, Garcia, and Hackbarth (2013) shows that equity can dominate debt if both the asset in place and the growth option are subject to the type of asymmetric information that is similar to what we examine here. Fulghieri, Garcia, and Hackbarth (2013) investigate the optimal security design problem under more general distributions of firm values, although information asymmetry in their model is not time-varying.

Information asymmetry theory is associated with Akerlof (1970) who developed a "lemon's" model. The model is founded on the assumption that, in some given markets, sellers will tend to sell poor quality goods, because the advantages accruing from the sale of quality goods will be enjoyed by all the sellers in the market rather than only those offering quality goods. This will eventually lead to the predominance of poor-quality goods in the market as the majority of the sellers will have no motivation to sell quality goods. This might in turn lead to a market failure in which the right quality goods will never be offered regardless of the price. Arkerlof used this theory to explain how car markets operate in the face of information asymmetry. He argued that in this market we have both new and used cars, good cars, and lemons, and a new and used car can be either a good or a lemon. In both the new and used car markets, a buyer will not know the exact quality of the car he is purchasing.

Market failure may be avoided, however, by certain countervailing institutions which, in essence, act as a minimal warrant of quality or value in situations where asymmetric information might potentially be present. Akerlof noted that one of the counteracting institutions in the credits markets is credit ratings and credit reporting. Credit reporting is usually done by credit reference bureaus which build information capital about a borrower's credit history. In general, the price of a loan is based on the lender's cost plus a risk premium. The cost of funds is often linked to a short-

term market rate, which represents a common benchmark for all borrowers regardless of their credit history. Lenders will often charge an additional risk premium over the market rate as compensation for bearing the risk of slow, partial, or fully delinquent loan repayments. Therefore, borrowers who have never defaulted on their historical obligations can leverage credit reporting to bargain for lower borrowing rates. Information imbalance between lenders and borrowers as analyzed into the adverse selection and moral hazard making Information Asymmetry Theory important in informing the effect of non-performing loans on financial distress of DT-SACCOs.

### 2.2.4 Neoclassical Theory of Investment

This theory originates from Jorgenson (1963). The theory draws its fundamentals from the maximization of utility and wealth of a firm over time (Warström & Niemelä, 2015). In the neoclassical theory, investment is seen as a distributed lag function of variations in the required capital. The required or desired capital here acts as a function of the output level, user capital cost, and output price (Twine, Kiiza, & Bashaasha, 2015). The theory presupposes that investment is a function of the cost of capital and the firms' output. Additionally, the theory contends that the capital and labor ratios adapt to the relative changes in prices (Virlics, 2013). In the investment models, the firm is seen to be neutral to risks, and capital cost causes the risk (Virlics, 2013). The neoclassical argument assumes that firm managers act in the best interest of firm stakeholders. It also assumes managers and external suppliers of funds have the same information regarding the quantity and quality of investment opportunities available to the firm. These assumptions serve as a point of departure for models that demonstrate the potential importance of internal funds in the investment decision (Ismail et al., 2010).

The Jorgenson model of investment takes account of cost-related variables by making the explicit basis of the neoclassical investment model optimization behavior that links the desired level of capital stock to interest rates, taxes, and outputs. Investment can be thought of as the optimal adjustment of capital stock in this model. Within this framework, investors achieve the optimal level of capital stock by

maximizing discounted profits over infinite periods. However, since capital equipment is durable, firms could find themselves in a situation where they cannot sell unwanted capital equipment.

Mohammed, (2017) explains that the simplifying assumption of a perfect market for used capital goods and all inputs and outputs is a way to get around the difficulties of the present value optimization problem when taking into account uncertainties associated with a lifetime of capital equipment and input prices and demand for outputs in the future. This assumption allowed Jorgenson to see firms as renting capital to themselves during each period and the rental price was referred to as the user cost of capital. Jorgenson also assumed that adjustments from current to desire levels of capital stock were instantaneous and costless. Therefore, in the neoclassical model of investment, there is no need to consider expectations and there is no uncertainty about the future because investors are concerned about optimizing in only one period, Berndt (p.243) says that a major weakness of the neoclassical investment model is that it does not rationalize moves towards the optimal capital stock. Attempts to introduce uncertainty into Jorgensonian models by including ad-hoc lags transformed Jorgenson's neoclassical model into a modified accelerator model. Gezici (2007, p.28) says that investment came to be conceived as an adjustment to equilibrium in these models as their emphasis on explicit adjustment processes increased. The result of this development of neoclassical investment models is that the optimal amount of investment became a decision about the optimal speed of adjustment. Attempts to more rigorously introduce time lags into investment models maintained the assumptions introduced by Jorgenson and, therefore, were also not capable of addressing how expectations and uncertainty affect investment decisions. For this study, the neoclassical theory was employed to explore whether firm size determined DT-SACCO's financial distress.

### 2.2.5 Agency Theory

The proponents of agency theory were Jensen and Meckling (1976), who discussed how to cure the challenges faced by the owners (principal) and management (agent) as agency costs. Agency theory is developed as a framework for analyzing

conflicting interests between key stakeholders, in addition to the development of mechanisms for resolving conflicts (Tipuric, 2008). Besides prevalent contribution within the discipline of corporate governance, agency theory application is extensive: agency theory may be applied in every situation in which one party (the principal) delegates work to another (the agent), who performs that work. Agency theory attempts to describe the relationship in terms of behavioral characteristics. The incentive for agency theory development is the relationship between ownership and control functions within large corporations. Agency theory describes economic exchange relations between principal and agent. According to Abdullah & Valentine (2009), agency theory explains the relationship between the principals, such as members and agents. In this theory, members who are the owners or principals of the SACCO hires by electing the management board as their agents. Principals (members) delegate the running of the business to the management board which in turn hires and delegates authority to the managers. Indeed, Daily et. al, (2003) notes that two factors can influence the prominence of agency theory. First, the theory conceptually reduces the corporation to two participants of managers and owners. Second, agency theory suggests that employees or managers in SACCOs' can be self-interested. Shareholders expect the agents to act and make decisions in the principal's interest. On the contrary, the agent may not necessarily make decisions in the best interests of the principals. Not many studies have tested Agency Theory in Kenyan firms regulated either by the Central Bank of Kenya or SACCOs regulated by SASRA amendments as a determinant of financial distress. This theory, therefore, was used to examine the effect of related party transactions on financial distress in savings and credit cooperative organizations in Kenya.

### 2.2.6 Economic Regulatory Theory

The main proponent of Economic Regulatory Theory is Sam Peltzman in 1985. This theory, which has been around in one form or another since Adam Smith, regarded market failure as the motivating reason for the entry of amendments. Once established, regulatory bodies were supposed to lessen or eliminate the inefficiencies engendered by the market failure. Economic Amendment theory offers two, complementary rationales for regulating financial institutions. This theory treats rules

as governmental instruments for increasing fairness and efficiency across society as a whole (Diamond & Dybvig, 1983). The theory assigns amendments to governmental entities that search for market failures and correct them.

According to Jensen and Michael, (1994), economic amendment theory portrays amendment as a way to raise the quality of financial services by improving incentives to perform contractual obligations in stressful situations. Stiger (2009) argues that the fundamental flaw in financial amendments is that it is based on assumptions that regulators are self-interested individuals like the rest of us. He further says that we think about amendment only in terms of how to engineer the incentives of the regulated and ignore the fact that the regulators themselves rarely have a stake in doing the job well, which in any other occupation would limit the motivation and type of individuals a position attracts (Edward, 1997).

Two assumptions seem to have typified thoughts about economic policy. One assumption was that economic markets are extremely fragile and apt to operate very inefficiently (or inequitably) if left alone. Secondly, the government amendment is virtually costless (Richard, 1974). Richard (1974) further observes that with these assumptions, it was very easy to argue that the principal government interventions in the economy; trade union protection, public utility and common carrier amendment, public power and reclamation programs, farm subsidies, occupational licensure, the minimum wage, even tariffs were simply responses of government to public demands for the rectification of palpable, and remediable, inefficiencies and inequities in the operation of the free market.

Economic amendment theory underpinned this study by explaining the need for amendments in the SACCO sub-sector for fairness and competitiveness. Economic Regulatory Theory was the basis for analyzing the moderating effect of the SASRA amendment on the relationship between the determinants and financial distress in savings and credit cooperative organizations in Kenya.

### 2.2.7 Purchasing Power Parity Theory

The Purchasing Power Parity (PPP) theory was first invoked, in somewhat ambiguous terms, during the period of Napoleonic wars and received its christening at the hands of Gustav (1918) during World War I. Later, after World War II, it was restated by Hansen (1944). Purchasing power parity (PPP) is the simple proposition that prices in different countries should be equal if they are converted to the same currency (Chowdhry, Roll & Xia, 2005). The absolute version of PPP is based on the law of one price, which maintains that arbitrage should tend to equilibrate prices of the same good at different locations.

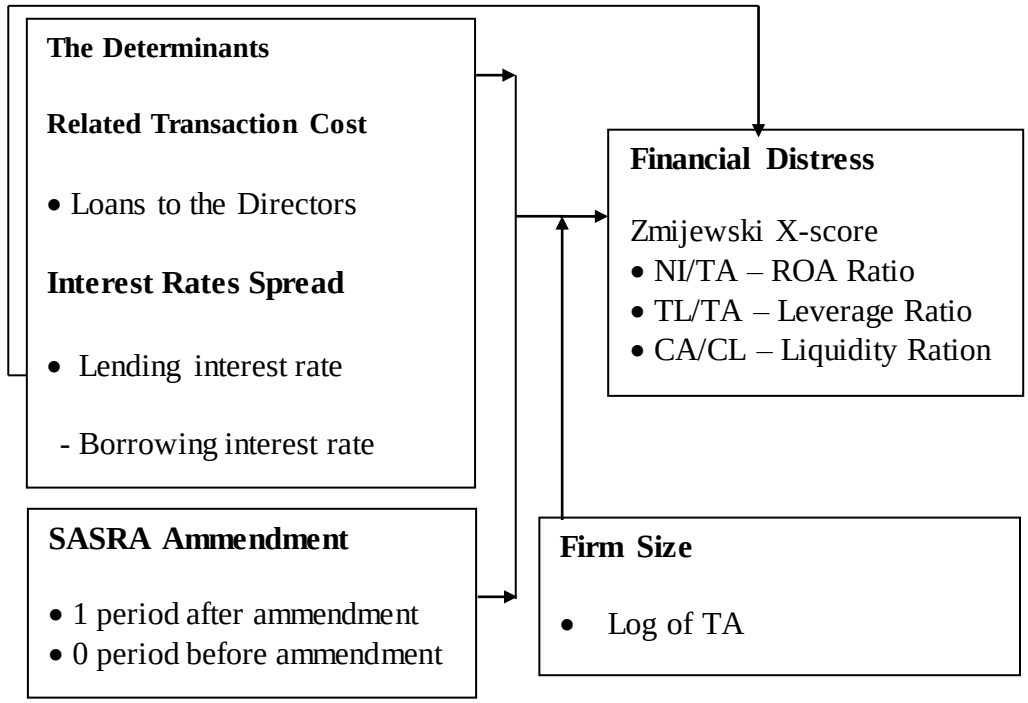
Relative purchasing power parity (PPP) holds for pure price inflations, which affect prices of all goods and services by the same proportion while leaving relative prices unchanged (Chowdhry, Roll & Xia, 2005). It accounts for the possibility of market imperfections such as transportation costs, tariffs, and quotas (Madura, 2008). The theory assumes that the actions of importers and exporters motivated by cross-country price differences induce changes in the spot exchange rate. In another vein, PPP suggests that transactions on a country's current account affect the value of the exchange rate in the foreign exchange market.

This proposition states that the rate of appreciation (depreciation) of a currency is equal to the difference in inflation rates between the foreign and the home country (Sarno & Taylor, 2002). The economic forces behind PPP will eventually equalize the purchasing power of currencies. This can take many years, however. A time horizon of 4-10 years would be typical (Copeland, 1989). The PPP has, however, not been without criticisms. One of the strongest criticisms of the absolute version of PPP is by Samuelson (1964) who stated that PPP is a misleading pretentious doctrine, promising us what is rare in economics, detailed numerical prediction. An empirical test by Chowdhry, Roll and Xia (2005) revealed that PPP holds in the long run. The theory informed the current study by depicting the effect of exchange rate exposure on the financial distress of DT- SACCOs.

## 2.3 Conceptual Framework

A conceptual framework is an abstract or general idea inferred or derived from specific instances (Kombo & Tromp, 2009), unlike a theory, a concept does not need to be discussed to be understood (Durham & Stokes, 2015). A conceptual framework is a device that organizes empirical observations in a meaningful Structure (Shapira, 2011). Childs (2010) argued a conceptual framework is a set of broad ideas and principles taken from relevant fields of inquiry and used to structure a subsequent presentation.

When clearly articulated, a conceptual framework has potential usefulness as a tool to assist a researcher to make meaning of subsequent findings. It forms part of the agenda for negotiation to be scrutinized, tested, reviewed and reformed as a result of the investigation and it explains the possible connections between the variables (Durham & Stokes, 2015). Conceptual frameworks are pivotal to research as they clarify and integrate philosophical, methodological, and pragmatic aspects of doctoral thesis while helping the profession to be seen as a research-based discipline, comfortable with the language of meta-theoretical debate, (Sykes & Piper, 2015). A conceptual framework for the present study shows the effect of financial distress factors on the financial performance of commercial banks in Kenya and has been depicted in Figure 2.1 below. Figure 2.1 conceptualizes that financial distress factors (Related Transaction Cost, Interest Rate Spread, and Non-Performing Loans) on determinants of financial distress in deposit-taking SACCOs in Kenya. The study also introduced SASRA amendments as an intervening variable and also the SACCOS income generating ability measured in terms of cash conversion cycle as the moderating variable. The dependent variable was the debt ratio measured in terms of total liability divided by the total asset. The constructs and relationships between research variables are illustrated in the following Figure 2.1.




Key: NPL – Non-Performing Loan, TBV – Total Book Value, NI – Net Income, TA – Total Asset, TL – Total Liability, TA – Total Asset, CA – Current Asset, CL – Current Liability

**Figure 2.1: Conceptual Framework**

The independent variables of the study were; related party transaction cost which was measured by director's loans from the SACCOs operations. Related transaction cost was supported by Rent Protection Theory. The second independent variable was interest rate spread which was measured by individual SACCO's interest spread and supported by Agency Theory. The third variable was non-performing loan tested by the ratio between the outstanding loan to total loan portfolio and was supported by Institutional Theory. The dependent variable was financial distress measured in terms of ROA, Leverage, and Liquidity Ratios and was based on Wrekers's Theory of Financial Distress. The moderating variable was firm size measured in terms of the size of the deposit and supported by Institutional Theory.

### 2.3.1 Related Party Transactions

Related Party Transactions are the loans advanced to the directors of the SACCOs. According to IASB (2009), a related party transaction is a transfer of resources or obligations between related parties, regardless of whether a price is charged. Related party studies tend to dwell on the nature and determinants of related party transactions premised on the assumption that the related party disclosures capture the full extent of the transactions. According to Kohlbeck and Mayhew (2010) being non-arms-length in nature, related party transactions raises concerns about the likelihood of opportunism from management or other insider parties. They further note that when related party transactions are superficially opportunistic, investors are likely to perceive the transactions negatively and this will be seen in stock prices. Padmini (2013) carried out an analysis of related party transactions in Indian companies for three years between 2009 and 2011. The study concluded that firms with high related party transactions involving sales and income had lower performance compared to companies with low related party transactions.

### 2.3.2 Interest Rate Spread

The interest rate spread is the difference between what a bank earns on its assets and what it pays on its liabilities (Ngugi, 2001). A major indicator of banking sector efficiency is interest rate spreads, which are higher in African countries like Kenya (Crowley, 2007). Folawewo and Tennant (2008) studied the determinants of interest rate spread in 33 SubSaharan African (SSA) countries focusing on macroeconomic variables. Their results show that interest rate spread is influenced by the extent of the crowding out effect of government borrowing, public sector deficits, discount rate, inflation, level of money supply, reserve requirement, level of economic development, and population size.

### 2.3.3 Non-Performing Loans

The ratio of non-performing to gross loans is a measure of asset quality according to the PEARLS framework. Generally, non-performing loans are classified as non-earning assets. Non-performing loans: These are loans that have been advanced by a

lending institution such as commercial banks but they have not been repaid for a period exceeding three months (Dolam & Collender, 2001). Non- performing loans are also commonly described as loans in arrears for at least ninety days (Guy, 2011). Michael et al (2006) emphasized that NPL in loan portfolios affects operational efficiency which in turn affects profitability, liquidity, and solvency position of banks. Batra,(2003) noted that in addition to the influence on profitability, liquidity, and competitive functioning, NPL also affects the psychology of bankers in respect of their disposition of funds towards credit delivery and credit expansion. Non-performing loans, therefore, are a result of the compromise of the objectivity of credit appraisal and assessment.

Siddigui, Malik and Shah, (2012) carried out a study on the impact of interest rate volatility on non-performing loans in Pakistan. The research covered the period between 1996 and 2012. The researchers used weighed average lending interest rate as published quarterly by the state bank of Pakistan. The study focused on twenty-one commercial banks and the weighted average NPL was obtained from their financial statement. The study concluded that rising NPLs in Pakistan is significantly but not solely impacted by the volatility in the cost of borrowings.

### 2.3.4 Exchange Rate

Exchange rate fluctuations affect operating cash flows and firm value through translation, transaction, and economic effects of exchange rate risk exposure (Bartram, 2008). Firms dealing in multiple currencies face a risk (an unanticipated gain/loss) on account of sudden/unanticipated changes in exchange rates, quantified in terms of exposures. As businesses are increasingly interconnected globally, foreign exchange rate movements have been perceived as one of the most important sources of uncertainty to firms' cash flows and profitability (Afza & Alam, 2011). Changes in foreign currency exchange rates can affect firm value since they directly affect a firm’s current and future cash flows. Evidence also suggests that this disparity results as many firms can manage their foreign exposure by passing through its effects to customers or by engaging in financial or operational hedging (Carter, Pantzalis, & Simkins, 2006; Bartram, Brown, & Minton, 2010). According to El-

Masry (2006), changes in the exchange rate can influence a firm current and future expected cash flows and ultimately, stock prices. The direction and magnitude of changes in the exchange rate on a firm's value are a function of a firm's corporate hedging policy which indicates whether the firm utilizes operational hedges and financial hedges to manage currency exposure and the structure of its foreign currency cash flows (Bartram, 2008).

### 2.3.5 SASRA Regulations Amendments

An approach to financial amendment whose main aim is to prescribe financial ratios and limits intended to mitigate risk in financial systems (SASRA, 2013). The introduction of prudential amendments has been largely driven by the financial crisis triggered by bank failure due to poor financial and economic risk management (Farhi & Cintra, 2009). The introduction of amendments has come with challenges and many Saccos across Africa have not been able to meet the requirements set out by regulators (Omollo & Ronga, 2016). The policy objective of establishing a prudential amendment for deposit-taking Sacco societies in Kenya is to enhance transparency and accountability in the Saccos sub-sector (SASRA, 2011).

The introduction of prudential amendments for Saccos came with fundamental changes that directly affect efficiency (SASRA, 2013). For instance, between 2013 and 2016, the average core capital to total assets ratio increased from 7.74% to 12.17%, suppressing the recommended minimum of 8%. Return on Assets (ROA) over the same period stagnated between 1.89% and 2.56%, while the liquidity ratio increased from 7.76% to 49.5% way above the recommended 15%. The ratio of liquid assets to total deposits dropped from 36.4% in 2013 to 18.05% in 2016 below the required 25% (SASRA, 2015). SASRA regulations amendments were carried out to make the DT-SACCO societies function more efficiently. The researcher used the amendments to statistically prove whether the amendments controlled the distress the SACCO societies faced.

### 2.3.6 Financial Distress

Financial distress is a situation where a firm is unable to meet its financial obligations as they mature or does so with difficulties. Usually, the phenomenon may be heralded by insufficient cash flows, a decline in market value, profit breaches, and low growth (Andrade & Kaplan, 1998). In another study, Gupta et al. (2014) investigated the effect of financial leverage on the financial distress of the 100 firms listed on the Indian National Stocks Exchange over 5 years (2006 – 2010). The result implied that the highly geared companies exhibited declining financial distress while firms with high levels of equity were more financially sound. Jónsson (2008) studied the relationship between financial distress and the size of the firms operating in Iceland. The logarithm of total sales was used to measure firm size while return on equity represented financial distress level. The study found that large firms had higher levels of debt financing as compared to smaller firms, they were able to negotiate lower interest rates on debts; which resulted in improved financial distress.

### 2.3.7 SACCO Size

It is expected based on the economies of scale principle for medium-size financial institutions to achieve better technical and scale efficiencies compared to large and small institutions. As the size of the firm increases, a positive relationship accrues from its ability to develop technical, financial, human, and material resources competencies enhancing its efficiency (Attah, 2017). This however is likely to be accompanied by higher agency, coordination, and dysfunction problems, with the opposite view expected in smaller firms. Consequently, estimation of the average cost function will likely yield a U-shaped profile, where the average cost will decrease as the size increases up to an optimum level before they will start to increase, suggesting that medium-sized financial institutions are more likely to be efficient than those that relatively larger or smaller (Barret et al., 2010). The finding of Alukwe et al. (2015) affirms this relationship and demonstrates that SACCO size moderates the relationship between SACCO governance and regulatory compliance.

The adoption of SACCO size as a moderating factor in the current study is based on the recommendations of Rauch et al. (2009) recognizing the size of firms as an

important moderator. The justification of SACCO size modeled to be the moderating variable is that large SACCOs are expected to use their size to navigate financial distress. Rauch et al. (2009), in their survey of existing empirical evidence, observed that there was a consensus in recognizing the size of the firm as a moderator linking changes in environmental factors and efficiency or performance. SACCO societies' size was used by the researcher to statistically test whether the DT-SACCO societies place them in a better position as far as financial distress is concerned.

## 2.4 Empirical Review

Crisis such as the global financial markets faced since 2007 have grave implications for economic growth in developed and developing countries. Kenya's economy and financial system stability still face vulnerabilities associated with global risks. The global economic growth declined to 3.9 percent in 2011 according to the Financial Stability Report by (the Central Bank of Kenya, 2011). Continued fragility in Europe, declining demands in Asia, and slow recovery in the US pose significant threats to Kenya's macroeconomic and financial stability. Emerging markets face the risk of sharp reversals prompted by weaker global growth and a rise in funding costs that could weaken domestic banks and the finance sector. (Lim, 2014) notes that the worst isn't over for emerging markets as the benchmark stock index has sunk low, nations' currencies are tumbling and China's economy slows.

Although the causes of financial distress are numerous, many failures are attributed either directly or indirectly to management. In the past cooperatives societies have experienced huge impacts of financial distress leading to the financial crisis, which has resulted in bankruptcy and liquidation. According to Njogu (2011), in Nairobi alone, about 24% of registered SACCOs in Nairobi County were still operational. The study attributed the dwindling numbers to financial distress. The study further noted that a closer look at the cooperative financial records reveals that the non-operational societies had a total debt of 3.4 billion with financial institutions. Arising from the strategic position played by the SACCO sector in the Kenyan economy, it would therefore be prudent to establish the determinants of financial distress in SACCOs in Kenya to predict the future performance of SACCOs. Studies have

extensively focused on the prediction of bank failures globally with minimal research carried out on SACCOs despite their immense input to the economic systems of the host countries. Few Savings and credit cooperatives have adopted strategic management practices despite their enormous contributions to savings mobilization and advancement of credit. Currently, savings have reached 490 billion in Kenya shillings which is about 33% of the national savings (Kiaritha, 2009). However, there exist a knowledge gap as to the contribution of strategic management to the growth of Savings and credit cooperatives.

Scholars Kiaritha (2009), Unal, Guclusoy and Franquesa (2009), Bhuyan (2007), Nyoro and Ngugi (2007), Chombo (2009), and Pollet(2009) have conducted studies on financial performance within the SACCO movement and using various variables where various factors contributing to success or failure of co-operatives were multifaceted and depended on the operating environment of the specific SACCO. For instance, Nakuru County boasts 121 SACCOs, with 50 of them being active. On December 68, 2015, an AGM of one of the SACCOs gave their financial report that exposed the extent to which they were facing financial distress. In the report after it was inspected, loan accounts amounting to Sh125.6 million were found not classified due to incomplete information especially the dates and principal amount disbursed. About Sh97.5 million of the loans were not performing the previous year, 2014. It was also revealed that there was an under-provision of over Sh10.5 million, excluding unclassified loans. This report means that these SACCOs may not be able to adequately monitor the credit risk exposure. All these expose a SACCO to potential capital reduction. This coupled with the fact that fixed interest on loan model 12% P. A in SACCOs can also deny SACCOs potential for generating revenue when interest rates in the economy are high. Finally, the low or non-existent transaction fees like ledger fees are likely to hinder SACCOs from generating maximum income which forms one of the sources of financial distress. This study, therefore, seeks to fill this research gap by investigating both the effects of financial and management strategies, corporate governance and membership on the financial distress of SACCOs in Nakuru County. In terms of statutory amendments, previous researchers Zeuli and Cropp (2013), Kioko (2012) and Wanyoike (2013) focused mainly on SACCO performance either financially or non-financial. However, the

impact of direct control by the government through statutory regulators like SASRA on the performance and sustainability of small SACCOs had not been fully addressed.

The state of a country's economy affects SACCO memberships and loan intake as well. According to Mpiira et al., (2013) people will not join SACCOs where there is no viable economic enterprise that would generate their income. Research from IMF by Hesse and Cihák, (2007) however indicates that cooperative financial institutions tend to be more stable in times of crisis, as their investment patterns use the capital of members in ways that best serve their long-term needs and interests. It is therefore thought that their comparative stability, under both average and extraordinary conditions, can help to mitigate crisis impact for members and clientele, especially in the short term. However, since most SACCOs draw their membership from the formal sector, in times of economic downturn, the functioning of the SACCO can be undermined if members' incomes are destabilized by volatility in the economy and this may lead to the reduction of members' savings and increased demand for loans. This potentially would lead to SACCOs experiencing financial distress which if not carefully handled can lead to bankruptcy. This section provides a review of empirical studies on selected determinants of financial distress among SACCOs in Kenya. The review focuses on liquidity management, interest rates, debt leverage, monetary policy, and loan advancing models as the determinants of financial distress.

### 2.4.1 Related Party Transaction and Financial Distress

The principal-principal conflict problem is manifest in prejudicial related-party transactions (RPTs). These are transactions that "unfairly prejudice" minority shareholders and favor majority shareholders. They take the form of non-arms-length transactions by a company with its controlling shareholders or their related parties. Empirical research confirms that controlling shareholders resort to prejudicial RPTs for private benefit at the cost of minority shareholders (Peng, Wei, & Yang 2011). Prejudicial RPTs are found to erode firm value (Peng et al. 2011) and many of the notorious corporate collapses in the early twenty-first century are associated with prejudicial RPTs (Ge, Drury, Fortin, Liu & Tsang 2010).

Previous studies have investigated the following types of RPTs: 1) total amount or total number of transactions (Berkman, Cole & Fu 2010; Gordon & Henry 2005; Kang et al. 2014); 2) RPTs based on the nature of transactions (Jian & Wong 2003; Gordon et al. 2004; Cheung et al. 2009; Chen et al. 2009; Jian & Wong 2010; Peng et al. 2011; Lei & Song 2011); 3) RPTs based on the related party (Friedman, Johnson & Mitton 2003; Gordon & Henry 2005); 4) RPTs based on the impact of RPTs (Berkman, Cole & Fu 2010; Cheung, Rau & Stouraitis 2006); 5) RPTs based on the motive (Wong, Kim & Lo 2015); 6) RPTs based on the complexity of the transactions (Kohlbeck & Mayhew 2010), and 7) RPTs based on the firm‘s activities/functions (Kang et al. 2014). This study contributes to the existing studies on RPTs by examining the effect of related party transactions on financial distress in savings and credit cooperative organizations in Kenya which was the first objective of the study.

Many studies have shown that firms are involved in RPTs to prop up the firm or to enhance performance for different purposes, such as: fulfilling government requirements for offering new equity (Jian & Wong 2010; Yeh, Shu & Su 2012); to avoid delisting (Jian & Wong 2010; Peng, Wei & Yang 2011; Williams & Taylor 2013); to obtain future financing or repay the RPTs loans (Gordon & Henry 2005); to decrease the negative effect of industry shock on firm‘s earnings (Jian & Wong 2010); and to increase earnings (Yeh, Shu & Su 2012).

Some scholars examine the total value or number of RPTs (Berkman, Cole & Fu 2010; Kang et al. 2014; Wan & Wong 2015). The total number of RPTs and find that it has a negative relationship with industry-adjusted returns (Gordon, Henry & Palia 2004) and an insignificant negative relationship with earnings management measured by adjusted absolute abnormal accruals (Gordon & Henry 2005). Meanwhile, Berkman, Cole, and Fu (2010) use the total value of all RPTs that are potentially harmful to the firm (RPTs asset acquisitions, RPTs asset sales, RPTs equity sales, RPTs trading relationships, and RPTs cash payment) and find that during the year before the new amendments to protect minority shareholders were implemented, minority shareholders of the firms with the higher total value of RPTs have higher abnormal returns compared to those with the lower total value of RPTs. Kang et al.

(2014) find that control ownership has a positive association with the total amount of RPTs and the total amount of RPTs has a negative impact on firm performance measured with Tobin‘s Q. Similarly, Wan and Wong (2015) find that RPTs have a negative impact on firm performance.

For the related party involved in the RPTs, Gordon and Henry (2005) examine the primary and secondary parties. A primarily related party is a party that has a direct relationship with the firm, for example: providing a loan to an executive lead to classify such an executive as a primarily related party. A secondary related party is a family member, firm that is owned by, or firm that has an affiliation with the primarily related party. They are grouped by executives, executive‘s business, no executives, non-executives business, principal owners, subsidiaries, and others. Furthermore, in the executive group and executive‘s business, the secondary party involved in RPTs consists of the executive chairman, executive board members, and non-board executives. The non-executive and non-executive businesses consist of non-executive board members and a non-executive chairman.

This research examined the relationship between related party transactions (RPTs) and the financial performance of listed conglomerates in Nigeria. Our research specifically sought to determine whether related party transactions affect the return on equity (ROE) and net worth (NW) of conglomerates listed on the floors of the Nigeria Stock Exchange for a period of 8 years (2008- 2015). The data required to calculate the various performance indicators as well as the data on related party transactions were obtained from the audited annual accounts of the companies. The Pearson correlation method was used to examine the correlation between the dependent and the independent variable while the simple regression analysis was used in analyzing the data. The data analysis suggests that related party transactions do not significantly influence return on equity except net worth (NW) which proved to be significantly influenced by related party transactions. The correlation result revealed that most related party transactions correlate positively with the net worth of the companies. This study did not analyze the effect of related party transactions on the financial distress of DT-SACCOs in Kenya creating a literature gap filled by the findings presented in chapter four.

Chien and Hsu (2010) investigated the relationship between related party transactions and firm performance of public companies listed on the Taiwan stock exchange from the years 1996- 2006. Collecting information from a sample of 6,041 companies from the Taiwan Economic Journal (TEJ) data. The dependent variable was the operating performance which was measured by Return on Assets (ROA). The independent variable was Related Party Sales(RPS) measured by related party sales divided by total sales, Related Party Purchase(RPP) measured by related party purchase divided by the cost of goods sold, Gain on Disposal of Assets from Related Parties (RPAG) measured as gain on disposal of assets from related parties divided by total sales, Loss on Disposal of Assets from Related Parties (RPAL) calculated as a loss on disposal of assets from related parties divided by total sales, Related Parties Interest Revenue (RPIR) calculated as related parties interest revenue divided by total sales, Related Party Interest Expense(RPIE) measured by related party interest expense divided by total sales calculated as net income divided by average total sales. Multiple regressions were used to test the relationship between the variables. The result revealed that related party sales, interest revenue, and interest expense though negative, were statistically significant and the other variable was negative and insignificant thus it was shown that no relationship exists between related party transactions and firm performance. Their findings support the conflict of interest hypothesis that related party transactions are harmful to the company's interest. This study was done in Taiwan and did not analyze the effect of related party transactions on the financial distress of DT-SACCOs in Kenya creating a literature gap filled by the findings presented in chapter four.

Huang and Liu (2010) in its study of the relationship between RPTs and firm value in high technology firms in Taiwan and China between the periods 1998-2008. The study measured firm value by ROA, ROE, MVA, Tobin's Q., and EVA. Using the ordinary least squares method to test its hypothesis, the empirical results show that the account (notes) receivables and account (notes) payables from related-party transactions of high-technology firms in Taiwan exhibit a significant (positive) relationship with performance. However, the sales or purchases of goods from related party transactions of high-technology firms in China have a significant (negative) relationship with performance. The study found that the link between RP

sale and purchase of goods in Taiwan companies is insignificant concerning the variables of performance however accounts (notes) receivable and accounts (notes) payable from RPTs of high-technology firms in Taiwan exhibit a significant (positive) relationship with performance (Q, ROE, ROA, MVA, EVA) While for Chinese companies it was found The sale or purchase of goods from RPTs of high technology firms in China has a significant (negative) effect on performance (Q, ROE, ROA, MVA, EVA). This study also was done in Taiwan and did not analyze the effect of related party transactions on the financial distress of DT-SACCOs in Kenya creating a literature gap filled by the findings presented in chapter four.

They investigate the impact of RPTs with those related parties on earnings management and find that RPTs with executives chairman as the primary party has a negative relationship with earnings management. RPTs with the executive chairman, RPTs with the executive‘s business chairman, and RPTs with principal owners are also found to have a negative influence on earnings management (Gordon & Henry 2005). In addition, Kohlbeck and Mayhew (2010) observe RPTs with directors, officers, shareholders, or their affiliates and RPTs with firm investment. Transactions with a director, an officer of the firm, a shareholder of the firm with more than 5% ownership, or an affiliate of a director, officer, or shareholder of the firm are classified as RPTs with directors, officers, and shareholders, or their affiliates. Meanwhile, transactions with a joint venture or other operation that are owned by the firm and not consolidated with the firm‘s financial statements are classified as RPTs investments. They reveal that RPTs loans to directors, officers, shareholders, or their affiliates have a negative impact on firm performance measured with Tobin‘s Q, the market value of common shareholders‘ equity, and annual returns (Kohlbeck & Mayhew 2010).

In the case of RPTs based on the impact of RPTs, Cheung, Rau, and Stouraitis (2006) examine transactions that are a prior likely to result in expropriation (asset acquisitions, assets sales, equity sales, trading relationships, and cash payment to related parties), transactions that are likely to benefit the listed firm (cash receipts and subsidiary relationships) and transactions that may be driven by strategic rationales (takeover offers and joint ventures, interest acquisition of joint venture and

interest sales of joint venture). They find that firms announcing transactions that are a priori likely to result in expropriation (RPTs assets acquisitions, RPTs assets sales, RPTs equity sales, RPTs trading relationships, and RPTs cash payment) have negative firm performance measured with cumulated abnormal returns (CARs), but firms with transactions that are likely to benefit the firm (RPTs cash receipts and RPTs subsidiary relationship) have positive CARs (Cheung, Rau & Stouraitis 2006).

Similarly, Berkman, Cole, and Fu (Berkman, Cole & Fu 2010) classify the RPTs into transactions that are potentially harmful to the listed firm and transactions that are potentially beneficial for the listed firm. Five RPTs are included as transactions that are potentially harmful to the listed firm: RPTs asset acquisitions, RPTs asset sales, RPTs equity sales, RPTs trading relationships, and RPTs cash payment, while two RPTs are included as transactions that are potentially beneficial for the listed firm: RPTs cash receipts and RPTs loan or guarantees. Using the total value of all RPTs that are potentially harmful to the listed firm during the year before the new amendments to protect minority shareholders were implemented, they find that minority shareholders with the higher total value of RPTs have higher abnormal returns compared to those with the lower total value of RPTs (Berkman, Cole & Fu 2010). These studies also were done in Taiwan and did not analyze the effect of related party transactions on the financial distress of DT-SACCOs in Kenya creating a literature gap filled by the findings presented in chapter four.

With regards to RPTs based on the motive of the firm engaging in RPTs, Cheung et al. (2009) differ RPTs in Chinese firms into RPTs that are ex-ante potentially tunneling and ex-ante potentially propping, while Wan and Wong (2015) group the RPTs into tunneling and propping. The type of RPTs are included in potentially tunneling or tunneling and potentially propping or propping. Cheung et al. (2009) find that RPTs ex-ante potentially tunneling (particularly RPTs assets acquisition, RPTs asset swap, RPTs trading relationship, and RPTs cash payment) have a negative association with firm performance measured with CARs while RPTs ex-ante potentially propping (particularly RPTs cash receipt) have a positive relationship with CARs in Chinese firms. Meanwhile, Wan and Wong (2015) find

that state-owned firms undertake more tunneling compared to privately owned firms in China.

When investigating RPTs based on the level of complexity of the transaction, Kohlbeck and Mayhew (2010) use the United States sample firms and classify RPTs into simple and complex strategic RPTs. RPTs are classified as simple transactions if they are direct transactions that involve relatively few related parties and accounts in financial statements, and are usually avoidable because a third party could substitute the related party with minimal noticeable impacts, for example, RPTs loans, RPTs guarantees, RPTs borrowings, RPTs consulting arrangements, RPTs legal and investment services, and RPTs leases. RPTs are grouped into complex strategic RPTs if they are involved with several related parties and accounts in financial statements, and conditions and influence the financial statements in less obvious ways, for example, RPTs related to business activities, RPTs unrelated to business activities, RPTs overhead reimbursements and RPTs stock transactions (Kohlbeck & Mayhew 2010). They find that simple RPTs have a negative influence on market performance measured with Tobin‘s Q, the market value of common shareholder’s equity, and annual returns. In addition, simple RPTs with directors, officers, shareholders, or affiliates have a negative relationship with annual returns (Kohlbeck & Mayhew 2010). These studies also were done in Taiwan and did not analyze the effect of related party transactions on the financial distress of DT-SACCOs in Kenya creating a literature gap filled by the findings presented in chapter four.

Concerning examining RPTs based on the firm‘s activity or function, Kang et al., (2014) observe and differentiate RPTs into RPTs operating and RPTs non-operating. RPTs operating consist of operating sales and purchases, while RPTs non-operating include sales and purchases of property, plant, equipment, and investment assets. They find that control ownership has a positive relationship with RPTs operating and RPTs non-operating, and on average, firms involve in equally both RPTs operating and RPTs non-operating as a tool for tunneling. In addition, the selection of operating or non-operating depends on the existence of the appropriate partner of transactions in the group. When the sample is separated into the top 5 and non-top 5 Korean chaebol11, control ownership has a positive relationship with RPTs operating

and RPTs no operating in top 5 chaebols, while control ownership has a positive relationship with only RPTs no operating in non-top 5 chaebols (Kang et al. 2014). Kang et al. (2014) discover that the size of RPTs, as well as RPTs operating and RPTs non-operating, are positively influenced by the control ownership block. RPTs increase when the voting rights increase, whereas RPTs decrease when cash flow rights increase.

Some studies use cumulated abnormal returns (CARs) or industry-adjusted returns as market performance measurements when examining the relationship between RPTs and firm performance or earnings management (Berkman, Cole & Fu 2010; Black et al. 2015; He & Yuen 2013), and the relationships are positive or negative depending on the types of RPTs. RPTs fixed-rate financing is found to have positive effects on earnings management measured with adjusted absolute abnormal accruals (while RPTs cash receipt (Cheung, Rau & Stouraitis 2006), RPTs subsidiary relationships (Cheung, Jing, et al. 2009; Cheung, Rau & Stouraitis 2006) and RPTs during the financial difficulty or STPT period, where ST refers to special treatment when a firm discloses a net loss in two consecutive years and PT refers to the firm with ST that experience losses in three consecutive years (Peng, Wei & Yang 2011), have a positive relationship with CARs.

Berkman, Cole, and Fu (2010) found that firms with higher RPTs have larger CARs, while Du, He, and Yuen (2013) reveal that RPTs have a negative association with CARs in the firms that are going to private. The controlling shareholders seem to engage in RPTs that cause losses and result in decreased stock prices. Then, the controlling shareholders can acquire the firm‘s shares at a low price from minority shareholders (Du, He & Yuen 2013). This study also was done in Taiwan and did not analyze the effect of related party transactions on the financial distress of DT-SACCOs in Kenya creating a literature gap filled by the findings presented in chapter four.

Moreover, Black et al. (2015) observe the incentives of controlling shareholders through an expropriation risk index (ERI), which captures the extent of RPTs (particularly RPTs sales and purchases of goods and services) undertaken by a

controlling family or a group with a larger percentage of cash flow rights in the related firms than in the subject firm to allocate the value of the firm to other firms in which the controlling shareholder has higher cash flow rights. ERI is computed as the sum of RPTs scaled by sales, and multiplied by cash flow differential. Positive ERI shows that the firm‘s RPTs are undertaken with related parties owned by the controlling shareholders with higher cash flow rights, thus incentives to divert the value of the firm. They find that firms subject to legal reform in Korea with positive ERI have higher abnormal returns compared to those firms with negative ERI during the period of the reform events (Black et al. 2015). The Korean legal reform relates to the composition of a firm‘s BOC, the existence of an audit committee with an outside director as chairperson and at least two-thirds of outside members, and an outside director nominating the committee for a firm with assets larger than 2 trillion won (equivalent to USD 2 billion) to lead the firm to have better corporate governance. This legal reform is expected by the investors to reduce tunneling and then the firm can generate positive returns (Black et al. 2015).

RPTs in total amount (Wan & Wong, 2015) are also found to have a negative effect on ROA. When Chen, Y, Chen, and Chen (2009) separate the control relationship into three conditions: no control relationship, the listed firm is the controlling party and the listed firm is controlled by the related party, RPTs sales are found to have a significant negative influence on firm performance measured with ROA in the third condition. When one year ahead or future ROA is used to measure the future firm performance, inter-corporate loan and loan guarantees to controlling owner (Chauhan, Lakshmi & Dey, 2016) and abnormal RPTs net credit (Habib, Muhammadi & Jiang, 2017) are found to have a negative influence on future firm performance.

With regards to other performance measurements, RPTs are also found to have a positive and negative impact on firm performance. In the United Kingdom, business group affiliation enhances the firm‘s growth, particularly for micro, small, and medium-sized firms in declining industries (Bamiatzi et al., 2014). Small firms gain more benefits from business group affiliation to solve their limitation of resources, market power, and strategic choices. The contrast effect is found in large firms,

where large firms are found to have better potential growth when they are independent compared to those affiliated with business groups. In Italy, business groups are not carried out as a single entity, so the subsidiaries on some occasions are not controlled by the parent firms (Di Carlo, 2014). This practice appears as a result of an amendment that enforces the transparency of directing activity. According to Di Carlo (2014), this transparency leads the controlling shareholders to delegate the decision-making to the subsidiaries and not engage in RPTs among firms in the business group that does not have clear economic connections. Therefore, the transparency of directing activity prevents the exploitation of minority shareholders (Di Carlo, 2014).

RPTs total loans, RPTs loans to executives, and RPTs loans to non-executive board members are found to have a significant negative effect on firm performance measured with industry-adjusted returns (Gordon, Henry & Palia, 2004). RPTs loans also generate a negative influence on firm performance measured with Tobin‘s Q when the listed firms are controlled by the related party (Chen, Y, Chen & Chen, 2009). Similarly, RPTs loans to directors, officers, and shareholders have a significant negative impact on firm performance measured by Tobin‘s Q, the market value of common shareholder’s equity, and annual return (Kohlbeck & Mayhew, 2010). RPTs in the form of related loan guarantees are used by shareholders with excess control right to influence firm value. In the firms with non-state and private shareholders, excess control rights have been positively related to the probability that the firm will issue value-destroying RPTs loan guarantees and associated with worse stock market reactions to the announcements of RPTs loan guarantees (Xiao & Zhao, 2014). RPTs loans are also found to have a negative association with future firm performance (Chauhan, Lakshmi & Dey, 2016).

Mohammed and Abibakar (2019) examined the impact of related party transactions, and off-balance sheet items on the earnings quality of listed deposit money banks in Nigeria over 4 years (2011 to 2014). Data were collected from annual reports of the sampled banks. Descriptive statistics and correlation analysis were employed and also Ordinary least square (OLS) robust regression technique was used as a tool of analysis using panel data. The study reveals that related party transactions are

positively and significantly related to earnings quality. On the contrary, off-balance sheet items were found to be negatively and insignificantly related to earnings quality. Based on the findings, the study concluded that related party transactions have a significant impact on the earnings quality of the Nigerian deposit money bank. The study recommends that the Management of the Nigerian money deposit banks should be more aggressive towards the number of related party transactions when making a financial decision, this is because based on the findings of the study related party transactions do affect earnings quality positively. This study also was done in Taiwan and did not analyze the effect of related party transactions on the financial distress of DT-SACCOs in Kenya creating a literature gap filled by the findings presented in chapter four.

Tsai, Chang, and Chang (2015) examined the relationship between related party transactions and corporate value. Secondary data from annual reports were obtained from firms listed on the Taiwan stock exchange and in the Gre Tai securities market in Taiwan during the period 2006– 2012. They used book value of debt and market value of equity to total assets as dependent variables while the absolute value of RPT, RPT dummy, and Affiliation of the business groups as independent variables. The result revealed that both the related party sales and purchases increase the value of the affiliated firms. The institutional perspective is supported and business group-affiliated firms seem to be propped up. However, when the related party sales of the affiliated firms are bigger than their related party purchase, the firm value of the affiliated firm is more likely to be lower than those of non-affiliated firms and demonstrates the tunneling motivation of related party transactions. This study also was done in Taiwan and did not analyze the effect of related party transactions on the financial distress of DT-SACCOs in Kenya creating a literature gap filled by the findings presented in chapter four.

Munir, Saleh, Jaffar, and Yatim (2013), conducted a study on family ownership, related party transactions, and earnings quality. They employed regression analysis while data was collected from the listed firms in Malaysia for the period 2004. They examined the effect of family shareholdings and related party transactions as independent of the earnings quality of the sampled firms. The result of the study

revealed that at a low level of family ownership, the positive effect of familial value are likely to outweigh the negative effects of related party transactions, however in the presence of a high level of family ownership the negative effect of related party transactions are likely to be more substantial and reduce the benefits of familial value. Also shows that there is no linear relationship between family ownership and earnings quality after accounting for related party transactions. This finding suggests that certain firms are likely to report high earnings quality if they have a small level of family ownership despite the low level of investor protection in Malaysia. When a family has a significant ownership stake in a firm, expropriation activities appear to negatively affect the earnings quality of the firm. This study also was done in Malaysia and did not analyze the effect of related party transactions on the financial distress of DT-SACCOs in Kenya creating a literature gap filled by the findings presented in chapter four.

Pozzoli and Venuti (2014) investigated the relationship between related party transactions and financial performance companies and also verified whether there is an association between these kinds of transactions and earnings management. Data from annual reports of listed Italian Companies for the period 2008–2011. Using returns on assets as a dependent variable while profit (or loss) from related party transactions as the independent variable, the study employed Pearson correlation. The result of the study revealed that the related party transactions and companies' financial performance are not correlated and that there is no evidence of a cause-effect relation. Therefore, related party transactions do not appear as a means used by Italian listed companies to realize earnings management, especially earning smoothing. This study also was done in Italy and did not analyze the effect of related party transactions on the financial distress of DT-SACCOs in Kenya creating a literature gap filled by the findings presented in chapter four.

Elhelaly (2014), conducted a study on related party transactions, corporate governance and accounting quality in Greece among his investigation, he investigated the impact of related party transactions on accounting quality in Greece and the association between related party transactions and earnings management. Data were obtained from annual reports of the listed firms on the Athens stock

exchange during the period 2009–2011. Using earnings management as a dependent variable while related party transactions and corporate governance as the independent variables, the study employed multiple regression techniques. The result revealed a negative significant relationship between earnings management and related party transactions. The finding does not support the conclusion that related party transactions are necessarily conducted to mask fraud or the extraction of firm resources. There is no significant difference in accounting quality between related party transaction firms and non-related party transaction firms. This study was done in Greece and did not analyze the effect of related party transactions on the financial distress of DT-SACCOs in Kenya creating a literature gap filled by the findings presented in chapter four.

Wang and Yuan (2012) conducted a study on the impact of related party sales by listed Chinese firms on earnings in informativeness and earnings forecasts. Secondary data were collected from the animal reports of the listed firms on the Shanghai stock exchange covering the period of 1998–2004 using return as the dependent variables while net income (market value) and related party sales of goods and services as the independent variables, the study employed regression analysis. The result revealed that earnings of firms engaged in related party sales are at least 33% less informative after controlling for factors known to affect earnings informativeness. Financial analysts are overly credulous in their acceptance of earnings numbers that are contaminated by unreliable related party sales and provide less accurate and more optimistic earnings forecasts for firms with more related party sales. Therefore, strong empirical evidence on the negative impact of related party transactions on the usefulness of accounting earnings data used by investors and financial analysts. This study was done in Shangai and did not analyze the effect of related party transactions on the financial distress of DT-SACCOs in Kenya creating a literature gap filled by the findings presented in chapter four.

Ndirangu (2011*)* study on the causes of financial difficulties in the cooperative societies in the Nairobi area found that the causes of financial distress can be traced from the internal factors that heavily rely on the management of co-operatives and external factors that mainly surround the politics, governance, and legislation. The

study was the general analysis of the SACCOs internal factors as opposed to the current study which analyzed RPT, NPL, and interest rate which is the literature gap filled by the current study and results presented in chapter four. Osoro (2018) assessed the effects of financial distress on the financial performance of manufacturing firms listed on the Nairobi security exchange. The study established AR 2 of 0.983 which implied that 98.3% of the changes in financial performance (ROA) of the firms listed at NSE were attributed to the changes in independent variables considered in the model while for ROE the findings indicated that AR2 was .885 which implied that ROE explained 88.5% of performance in the SACCOs. The findings showed that liquidity negatively impacts the ROA of the firms listed at NSE. The effect of liquidity on ROA and ROE is not statistically significant at a 5% level of significance. Solvency negatively affects the ROA and ROE of firms listed at NSE. Financial health was found to positively influence ROA and ROE though the effect is not statistically significant. The study predictor variables were liquidity and solvency whereas the outcome variables were ROA and ROE compared to the current study whose predictor variables were RPT, NPL, and interest rate with the outcome variable Z-Score as a measure of financial distress.

In addition, Juliarto et al. (2013) document that the extent of RPTs lending in Indonesia is moderate compared to four other countries in the South East Asian Region (Malaysia, the Philippines, Singapore, and Thailand). On average, it is the third highest with a ratio of 0.0303 of total assets of the firm. The Philippines has the highest RPTs lending (0.0955), Singapore the second highest (0.0329), followed by Thailand (0.0085) and Malaysia (0.0049). RPTs net credit is used by politically connected firms in Indonesia, specifically, government-connected firms, to relocate the firm‘s resources (Habib, Muhammadi & Jiang, 2017). This study was done in the Philippines and did not analyze the effect of related party transactions on the financial distress of DT-SACCOs in Kenya creating a literature gap filled by the findings presented in chapter four.

Ndungu (2019) studied the determinants of financial distress in Kenyan commercial banks. Specifically, the study looked at the influence of leverage, overly aggressive activity, insider lending, ownership structure, bank size and financial soundness

(capital adequacy, asset quality, management efficiency, earnings, liquidity and market risk) as bank specific factors. It also looked at economic growth, the central bank rate and interbank activity as macro-economic factors. A multivariate regression model was used to test the hypotheses and link the variables. The study took on a census approach and all forty-three Kenyan commercial banks were taken as the population. Secondary data was extracted from the financial statements of all commercial banks and Central Bank of Kenya website for the period 2012-2018. The study found that insider lending are found to positively and significantly affect financial distress. This study was conducted among the Commercial Banks in Kenya regulated by Central Bank of Kenya whereas the current study was conducted among DT-SACCOS regulated by SASRA which the literature gap filled and results presented in chapter four. In order to narrow the literature gap on effect of related party transaction on financial distress of DT-SACCOs in Kenya, the following hypothesis was tested to establish whether none performing loans has significant determination of financial distress of the DT SACCO societies in Kenya. **$H0_1$:** *Related party transactions do not significantly affect financial trouble in reserve funds and credit cooperatives in Kenya* was the hypothesis that was tested to ascertain whether or not related party transactions contributed to financial distress of DT-SACCO s in Kenya.

### 2.4.2 Interest Rates Spread and Financial Distress

It is likewise accepted that an expansion in loan fees should prompt an expansion in the money related execution of business banks since this prompts an expansion in the spread between the financing costs for reserve funds and the financing costs for acquiring. Podder (2012) assessed this relationship and found that "this relationship is especially clear for littler banks in the USA". They further noticed that a decrease in the financing costs during a retreat period results in a slower development in bank advances while simultaneously expanding the measure of nonperforming advances and in this manner expanded credit misfortunes. This accordingly implies business banks; especially the littler ones may have a great deal of challenges in keeping up their money related execution when the market rates are on a diminishing pattern. More investigations have been done to assess this relationship and results have

obviously demonstrated that there is a positive connection between loan fees and the budgetary exhibition of business banks (Podder, 2012).

Interest rates affect both the commercial banks and their customers in two major ways. When the interest rates rise, customers are unable to service their existing loans which leads to losses to the commercial banks since if the situation continues that way, they are forced to write off their debts. This eats into the profits of the company since it means that the commercial bank is not able to recover both the principal amounts loaned as well as the expected interest from the customers (Makkar & Singh, 2013). When the interest rates are too low, the interest earned from the loaned out amounts is negligible and thus contributes little to the profitability of the commercial bank. There is therefore need for a balance in the interest rates in order to ensure the banks benefit (Lipunga, 2014).

Customers on the other hand avoid the consumption of bank loans when the interest rates are too high since they can either not afford to take up loans or the interest rates are too high that they just prefer to seek other cheaper alternatives such as micro finance institutions and other cheaper lending institutions. This affects negatively the ability of the commercial banks to earn interest from their customer deposits since they cannot loan them out to borrowers. This therefore leads to poor performance of the commercial bank as well as its profitability. It is important to note that this is the case that happened when the financial crisis of 2008 occurred. Macit, (2011) analyzed the bank specific and macro-economic determinants of the profitability of commercial banks and found that interest rates are a major determinant. Evidence that banks in poorer financial health charge more for loans comes from Hubbard, Kuttner, and Palia (2002), who, using data on syndicated loans, find that less well capitalized banks tend to charge higher loan rates than well capitalized banks.

Chun-Hung and SooCheong (2009) examined interest rate hedging under financial distress specifically focusing on the effects of leverage and growth opportunities in the US. The study used to adopt a two-step procedure to address the sample selection bias on the estimation of the extent of hedging caused by the decision to hedge. Heckman (1979) was the first step of the procedure, where the decision to hedge is

estimated by a probit regression. Based on the predicted value of this estimation, the Mill's ratio is obtained by calculating the ratio of the value of the standard normal density function to the value of the standard normal cumulative distribution function. In the second step, this Mill's ratio is added to the extent-of-hedging equation to correct the sample selection bias caused by the decision to hedge.

The study found that under a high level of financial distress, growth opportunities have a significant negative effect on short positions, no effect on long positions, and a marginal negative effect on the overall positions. The discrepancy between the results of long and short positions might be explained by considering the purposes of hedging instruments. Short positions (fixed-to-floating swaps) are used to reduce the interest rate exposure of in-flows (i.e. revenue and notes receivable) while long positions are used to hedge the exposure of out-flows. When financially distressed hotels encounter positive growth opportunities, shareholders would have incentives to reduce short positions to increase the volatility of operating exposure (Corgel & Gibson, 2005) and notes receivables from timeshare business in hoping to finance the growth opportunities with upper-tail outcomes. However, as indicated by the coefficients, short positions are much more responsive to the financial distress dummy than long positions do. Since financially distressed hotels have significantly fewer profits and revenues, the additional short positions are less likely for hedging away the exposure of revenue and income to interest rate risk. Instead, this might be a hint that financially distressed hotels are using interest rate swaps to increase volatility, not hedging away risk. This study was done in the USA and did not analyze the effect of interest rate spread on the financial distress of DT-SACCOs in Kenya creating a literature gap filled by the findings presented in chapter four.

Malik, Khan, Khan, and Khan (2014) analyze the effect of interest rate in the market and its effects on the profitability of banks in Pakistan. Both public sector banks and private sector banks were included in the sample. The regression results for the public sector showed that the interest rate has significant effects on the profitability (ROA) of the public sector banks of Pakistan. The value of $R^2$ shows that in the case of public sector banks the interest rate affects the profitability (ROA) by about 25 percent. In the case of return on equity (ROE) in the public sector, the interest rate

has significant effects on profitability. But in the case of ROE, the interest rate only affects 14 percent of the profitability. In private sector banks, the interest rate has a significant effect on their return on assets (ROA). But here the $R^2$ value is very big then as in public sector banks. The $R^2$ value for ROA in private banks is 34 percent which is high than public sector banks' ROA. In the ROE of private banks, the interest rate affects significantly the profitability by about 19 percent. The study concluded that in both different proxies of profitability in both public and private sectors, the interest rate affects the private sector the most. This study was done in Pakistan and did not analyze the effect of interest rate spread on the financial distress of DT-SACCOs in Kenya creating a literature gap filled by the findings presented in chapter four.

Still, in Pakistan, a study by Khan and Sattar (2014) sought to analyze the impact of changes in the interest rate on the profitability of four major commercial banks in Pakistan. The study found that interest rates considerably affected the banks' interest income as evidenced by Pearson correlations for the variables. This meant the banks' income by interest was extremely related to interest rates which shows the banks' profitability is dependent on the monetary policy tool known as the interest rate. Particularly, when the interest rate is high, usually the rise in the lending rate is higher than the deposit rates which as a result increases the bank spread. But on the other side when interest rates are low the rise in deposit rate is higher than the lending rates. As compared to deposit rates, the rates of lending are adjusted more rapidly when interest rates increase. Whereas when the interest rate decreases then the deposit rates are adjusted more rapidly as compared to lending rates. This study was also done in Pakistan and did not analyze the effect of interest rate spread on the financial distress of DT-SACCOs in Kenya creating a literature gap filled by the findings presented in chapter four.

Musah, Anokye, and Gakpetor (2018) examined the impact of interest rate spread on the profitability of commercial banks in Ghana. The study results showed that interest rate spread is positively associated with bank profitability in Ghana contrary to expectations. The results could be interpreted within the context of the loanable funds theory to suggest that the demand for loans far exceed the supply of loans

compelling banks to maintain higher interest rate for lending. This implies that to improve profitability, the bank will seek to increase net interest margin by effectively and efficiently increasing interest income and decreasing interest expense. The bank will also raise interest margin to cover increases in operating costs, thus the increase in ROA will encourage banks to raise interest margin. The results suggest that policies aimed at reducing interest rate spread in Ghana should focus on making credit facilities available at a cheaper rate to compel commercial banks to reduce the interest rate. It is only when the interest rate spread reduces banks' profit that they will head to the general call of reducing interest rate spread. This study was done in Ghana and did not analyze the effect of interest rate spread on the financial distress of DT-SACCOs in Kenya creating a literature gap filled by the findings presented in chapter four.

Murage, Muya, and Mogwambo (2018) sought to determine the effect of interest rates on the financial performance of Deposit-taking SACCOs in Kisii County. To realize the objective of the study, a descriptive survey research design comprised the seven DTSs operating in Kisii County was adopted. The DTSs are Gusii Mwalimu SACCO, Kenya Achievers SACCO, Wakenya Pamoja SACCO, Egerton SACCO, Mwalimu National SACCO, Afya SACCO, and vision point SACCO. The study revealed that interest rate had a positive effect on the financial performance of DTSs. It was also revealed that all DTSs adopted the interest rate technique as a strategy to generate income from the loans issued. This study though done in Kenya did not analyze the effect of interest rate spread on the financial distress of DT-SACCOs in Kenya creating a literature gap filled by the findings presented in chapter four. This finding agreed with findings by Kariuki and Ngahu (2016) that interest charged by micro-finance institutions in Naivasha influenced loan repayment which further influenced the financial performance of the MFIs. If the interest rate charged was higher, the level of loan default will be higher therefore poor financial performance.

Nyandika, Muturi, and Mogwambo (2016) analyzed the impacts of chosen monetary development markers on the budgetary exhibition of SACCO societies in Kenya. Findings from the study revealed that high inflation rates affect the activities of SACCOs in Kenya, especially Kenya Achievas SACCO Society Limited. The study

found that there was a significant positive relationship between high inflation rates and reduction in services members seek from SACCOs. This might be true because during high inflation rates most members might not be able to borrow since the interest rates might be so high which will scare them away. Further, the study revealed that high-interest rates had a great effect on the financial performance of SACCOs in Kenya. It was clear from the findings that loans demanded are affected by high-interest rates in the market. This means as the interest rates increases, members will shy away from borrowing since the cost of capital will be expensive to be acquired at the market rates.

Therefore, high interests have effects of reducing lending rates thus affecting the performance of SACCOs in Kenya due to the multiplier effect. For a positive financial performance to be realized the interest rates have to be checked to be within the normal standards. Additionally, if loans were available at cheap interest rates, it will encourage more investments since members will be willing to take loans. The study found that inflation is the major discouraging factor for members of SACCOs in taking loans. During the period of high inflation rates, loan interest rates are so high, as a result so many members are not willing to borrow from SACCOs in Kenya. This study though done in Kenya did not analyze the effect of interest rate spread on the financial distress of DT-SACCOs in Kenya creating a literature gap filled by the findings presented in chapter four.

Kirimi, Simiyu, and Murithi (2017) investigated the effect of debt finance on the financial performance of Savings and Credit Cooperative Societies in Maara Sub-county, TharakaNithi County, Kenya. The study used a causal research design and targeted 4 deposit-taking SACCOs and 6 Non-deposit-taking SACCOs operating in Maara Sub-County in Tharaka Nithi County, Kenya. The results revealed that loan interest rate and ROE had a negative relationship. The interest rate charged on a loan was found to have a significant effect ROE of SACCOs in Maara Sub-County at a 5% level of significance. The findings noted that an increase in interest rate leads to a decrease in ROE implying that as the interest rate increases, Saccos' financial performance is affected as it becomes more expensive to operate under borrowed money as more interest is paid to service the debt. This is because a firm’s debts will

have higher costs. After all, they must pay more interest which lowers their working capital leading to higher costs associated with a lack of enough liquidity. Efficient evaluation of interest rate done before borrowing an external debt and monitoring of interest rate after, if properly done can improve the financial performance of SACCOs, otherwise it may hurt the financial performance of organizations due to increased interest payments that increase the overall cost of capital when financing is done through high-interest rate loans. This study was not conducted among DT-SACCOs, a literature gap filled by the findings presented in chapter four. To narrow the literature gap on the effect of interest rate spread on the financial distress of DT-SACCOs in Kenya, the following hypothesis was tested to establish whether none performing loans has a significant determination of financial distress of the DT SACCO societies in Kenya. **$H0_2$:** *Interest rate spread does not significantly affect financial trouble in reserve funds and credit cooperatives in Kenya* was the hypothesis that was tested to ascertain whether or not interest rate spread contributed to the financial distress of DT-SACCO s in Kenya.

### 2.4.3 Non-Performing Loan and Financial Distress

Mombo (2013) found out that nonperforming loans in deposit-taking microfinance institutions in Kenya accounted for the greatest percentage of the variance in the profitability of these institutions. Studies have also shown that nonperforming loans can fuel banking crises and result in the collapse of institutions and have repercussions on the entire economy. Fawad and Taqadus (2013) also conducted a study to investigate the explanatory power of bank-specific variables as determinants of nonperforming loans in the Pakistan banking sector. Their study involved the usage of 6 years of panel data (2006-2011) of 30 banks in Pakistan. The study concluded that NPLs affect the bank's financial performance. They further suggested that the bank supervisors must include the level of loan losses, quality of borrowers, and credit risk with cost efficiency to measure the bank's performance. Their study attributed the rise in levels of nonperforming loans to banks' internal inefficiency.

Mathara (2007) in a study to establish the response by the National bank of Kenya to the challenge of NPLs found both external and internal factors causing NPLs in the

Kenyan banks. The external factors she found were the economic downturn that prevailed in the 1990s, government interference in lending and debt collection, inflationary tendencies, limited supervision by the Central bank of Kenya, poor and inadequate government monetary policies, and an unsupportive judicial system. The internal factors included poor management, poor credit risk management practices, use of the qualitative method of loan appraisal, poor monitoring, and evaluation systems, lack of adequate credit policy guidelines, and lack of a defined loan portfolio.

Wanjira (2010) conducted a study on the relationship between nonperforming loan management practices and the financial performance of commercial banks in Kenya. Her study focused on establishing how the financial performance of commercial banks is affected by the nonperforming loan management practices adopted by these commercial banks. The study used both primary and secondary data. Secondary data was obtained from the audited financial statements of the 46 commercial banks in Kenya. The study revealed that the type of nonperforming loan management practices adopted by commercial banks determines their financial performance. This study was done among commercial banks and did not analyze the effect of non-performing on financial distress of DT-SACCOs in Kenya creating a literature gap filled by the findings presented in chapter four.

Mwangi (2012) carried out a study on the effect of nonperforming loans on the financial performance of commercial banks in Kenya. The study aimed at establishing how nonperforming loans portfolio impacted the financial profitability of commercial banks in Kenya. The study focused on all the 46 commercial banks in Kenya for the period 2005 – 2011. Secondary data was obtained from the banks relating to two variables; Return on assets (ROA) which was the dependent variable and NPL which was the independent variable. The study adopted a simple linear regression model of the form $Y = a+bx$ to establish the effect of non-performing loans on commercial banks' financial performance. The results obtained from the study confirm that during the earlier years of the study, there was a high amount of NPLs resulting in a very low ROA. Later years however showed a different trend where ROA was higher and NPLs were low. This study was done among commercial

banks and did not analyze the effect of non-performing on financial distress of DT-SACCOs in Kenya creating a literature gap filled by the findings presented in chapter four.

Nkusu (2011) analyzes the link between nonperforming loans (NPL) and macroeconomic performance from a sample of 26 advanced countries. The study finds that a sharp increase in NPL triggers long-lived tailwinds that cripple macroeconomic performance from several fronts. The impulse response functions (IRFs) indicate that, of all the variables included in the model, NPL is the only one that has both a statistically significant response to and predictive power on- every single variable over a 4-year forecast period. Louzis et al. (2012) examine the determinants of non-performing loans (NPLs) in the Greek banking sector, separately for each loan category (consumer loans, business loans, and mortgages). The study is motivated by the hypothesis that both macroeconomic and bank-specific variables have an effect on loan quality and that these effects vary between different loan categories. This study was done among advanced countries and did not analyze the effect of non-performing on financial distress of DT-SACCOs in Kenya creating a literature gap filled by the findings presented in chapter four.

Mboka (2013) investigated the relationship between macro-economic variables on nonperforming loans of commercial banks in Kenya. The study found that a strong correlation existed between inflation and gross domestic product and current account deficit. GDP also correlated strongly with inflation and Money supply. Current account deficits correlated strongly with inflation only while Money supply correlated strongly with GDP. A good, significant, and positive correlation was also found between nonperforming loans and GDP growth rate, exchange rate volatility, and banking sector development index. There was a good, significant, and negative correlation between nonperforming loans and inflation rate and a moderate significant and negative correlation between nonperforming loans and treasury bills rates. The determinant variables in the study were all macroeconomic variables. This study was done among commercial banks and did not analyze the effect of non-performing on financial distress of DT-SACCOs in Kenya creating a literature gap filled by the findings presented in chapter four.

Muriithi (2013) sought to determine the causes of non-performing loans in commercial banks in Kenya. The study established that the non-performing loans were positively correlated to the inflation rate and negatively correlated with the real interest rate and growth rate in loans in Kenya. The study applies macroeconomic indicators as determinants of NPLs but does not incorporate the bank-specific factors. Ndungu (2014) sought to find out the factors that influence non-performing loans of microfinance institutions in Kenya. The study established that institutional characteristics contribute most to the non-performing loans of microfinance institutions in Kenya followed by Macroeconomic variables and finally Customer characteristics. These factors are established to have a statistically significant positive influence on the levels of NPLs. This study was done among commercial banks and did not analyze the effect of non-performing on financial distress of DT-SACCOs in Kenya creating a literature gap filled by the findings presented in chapter four. To narrow the literature gap on the effect of non-performing loan on the financial distress of DT-SACCOs in Kenya, the following hypothesis was tested to establish whether none performing loans has a significant determination on the financial distress of the DT SACCO societies in Kenya. To narrow the literature gap on the effect of non-performing loan on the financial distress of DT-SACCOs in Kenya, the following hypothesis was tested to establish whether none performing loans has a significant determination on the financial distress of the DT SACCO societies in Kenya. **$H0_3$:** *Non-performing loans do not significantly affect financial trouble in reserve funds and credit cooperatives in Kenya* was the hypothesis that was tested to ascertain whether or not non-performing loans contributed to the financial distress of DT-SACCO s in Kenya.

### 2.4.4 Exchange Rate and Financial Distress

Mozumder, De Vita, Larkin, and Kyaw (2015), investigated the sensitivity of firm value to exchange rate (ER) movements and the determinants of such exposure for 100 European blue chip companies from 2001-2012. The study unveiled a positive relationship between ER movements and the market value of firms, indicating that depreciation of ERs (indirect quotation) is likely to have a positive impact on the market value of European firms. The relationship between exposure and firm-

specific characteristics was found to be weak, though smaller-sized firms were found to be slightly more exposed to ER movements than larger ones. The shortcoming of the study was an overreliance on Eurozone countries with the UK as the only non-eurozone country included in the analysis.

Jeon, Zheng, and Zhu (2017) examined the impact of changes in the foreign exchange rate on firms' stock returns in global markets. Using daily firm-level data for 14 international markets from January 2000 to December 2011, they found evidence that changes in the trade-weighted multilateral exchange rate systematically impact individual firms' stock returns for all seven emerging markets and some advanced economies.

Baba and Nasieku (2016) the researchers researched by using the Hausman test to show the effect of macroeconomic factors on the financial performance of commercial banks in Nigeria. The study was performed from the period of 2006 up to 2015 for a population of 23 commercial banks listed in Nigeria. The study used secondary data and the result found that there is a positive significant effect of microeconomic variables (real interest rate, exchange rate, and unemployment rate) on the financial performance of the commercial banks in Nigeria.

Lagat and Nyandema (2016) the researchers investigate the relationship and effect of foreign exchange liberalization and the financial performance of the commercial banks listed on the Nairobi Securities Exchange, the study was conducted from the period of 2006 up to 2013 in Kenya. The correlation method was used in this study to investigate the connection between financial performance and foreign exchange which is expressed by Return on Equity. The result was concluded by showing that there is an existence of a strong positive relationship between a foreign exchange (inflation rates, interest rates) and financial performance (ROE).

Akani et al. (2016) the study applies a time series data approach to determining the macroeconomic effects on the financial performance of commercial banks founded in Nigeria starting from 1980 until 2014. The variables used in this study were returned on assets, return on equity, return on investment, Inflation rate, Real interest rate, exchange rate, unemployment rate, Money supply, and Gross domestic

products, the secondary was used from the stock exchange fact book, CBN, statistical bulletin in the collection of data and analyze those data through the co-integration test and granger causality test. The results found that the first model is that there are insignificant negative effects on the unemployment rate, and interest rate with ROI, however insignificant positive effects between ROI and INFR, EXR, GDP, and MS. The second model reveals significant positive effects on EXR, INFR, and INTR with ROA, whereas there are insignificant negative effects between GDP, MS, UNR, and ROA.

Manyok (2016) studied the relationship between the rate of exchange variability on the financial performance of commercial banks in South Sudan from 2006 to 2015 using semi-annual data. The study discovered that there is a weak negative relationship between exchange rate variability and financial performance. Gachua (2011) examined the impact of foreign exchange exposure on the firm's financial performance in Kenya using a sample size of 38 firms but only the results of 32 firms were analyzed. The study showed that the rate of exchange significantly affects imports and exports. The author concluded that the unrealized foreign exchange gains or losses negatively affect the Net Income.

Mohammad et al. (2018) suggest that manufacturing firms that are involved in exporting business have high productivity and hence high profitability. An economy that is hinged on a performing export sector is associated with spillovers that move to other sectors in the economy hence leading to economic growth overall. Exchange rate volatility commonly referred to as fluctuation in the exchange rate is that time when the domestic currency depreciates or appreciates (Tega, 2018). To narrow the literature gap on the effect of exchange rate exposure on the financial distress of DT-SACCOs in Kenya, the following hypothesis was tested to establish whether none performing loans has a significant determination of financial distress of the DT SACCO societies in Kenya. **$H0_4$:** *Exchange rate exposure does not significantly affect financial trouble in reserve funds and credit cooperatives in Kenya* was the hypothesis that was tested to ascertain whether or not the exchange rate contributed to the financial distress of DT-SACCO s in Kenya.

### 2.4.5 Controlling effect of SASRA Regulations on the Determinants of Financial Distress

The SACCO Regulatory Authority (SASRA) was established by the act of government in 2008 under the SACCO Societies Act of 2008 and came into effect in September 2009. According to the Republic of Kenya (RoK) (2008), the authority is mandated with the following responsibilities: License SACCO Societies to carry out deposit-taking business; Regulate and supervise deposit-taking SACCO Societies; Manage the Deposit Guarantee Fund under the trustees appointed under the Act; Advise the Minister on national policy on deposit-taking SACCO Societies in Kenya. SASRA has greatly impacted the SACCO performance in terms of outreach and sustainability and performance of SACCOs in Kenya. In February 2014 the Authority warned that thirty savings and credit cooperatives would be blacklisted from offering banking hall services, owing to their inability to meet legislative requirements; a notice was given to all deposit-taking SACCO Societies upon their compliance with the prescribed minimum standards before the lapse of the four (4) year transition period on 17th June 2014.

The SASRA amendments indicate that a member may repay a credit facility before its maturity in whole or in part on any business day without being charged full-term interest. No director or employee of a SACCO or immediate family member of a director or employee shall receive anything of value or other compensation in connection with any loan made by the SACCO. The authority further recommends that the board of directors shall be responsible for ensuring that the written credit policy remains up to date and reflect current lending practices (RoK, 2008).

According to Baskin et al. (2012), the amendment is supervision that subjects institutions to certain requirements, restrictions, and guidelines to maintain the integrity of the financial system. The Amendments on Savings and Credit Cooperative Societies and credit schemes in Africa engaged in accepting savings and deposits from their members for an amount that is less than the set minimum (WOCCU, 2002). SACCOs are also supposed to attain high minimum capital requirements to act as a barrier to market entry to possible new players that are not

able to raise sufficient capital for the initial stages as a regulated institution. But, on the other hand, a high minimum capital requirement could help to mitigate moral hazard behavior among shareholders. SACCOs are from time to time required to file various returns such as capital adequacy and other returns, on or before the 15th day of every month. SASRA has employed qualified technocrats and personnel who go through the reports. Whenever any irregularities are detected, SACCOs can be summoned to explain. Failure to file returns attracts penalties; this has made SACCOs more vigilant in sending their returns. SASRA continuously monitors SACCOs' operations through on-site and off-site surveillance. The study did not analyze the moderating effect of SASRA amendments on the relationship between the determinant factors and financial distress among DT-SACCOs in Kenya.

Mburu (2010) conducted a study on the determinants of performance of the SACCOs in Kenya. According to his findings, lack of business planning, conflict of interest, and absence of stringent monitoring and evaluation measures are among the causes of business failure in the SACCO industry. Some of his recommendations were that the government enacts a policy that can be vital in guiding the SACCOs on strategic planning, a policy to ensure that qualified staff members were employed in the SACCOs, and regular audit of the SACCO. His findings mirror SASRA'S amendment and are addressed by the quality of staff (requirements) of auditor and requirements of the board as stipulated in SASRA act 2010. The study did not analyze the moderating effect of SASRA amendments on the relationship between the determinant factors and financial distress among DT-SACCOs in Kenya.

Muriuki and Ragui (2013) assessed the impact of SASRA legislation on corporate governance. The researchers found that the legislation has influenced corporate governance to a great extent though there is still room for improvement. Makori, Munene, and Muturi (2013) aimed at establishing the challenges facing deposit-taking Savings and Credit cooperative societies in complying with their regulatory requirements as provided for in Kenya with a particular focus on the Gusii region which encompasses Kisii and Nyamira counties. The study found out that the various challenges facing compliance in these institutions included non-separation of shares from deposits, high dependence on short-term external borrowing, lack of liquidity

monitoring system, high investment in non-earning assets, inadequate ICT system, and inadequate managerial competencies, and political interference. The study did not analyze the moderating effect of SASRA amendments on the relationship between the determinant factors and financial distress among DT-SACCOs in Kenya.

Kilonzi (2012) carried out a study to establish the impact of SASRA amendments on the financial performance of SACCOs in Kenya. The sample size used was 30 for the period 2008 – 2011. Financial performance was measured using ROA and ROE. Factors used for regression against ROA and ROE were capital to total assets ratio, liquidity (net loans/deposits and short-term borrowing), and management efficiency (earning assets/total assets). Regressions were run for 2008-2009, and 2010-2011, and coefficients were compared for differences that may have been caused by the amendments being applicable from 2010. The findings were that ROE, capital ratio, liquidity, and management efficiency improved in the second period compared to the first. There was no difference in ROA in the two periods. ROA and ROE are inappropriate measures of financial performance of SACCOs as the objective of the institutions are not to maximize these outcomes. The study did not analyze the moderating effect of SASRA amendments on the relationship between the determinant factors and financial distress among DT-SACCOs in Kenya.

A study by Kamau (2013) on the effect of licensing requirements on the performance of cooperative societies in Kenya: A survey of deposit-taking SACCO societies in Nakuru County found that most SACCOs reported improvement in their performance both in membership, portfolio and efficiency. He attributed this to the SACCO licensing requirements. He found that most SACCOs were compliant with the regulator requirement so as not to be locked out of the business by the operator. It was also clear from the study that all the SACCOs were conversant with the new licensing law. The study did not analyze the moderating effect of SASRA amendments on the relationship between the determinant factors and financial distress among DT-SACCOs in Kenya.

Kivuvo and Olweny (2014) analyzed Sacco's financial statement to determine financial performance, predictor variable potency, and model contribution to

financial stability. The Z scores "cut-off" values are greater than 2.99 for "non-bankrupt", below 1.81 for bankrupt, and the area between 1.81 and 2.99 for "grey area". The study population is 215 Deposit-taking SACCOs with a sample of thirty identified randomly. A quantitative research design was used to analyze longitudinal data for the period 2013 – 2020. The study found the regulatory agency is correct in advocating for the additional capital base as such will improve individual Z Scores and recommends model application in finance analysis. This study did not analyze the moderating effect of SASRA rules on the relationship between the determinants and the SACCOs Z-Score, the gap which the current study filled with the results presented in chapter four. To narrow the literature gap on the controlling effect of SASRA regulation on determinants of financial distress of DT-SACCOs in Kenya, the following hypothesis was tested to establish whether none performing loans has the significant determination of financial distress of the DT SACCO societies in Kenya. **Ho5***: SASRA regulations has no controlling effect on the determinants and financial distress in savings and credit cooperative organizations in Kenya* was the hypothesis that was tested to ascertain the relationship between SASRA regulations controlling effect on determinants of financial distress of DT-SACCO s in Kenya

### 2.4.6 Moderating Effect of Firm Size on the Determinants and Financial Distress

Aduralere Oyelade, (2019) study on study examined the impact of firm size on firm's performance in Nigeria: A comparative study of selected firms in the building industry in Nigeria using annual data from 2004 to 2017. The technique used in the research work was panel analysis. Based on the financial measurement of performance using both return on assets (ROA) and return on equity (ROE), two out of the four variables used as an indicator of size were statistically significant in determining return on assets which are total sales and age of firm since incorporated and total sale has a positive effect on return on assets while age of firm since incorporated has a negative effect on return on assets. Furthermore, it was observed that only leverage was significant in determining return on equity. Based on productivity measurement of performance of the selected firms in the building industry in Nigeria using both outputs per labor and output per capita, also two out of

the four variables used as an indicator of size were statistically significant in determining output per labor which are total sales and age of firm since incorporated and both have positive effect output per labor and the total number of employee and leverage has a negative significant impact on output per labor. Also, only the age of the firm since incorporated as a measure of size that was significant in determining output per capital out of the four measurements of size and liquidity ratio has a positive significant effect on output per capita. The study did not analyze the moderating effect of firm size on the relationship between the determinant factors and financial distress among DT-SACCOs in Kenya.

Kithuka (2013) did a study on the relationship between firm size and financial innovation of firms listed on the Nairobi Securities Exchange. The study used a descriptive survey research design. The study did a sample of 40 firms which were chosen using stratified random sampling. A regression model was used for analysis and the results showed that there was a positive relationship between the firm size and financial innovation of firms listed on the Nairobi Stock Exchange. Mahfoudh (2013) studied the effect of selected firm characteristics on the financial performance of firms listed in the agricultural sector at the Nairobi securities exchange. The study used a descriptive survey to find out the relationship between the variables. The study used sampled firms and a regression model was adopted for data analysis. The results of the analysis showed that there was a positive relationship between firm characteristics: size, age, and growth with financial performance. The study did not analyze the moderating effect of firm size on the relationship between the determinant factors and financial distress among DT-SACCOs in Kenya.

Njoroge (2014) studied the effect of firm size on the financial performance of pension schemes in Kenya. The study did a descriptive survey between the variables under investigation. The target population for this study was 30 occupational pension schemes in Kenya. The research was carried out using secondary data. The data was collected from annual reports and financial statements. The analysis showed that there was a positive relationship between firm size and financial performance. Further, the results indicated that there was significant market volatility as evident from the NSE index, Treasury bill rate movement, and offshore indices. The study

did not analyze the moderating effect of firm size on the relationship between the determinant factors and financial distress among DT-SACCOs in Kenya.

Shamki et al. (2016) investigated the influence of bank capital ratio, size, and loans on the profitability of Jordanian commercial banks. They used a panel of 13 commercial banks in the period 2005 – 2013. Size did not significantly influence profitability, contrary to the prediction by theory. Various determinants (liquidity risk, credit risk, asset composition and management, expense management, and capital size) of commercial bank profitability were studied by Abel and Le Roux (2016) using commercial banks in Zimbabwe for the period 2009 – 2014. The size was found to be positively related to profitability as would have been theoretically expected.

Aladwan (2015) investigated the effect of bank size on the profitability of commercial banks in Jordan. He used a panel of 15 commercial banks for the period 2007 – 2012. The size was found to be inversely related to profitability, with smaller asset base commercial banks being more profitable. The effect of size on the profitability of firms listed on the Amman Security Exchange for the period 2005 – 2011 was assessed by Dahmash (2015). For commercial banks, size did not significantly influence profitability. The findings of these studies (Aladwan, 2015; Dahmash, 2015) were contrary to expectations. This study did not analyze the moderating effect of firm size on the relationship between the determinant factors and financial distress among DT-SACCOs in Kenya.

Onuonga (2014) assessed whether, for the top six commercial banks in Kenya for the period 2008 – 2013, bank assets, capital, loans, deposits, and asset quality affected profitability. Concerning size, the study found a positive relationship. Shehzad (2013) investigated the relationship between the size, growth, and profitability of commercial banks. They used a panel of 15,000 commercial banks from 148 countries for the period 1988 – 2010. Profitability and size were found not to be significantly positively related. Sufian and Kamarudin (2012) assessed the relationship between bank-specific and macroeconomic determinants of profitability of commercial banks in Bangladesh using 31 commercial banks for the period 2000 -

2010. Size significantly positively affected profitability. The study did not analyze the moderating effect of firm size on the relationship between the determinant factors and financial distress among DT-SACCOs in Kenya.

Maja and Josipa (2012) evaluated the influence of firm size on financial performance from 2002-2010 and the result revealed that firm size has a significant positive (weak) influence on firm profitability. Abondo (2013) examined the effect of firm size on the financial performance of deposit-taking MFBs from 2008 to 2012 using secondary data with regression analysis using SPSS to show the relationship between the independent variables and the dependent variables under consideration. The result finds the factors used as independent variables are the factors influencing the profitability of commercial banks in Kenya. Dogan (2013) also investigated the effect of firm size on profitability. The result of the analysis indicates positive relation between firm indicators and profitability. Nzioka (2013) examined the relationship between firm size and financial performance by targeting a population of 43 commercial banks in Kenya with panel data from 1998 to 2012. The study found all the independent variables to be statistically significant. These studies did not analyze the moderating effect of firm size on the relationship between the determinant factors and financial distress among DT-SACCOs in Kenya.

Olawale et al. (2017) also investigated the effect of firm size on the performance of firms in Nigeria using panel data set of 12 non-financial firms operating in Nigeria from 2005 to 2013 and analyzing the panel data using a pooled regression model, fixed effect model, and random effect model to identify the relationship between firm size and the performance of firms listed on the Nigeria stock exchange. The result of the study reveals that firm size in terms of the total asset has a negative effect on performance while in terms of total sales firm size has a positive effect on performance. Ngumo et al. (2017) examined the determinants of corporate financial performance of microfinance banks in Kenya, adopting a descriptive research design and using secondary data from 7 banks for a period of 5 years from 2011 to 2015. The data collected were analyzed using correlation and regression analysis and found a statistically significant relationship between firm size and financial performance.

These studies did not analyze the moderating effect of firm size on the relationship between the determinant factors and financial distress among DT-SACCOs in Kenya.

Mehrjardi (2012) studied the effect of size and profitability of banks in Kenya. This study measured profitability using return on asset and had only size as the independent variable. The study found that there was a positive relationship between bank size and profitability of banks varied with the customer base, the number of branches, deposit liabilities, and market share as there was a high positive correlation coefficient. The study further revealed that there was a greater variation in profitability of commercial banks as a result of the change in customer base, number of branches, deposit liabilities, and market share in all tiers. The study did not analyze the moderating effect of firm size on the relationship between the determinant factors and financial distress among DT-SACCOs in Kenya.

Salim (2012) examined the relationship between bank size and the financial performance of commercial banks in Kenya. The study aimed specifically to determine the relationship between bank size factors such as total deposits, total loans, and total assets, and financial performance, and further investigated the relationship between branch network size and financial performance. The findings of the study established strong correlations between all the studied factors of bank size. Obigbemi et al. (2015) evaluated the role of financial performance and the size of the firms in the voluntary disclosure of Nigerian companies using the financial data of 137 companies both from the financial and the non-financial sectors in Nigeria using the weighted logistic regression method of analysis to evaluate the type of relationship that exists between corporate governance disclosure practices of Nigerian companies with company size and financial performance. The study revealed that there is a significant positive relationship between firm size and corporate governance voluntary disclosure. These studies did not analyze the moderating effect of firm size on the relationship between the determinant factors and financial distress among DT-SACCOs in Kenya.

Mohamed (2015) investigated the impact of firm size on liquidity using a sample of 18 banks in Tunisia for a study period from 2000 to 2010. The study found an

insignificant impact of firm size on bank liquidity. Akinyomi and Olagunju (2013) examined the effect of firm size on the profitability of the Nigerian manufacturing sector. Panel data set from 2005 to 2012 was obtained from the audited annual reports of the selected manufacturing firms listed on the stock exchange. Return on asset was the proxy for profitability while log of total assets and log of turnover were used as proxies for firm size. The results of the study revealed that the firm size both in terms of total assets and in terms of total sales has a positive effect on the profitability of Nigerian manufacturing companies. Serrasqueiro and Nunes (2008) investigated the relationship between firm size and performance of small and medium-sized Portuguese companies for the period 1999 to 2003. The study found a positive and statistically significant relationship between size and profitability of SMEs while a statistically insignificant relationship between size and profitability was found in large Portuguese companies. These studies did not analyze the moderating effect of firm size on the relationship between the determinant factors and financial distress among DT-SACCOs in Kenya.

**H06:** *Firm size has no moderating effect on the relationship between the determinants and financial distress in savings and credit cooperative organizations in Kenya* is the hypothesis that was tested to ascertain whether or not firm size moderated the relationship.

### 2.4.7 Financial Distress in SACCOS

Financial distress is one of the most significant threats for many firms globally despite their size and nature. The term financial distress is used with a negative connotation to describe the financial situation of a company confronted with a temporary lack of liquidity and with the difficulties that ensue in fulfilling financial obligations on schedule and to the full extent (Outecheva, 2007).

Money-related execution is a delineation of how well a firm may utilize resources from its essential method of business to create income. It is utilized as a proportion of an association's monetary wellbeing over a given period and can be utilized to think about firms in conglomeration (Githinji, 2011).In most cases, individuals will in a general partner, join or put resources into firms that show unfaltering benefit or

great budgetary execution. This is simply because of the going concern factor. Be that as it may, no proof has appeared to help the thought that speculators like to put resources into beneficial firms (Tong & Ning, 2004). In SACCOs, budgetary execution is estimated by (PEARLS) which means security, powerful money structure, resource quality, rates of return and cost, liquidity, and indications of development.

As per Outecheva (2007), budgetary pain can be subdivided into four subintervals: the decay of execution, disappointment, indebtedness, and default. While disintegration and disappointment influence the benefit of the organization, indebtedness, and default is established in its liquidity. When all is said in done, budgetary pain is portrayed by a sharp decrease in the company's exhibition and worth. He likewise takes note that; an organization can be bothered without defaulting. Anyway, he takes note that, default and insolvency can't happen without the first time of budgetary misery.

Tan (2012) in his investigation on the effect of budgetary trouble on a company's presentation utilizing the relapse examination and utilizing monetary influence as an intermediary for money-related misery discovered that monetarily upset firms fail to meet expectations. This implies the association's exhibition broke down during money-related misery.

In his study utilizing Pearson connection investigation and various relapse models, Ogilo (2012) found that there is a solid effect between the CAMEL segments on the money-related execution of business banks. He likewise discovered that benefit quality, the executives' productivity, and liquidity had a frail association with money-related execution yet income had a solid association with budgetary execution. This is strengthened by Ongure and Kusa (2013) who utilized straight different relapse models to build up determinants of monetary execution of business banks in Kenya and found that bank explicit variables influence the execution of business banks except for liquidity. The study did not analyze the status of financial distress of DT-SACCOs in Kenya, a literature gap filled by the current study and results presented in chapter four.

Gepp and Kumar (2015) completed an examination on foreseeing monetary trouble through a Comparison of Survival Analysis and Decision Tree Techniques. They previously noticed that discriminated examination and calculated relapse have been the most prominent methodologies, nonetheless, they fought that there is additionally an enormous number of elective cutting–edge information mining procedures that can be utilized. The investigation utilized huge board information while noticing that monetarily upset firms are considered dependent on obligation default criteria to limit polluted information and keep away from huge numbers of the issues with utilizing a lawful meaning of chapter 11. The examination built up that Decision trees, explicitly the CART model would be wise to arrangement exactness than different systems. All the more significantly, both the CART choice–tree method and the Cox survival examination strategy were equivalent to one another and discriminated investigation over both scopes of misclassification expenses and expectation interims. They were additionally prevalent classifiers contrasted and calculated relapse, which performed abnormally ineffectively on the information utilized in this paper. The survival examination and choice–tree systems explored here are both helpful in budgetary misery forecast for various purposes. Survival examination systems are proper for building up a solitary model to make expectations of changing lengths and to break down the money-related pain process after some time. Then again, non-parametric choice trees are the best for making precise forecasts without the danger of damaging factual suppositions.

These determinations depend on an examination between just a single survival investigation and one choice–tree system and thusly more research ought to be attempted to further test these ends. For instance, this correlation could be reached out to incorporate new choice – tree methodologies, for example, Random Forests or time – subordinate informative factors to abuse the highlights of survival examination. By and large, the outcomes displayed give observational proof to help the utilization of survival investigation and choice tree procedures in money-related misery cautioning frameworks that are valuable to most substances in the monetary markets. The study did not analyze the status of financial distress of DT-SACCOs in Kenya, a literature gap filled by the current study and results presented in chapter four.

Jheng et al. (2018) think about the connection between capital ampleness proportion and stock cost of banking foundations in Malaysia and additionally discovered observational proof proposing that there was a critical connection between money-related misery pointer and stock cost of Malaysia banking organization and were predictable with the monetary idea of "high hazard exceptional yield". These suggested financial specialists were presumptuous of Malaysia banking foundations' exhibition with the end goal that speculators did not race to auction their stocks at a lower cost when the banks have troublesome liquidation chances. Factors, for example, government ensure, relative stable money-related market, and helpful monetary may have an impact on the choice of the speculators in reacting to the difference in budgetary trouble pointer of the banks. Further, the examination found that the capital sufficiency proportion does not respond in any case same as the money-related misery marker with stock cost. This was clarified by the way that the two pointers were estimated distinctively with capital sufficiency proportion estimating the nature of the bank resources, while budgetary pain marker estimating liquidation danger of a bank. The study was conducted in Malaysia and did not analyze the status of financial distress of DT-SACCOs in Kenya, a literature gap filled by the current study and results presented in chapter four.

Alifiaha (2014) dissected the expectation of monetary pain organizations in the exchanging and administration part in Malaysia utilizing macroeconomic factors. Logit Analysis was utilized as the investigation methodology because monetary proportions don't need to be ordinary when utilized. The discoveries uncovered that money-related proportions and macroeconomic factors can be utilized to foresee monetarily troubled organizations in the exchanging and administration part in Malaysia. The money-related proportions that are noteworthy are obligation proportion, all-out resources turnover proportion, working capital proportion, and net gain to add up to resources proportion while the macroeconomic variable that is critical is the base loaning rate. The estimations of the obligation proportion, all out resources turnover proportion, working capital proportion, net gain to add up to resources proportion, and base loaning rate were constrained to a roof of 0.5 in their model which implied that increments in proportions over this worth expanded the likelihood of the firm going into budgetary pain. The study was conducted in

Malaysia and did not analyze the status of financial distress of DT-SACCOs in Kenya, a literature gap filled by the current study and results presented in chapter four.

López-Gutiérrez, Sanfilippo-Azofra and Torre-Olmo (2015) examined the impact of budgetary pain on the speculation conduct of organizations. The investigation broke down the diverse conduct of firms in monetary misery, considering the distinctions that may happen among organizations in money-related trouble contingent upon their venture openings. The outcomes uncovered that the speculation conduct isn't uniform for all organizations confronting money-related trouble, and the penchant to under-contribute relies upon the venture openings accessible to the organization. Therefore, firms with more noteworthy open doors that accept that the extra speculations can assist them with overcoming their challenges don't indicate contrasts concerning the venture conduct of sound firms with regards to exploiting venture openings. Notwithstanding, chiefs of organizations with fewer venture open doors have a more noteworthy affinity to under-contribute because they just actualize ventures that they consider may keep the organization from petitioning for financial protection. This conduct makes them pass up on gainful changes that would help improve the circumstance of the organization in trouble. This clarifies why the revamping procedures attempted by numerous organizations in trouble are regularly incapable to forestall their destruction. In this sense, the outcomes are especially pertinent right now, in light of the changes that have happened in chapter 11 laws in various nations, and the financial emergency, which has expanded the number of bankruptcies around the world. The study did not analyze the status of financial distress of DT-SACCOs in Kenya, a literature gap filled by the current study and results presented in chapter four.

Gebreslassie (2015) researched the determinants of money-related trouble states of business banks in Ethiopia. The investigation utilized the Altman Z-score model (ZETA Analysis) and evaluated determinants of budgetary trouble utilizing board information beginning from 2002/03 to 2011/12 and six private business banks in Ethiopia utilizing board information relapse. The examination found that non-performing credit apportions (NPL) essentially impacted the monetary strength of the

saved money with unit increments in NPL bringing about the decay of budgetary soundness of the banks since low Z" means high monetary trouble which even can prompt insolvency. The examination additionally discovered that net premium payments to add up to income (NITTR) has a positive connection with money-related misery with a one-unit increment in NITTR will prompt an expansion in the Z score of the bank which is monetary wellbeing (trouble). At the point when the Z score of the banks improves, the money-related wellbeing of the banks likewise improves. Be that as it may, the examination found that bank effectiveness has no statically noteworthy impact on the Zeta score of the chosen private business banks. This deviation from the normal positive impact could be because of the reason that no interest paid to non-premium costs has been utilized as the intermediary of the bank's effectiveness. At last, that review found that the size of the banks has no noteworthy impact on their budgetary wellbeing. The study was conducted in Ethiopia and did not analyze the status of financial distress of DT-SACCOs in Kenya, a literature gap filled by the current study and results presented in chapter four.

Kivuvo and Olweny (2014) dissected the money-related execution of Kenya's SACCO division utilizing the Altman Z Score Model of Corporate Bankruptcy. The objective populace for the examination was the 215 Deposit-taking SACCOs which is the all-out enlisted with SASRA. Money-related information was gotten from SASRA, the SACCO controller for the 6 years under examination, and a far-reaching posting accommodated authorized Deposit-taking SACCO. Altman 'Z" score utilized in the examination has the separating factors of liquidity, gainfulness, influence, dissolvability, and action proportions. The examination set up that factors X1 - Working capital/Total resources and X4 - Market esteem value/Book estimation of all out obligation - are essentially patrons in Z Scoring and model is the intense instrument for monetary investigation, the model application adds to budgetary soundness. This investigation has affirmed the utilization of the multivariate factual technique in the Z score; budgetary proportions can be characterized in gatherings of gainful or non-beneficial, gatherings of bankrupt and non-bankrupt SACCOs. The examination notes the significance of execution on monetary dependability in the SACCOs.

The examination takes note of the parameters of Liquidity, productivity, working proficiency, and all-out resources turnover (which are the key factors in the Altman's Z score) are strong apparatuses in the assurance of the quality of a SACCO. This examination finishes up also that the Altman Z-score investigation adds to division money-related steadiness. SASRA, the SACCO administrative office is in this way right in supporting extra capital base for SACCOs to improve the Z Scores moving organizations to none bankrupt zone. H0: Capital sufficiency has no noteworthy impact on monetary misery in investment funds and credit agreeable associations in Kenya which was the writing hole that the present examination investigated to build up the impact of capital ampleness on money-related trouble in reserve funds and credit helpful associations in Kenya. The study did not analyze the status of financial distress of DT-SACCOs in Kenya, a literature gap filled by the current study and results presented in chapter four.

## 2.5 Critique of Reviewed Literature

The lack of enough capital to lend to clients is globally one of the most severe problems inhibiting the growth of SACCOs (Mbawala, 2004). To some extent, SACCOs can use the deposits by clients to increase their loan book, but this option is often limited in poor communities. To expand programs, SACCOs need access to a stable and ongoing source of funds for SACCOs to achieve sustainable growth (Nelson, Mknelly, Slack & Yanovitch, 1994). There is often a mismatch in the maturity of a SACCOs loan and deposit books, making it difficult and risky to grow the loan book.

Additionally, high costs make it difficult for some SACCOs to sustain their operations from loan revenues alone. Costs to SACCOs affect the rate at which they fund their loan books, salaries of staff, and infrastructure expenses, but may be exacerbated by unreliable infrastructure, an inefficient payment system, commissions, and poor selection procedures (Mukama et al., 2005).

Padachi (2006) indicates that profitability and liquidity are the most fundamental concerns in managing working capital. Here, liquidity is directly linked to the ability of a firm to meet short-term obligations. Bagchi and Khamreei (2012) indicate that

the WCM is a vital component in financial management. Irrespective of the profit orientation, size, and nature of business, all firms require an optimum level of WCM. The inefficiency of WCM may lead the firm into a pitfall (Niresh, 2012). Optimal WCM positively contributes to the creation of firm value. On the one hand, the cost of liquidity brings a serious problem and stands against profitability (Dong & Su, 2010). On the other hand, a firm cannot survive without sufficient liquidity because the firm may face the problem of insolvency. Therefore, a balance between profitability and liquidity must always be maintained. Padachi (2006) stated that a well-designed and executed WCM is anticipated to contribute positive value to the firm.

### 2.6 Summary of Literature

According to Ross et al (1999), Firms under financial distress will show several signs such as; dividend reductions, plant closings, losses, layoffs, C.E.O resignations, and plummeting stock prices. Financial distress can serve as a firm's 'early warning system for trouble. Firms with more debt will experience financial distress earlier than firms that have less debt. However, firms that experience financial distress earlier will have more time for private workouts and re-organization. Firms with low leverage will experience financial distress later and in many instances be forced to liquidate.

A company under financial distress can incur costs related to the situation, such as more expensive financing, opportunity costs of projects, and less productive employees. The firms' cost of borrowing additional capital will usually increase, making it more difficult and expensive to finance to raise the much-needed funds. To satisfy short-term obligations management, might pass on profitable longer-term projects. Employees of a distressed firm usually have lower morale and higher stress caused by the increased chance of bankruptcy, which would force them out of their jobs such workers can be less productive (Journal of Banking and Finance 2008).

**Table 2.1: Knowledge Gaps**

| Objective | Empirical Review | Knowledge Gap |
|---|---|---|
| To examine the effect of related party transactions on financial distress in savings and credit cooperative organizations in Kenya | Some scholars examine the total value or number of RPTs (Berkman, Cole & Fu 2010; Kang et al. 2014; Wan & Wong 2015). The total number of RPTs and find that it has negative relationship with industry adjusted returns (Gordon, Henry & Palia 2004) and insignificant negative relationship with earnings management measured by adjusted absolute abnormal accruals (Gordon and Henry 2005). Meanwhile, Berkman, Cole and Fu (2010) use total value of all RPTs that are potentially harmful for the firm (RPTs asset acquisitions, RPTs asset sales, RPTs equity sales, RPTs trading relationships and RPTs cash payment) and find that during the year before the new amendments to protect minority shareholders were implemented, minority shareholders of the firms with higher total value of RPTs have higher abnormal returns compared to those with lower total value of RPTs. Kang et al. (2014) find that control ownership has positive association with total amount of RPTs and total amount of RPTs have negative impact on firm performance measured with Tobin‘s Q. Similarly, Wan and Wong (2015) find that RPTs have negative impact on firm performance.<br><br>Kohlbeck and Mayhew (2010) observe RPTs with directors, officers, shareholders or their affiliates and RPTs with firm investment. Transactions with a director, an officer of the firm, a shareholder of the firm with more than 5% ownership or an affiliate of a director, officer or shareholder of the firm are classified as RPTs with directors, officers, shareholders or their affiliates. Meanwhile, transactions with a joint venture or other operation that are owned by firm and not | The study did not analyze effect of related party transactions on financial distress in savings and credit cooperative organizations in Kenya which the current study analyzed creating the filled literature gap.<br><br>These studies did not analyze effect of related party transactions on financial distress in savings and credit cooperative organizations in Kenya which the current study analyzed creating the filled literature gap.<br><br>These studies did not analyze effect of related party transactions on financial distress in savings and credit cooperative organizations in Kenya which the current study analyzed creating the filled literature gap.<br><br>These studies did not analyze effect of related party transactions on financial distress in savings and credit cooperative organizations in Kenya which the current study analyzed creating the filled literature gap. |

| | | |
|---|---|---|
| | consolidated with the firm‘s financial statements are classified as RPTs investment. They reveal that RPTs loan to directors, officers, shareholders or their affiliates have negative impact on firm performance measured with Tobin‘s Q, market value of common shareholders‘ equity and annual returns (Kohlbeck & Mayhew 2010). | |
| To establish the effect of interest rates spread on loans on financial distress in savings and credit cooperative organizations in Kenya. | Malik, Khan, Khan and Khan (2014) analyze the effect of interest rate in the market and its effects on the profitability of banks in Pakistan. Both public sector banks and private sector banks were included in the sample. The study established that in the case of return on equity (ROE) in public sector, the interest rate has significant effects on profitability. But in case of ROE the interest rate only affects 14 percent the profitability. In private sector banks the interest rate has significant effect on their return on asset (ROA). | The study did not analyze effect of liquidity on financial distress in savings and credit cooperative organizations in Kenya which the current study analyzed creating the filled literature gap. |
| | Murage, Muya and Mogwambo (2018) sought to determine the effect of interest rates on financial performance of Deposit-taking SACCOs in Kisii County. The study revealed that interest rate had a positive effect on financial performance of DTSs. | The study did not analyze effect of interest rates on financial distress in savings and credit cooperative organizations in Kenya which the current study analyzed creating the filled literature gap. |
| To determine the effect of nonperforming loans on financial distress in savings and credit cooperative organizations in Kenya. | Mombo (2013) found out that nonperforming loans in deposit-taking microfinance institutions in Kenya accounted for the greatest percentage of the variance in profitability of these institutions. Studies have also showed that nonperforming loans can fuel banking crisis and result in the collapse of institutions and have repercussions in the entire economy. Fawad and Taqadus (2013) also conducted a study to investigate the explanatory power of bank specific variables as determinants of nonperforming loans in Pakistan banking sector. Their study involved usage of 6 years panel data (2006- | The study did not analyze effect of non-performing loans on financial distress in savings and credit cooperative organizations in Kenya which the current study analyzed creating the filled literature gap.<br><br>The study did not analyze effect of non-performing loans on financial distress in savings and credit cooperative organizations in Kenya which the current study analyzed creating the |

2011) of 30 banks in Pakistan. The study concluded that NPLs affects the bank's financial performance. They further suggested that the bank supervisors must include level of loan losses, quality of borrowers and credit risk with cost efficiency to measure the bank performance. Their study attributed rise in levels of nonperforming loans to bank's internal inefficiency.

Mathara (2007) in a study to establish the response by National bank of Kenya to the challenge of NPLs found both external and internal factors causing NPLs in the Kenyan banks. The external factors she found were economic downturn that prevailed in the 1990s, government interference on lending and debt collection, inflationary tendencies, limited supervision by the Central bank of Kenya, poor and inadequate government monetary policies and unsupportive judicial system. The internal factors included poor management, poor credit risk management practices, use of qualitative method of loan appraisal, poor monitoring and evaluation systems, lack of adequate credit policy guidelines and lack of a defined loan portfolio.

Wanjira (2010) conducted a study on the relationship between nonperforming loans management practices and financial performance of commercial banks in Kenya. Her study focused on establishing how the financial performance of commercial banks is affected by the nonperforming loans management practices adopted by these commercial banks. The study used both primary and secondary data. Secondary data was obtained from the audited financial statements of the 46 commercial banks in Kenya. The study revealed that the type of nonperforming loans management filled literature gap.

The study did not analyze effect of non-performing loans on financial distress in savings and credit cooperative organizations in Kenya which the current study analyzed creating the filled literature gap.

| | | |
|---|---|---|
| | practices adopted by commercial banks determine their financial performance. | |
| To assess the moderation effect of firm size on the relationship between the determinants and financial distress in savings and credit cooperative organizations in Kenya. | Kithuka (2013) did a study on the relationship between firm size and financial innovation of firms listed at the Nairobi Securities Exchange. The study used a descriptive survey research design. The study did a sample of 40 firms which were chosen using stratified random sampling. A regression model was used for analysis and the results showed that there was a positive relationship between the firm size and financial innovation of firms listed at the Nairobi Stock Exchange. Mahfoudh (2013) studied the effect of selected firm characteristics on financial performance of firms listed in the agricultural sector at the Nairobi securities exchange. The study used a descriptive survey to find out the relationship between the variables. The study used sampled firms and a regression model was adopted for data analysis. The results of the analysis showed that there was a positive relationship between firm characteristics: size, age and growth with financial performance.<br><br>Njoroge (2014) studied the effect of firm size on financial performance of pension schemes in Kenya. The study did a descriptive survey between the variables under investigation. The target population for this study was 30 occupational pension schemes in Kenya. The research was carried out using secondary data. The data was collected from annual reports and financial statements. The analysis showed that there was a positive relationship between the firm size and financial performance. Further the results indicated that there was significant market volatility as evident from the NSE index, Treasury bill rate movement and offshore indices. | These studies did not the moderation effect of firm size on the relationship between the determinants and financial distress in savings and credit cooperative organizations in Kenya that the current study will analyze. |

| | | |
|---|---|---|
| To assess the intervening effect of SASRA ammendment on the relationship between the determinants and financial distress in savings and credit cooperative organizations in Kenya. | Kilonzi (2012) carried out a study to establish the impact of SASRA amendments on the financial performance of SACCOs in Kenya. Sample size used was 30 for the period 2008 – 2011. Financial performance was measured using ROA and ROE. Factors used for regression against ROA and ROE were capital to total assets ratio, liquidity (net loans/deposits and short term borrowing) and management efficiency (earning assets/total assets). Regressions were run for 2008-2009, 2010-2011 and coefficients compared for differences which may have been caused by the amendments being applicable from 2010. The findings were that ROE, capital ratio, liquidity and management efficiency improved in the second period compared to the first. There was no difference in ROA in the two periods. ROA and ROE are inappropriate measures of financial performance of SACCOs as the objective of the institutions is not to maximize these outcomes.<br><br>A study by Kamau (2013) on the effect of licensing requirements on the performance of cooperative societies in Kenya: A survey of deposit-taking SACCO societies in Nakuru County found that most SACCOs reported improvement in their performance both in membership, portfolio and efficiency. He attributed this to the SACCO licensing requirements. He found that most SACCOs were compliant with the regulator requirement so as not to be locked out of the business by the operator. It was also clear from the study that all the SACCOs were conversant with the new licensing law. | These studies did not assess the intervening effect of SASRA ammendment on the relationship between the determinants and financial distress in savings and credit cooperative organizations in Kenya, which is one of the objectives of the current study. |

## 2.7 Research Gaps

Over the recent decades, various examinations have been inspected on monetary trouble in different nations everywhere throughout the world. Altman in 1968 concentrated on money-related misery and corporate disappointment and created models of deciding if an assembling firm is confronting liquidation or not. Past investigations did were on full-scale monetary factors in recognizable proof of money-related misery in the United Kingdom (UK) for assembling firms (Lee & Yeh, 2011), and not on store taking SACCOs in creating nations, the impact of budgetary trouble on the execution of Malaysian assembling firms and expectation of money related pain and ID of potential mergers and procurement focuses in the UK. Concentrates on money-related pain in Kenya have generally centered on nearby experts, insurance agencies, and non-monetary firms recorded in NSE and reasons for budgetary misery. Concentrates on monetary establishments have for the most part centered around money-related execution of just business banks explicitly on the impact of; miniaturized scale/full scale 56 monetary elements, budgetary components, banking sectorial variables, development, inside controls, and Central Bank administrative necessities on money related execution of business banks.

From the previous survey of pertinent writing, it is obvious that exploration in the territory of monetary pain had been done yet not in a complete methodology for creating nations. Furthermore, there were deficient examinations of the impact of key monetary misery factors in the banking industry. This investigation along these lines tried to fill the information hole by recognizing key money-related trouble factors from the writing survey and their impact on the monetary execution of business banks in Kenya. Numerous co-usable social orders in Kenya have encountered monetary trouble. Monetary misery is a noteworthy worry to different partners who have different interests in these helpful social orders. Concentrates that have been done in the past concentrated on different divisions of the economy. Little has been done concerning budgetary trouble in SACCOs and all the more so in the Kenyan

setting. This examination looked to fill this hole by concentrating on the determinants of money-related misery in SACCOs in Kenya.

# CHAPTER THREE

# RESEARCH METHODOLOGY

## 3.1 Introduction

This chapter discusses research design and methodology. These are the steps to be taken in the data collection and analysis. The section contains the research instruments which the researcher used in the study. It, therefore, described the research design, target population, data collection techniques, data processing, and analysis, and ethical considerations.

## 3.2 Research Philosophy

Research philosophy deals with the source, nature, and development of knowledge. In simple terms, a research philosophy is a belief about how data about a phenomenon should be collected, analyzed, and used. Creswell (2013) asserts that there are four types of philosophical (worldwide) paradigms, namely positivism, post-positivism, constructivism/interpretivism, transformative, and pragmatism. Morgan (2007), also notes that the pragmatic approach focuses on choosing the most appropriate instruments for answering given research questions. Morgan (2007) further asserts that the research paradigm is based on ontology, epistemology, and methodology.

The Positivist paradigm assumes naive realist ontology, a belief that there is a single truth or reality which remains stable and can be measured and human understanding is gained through a process of experimentation to test hypotheses, provide explanations, make predictions or search for cause and effect relationships of variables (Fadhel, 2002; Searle, 2015). The research conducted under the Positivist paradigm thus often employs experimental methodology. In this paradigm, the research purpose is to find laws or law-like generalizations, which explain observable human behavior (Guba & Lincoln, 2005).

Constructivism paradigm is where a subjectivist epistemology means that reality needs to be interpreted. That is the researcher makes meaning of their data through their thinking and cognitive processing of data-informed by their interactions with participants (Guba & Lincoln, 2005). Post-positivism paradigm is where reality is not always absolute but probable, and it can never be fully understood, which means post-positivists acknowledge the influence of the researcher (Creswell, 2008; Ghiara, 2019; Kivunja & Kuyini, 2017; Taylor & Medina, 2013).

This study adopted a positivism approach since it relates to the philosophical stance of the natural scientist and entails working with an observable social reality to produce law-like generalizations. It promises unambiguous and accurate knowledge that gives a detailed and comprehensive analysis of the hypothesis leading to high-quality research and addressing the research problem as well as the research objectives of the study. In this research quantitative data was collected and thus the approach used was appropriate. The study adopts positivism because it reflects the determinants of financial distress among DT-SACCO s in Kenya.

### 3.3 Research Design

This study adopted a descriptive correlational research design. Polit, Beck, and Owen (2003) describe a research design as the overall plan for obtaining answers to the questions being studied and for handling some of the difficulties encountered during the research process. Ngumi (2013) asserts that a research design is a structure or blueprint of research that guides the process of research from the time of formulating the research questions and hypothesis up to the time of reporting the research findings. Because of the above definitions, descriptions, and strengths, a descriptive research design was, therefore, the most appropriate design for this study. Data relating to financial distress determinants in deposit-taking SACCOs in Kenya for the current study were collected from the published financial statements of deposit-taking SACCOs in Kenya. This was done by extracting, computing the necessary ratios, and analyzing all the variables in the study.

### 3.4 Target Population

According to Borg and Gall (2009), the population is defined as the members of a real or hypothetical set of people, events, or objects the researcher wishes to generalize the results of the research. All the licensed SACCOs and those with restricted licenses will be targeted for information by this study. There are 164 licensed SACCOs and 12 SACCOs with restricted licenses.

### 3.5 Sampling Technique

Sampling is a means of selecting a given number of subjects from a defined population as representative of that population. Orodho (2010) defines sampling as the procedure a researcher uses to gather people, places, or things to study. Any statement made about a sample should also be true of the population. It is however agreed that the larger the sample the smaller the sampling error. According to Kothari (2010), from the characteristics of a carefully selected and representative sample, one can make certain inferences about the characteristics of the population from which it is drawn. A researcher selects a sample due to various limitations that may not allow researching the whole population.

A population is any finite or infinite collection of individual elements (Lavrakas, 2014). Hyndman and Booth (2009) argued a population to be the entire collection of 'things' in which we are interested, on the other hand, Dawson (2009) defined a target population as the population in research to which the researcher can apply their conclusions. Dawson (2009) further asserted that a target population is a universe of the study as all members of a real or hypothetical set of people or events to which an investigation wishes to generalize results. The sample size for the projects in this study will be selected based on the criteria set by Roscoe's rule of thumb Sekaran (2003) which is a sample that is larger than 30 and less than 500 is appropriate for most research. The study took a sample of 176 DT- SACCOs in Kenya.

### 3.6 Data Collection Procedures

Data on the independent variables were collected by the use of secondary data, mainly from financial statements of 176 DT SACCOs in Kenya, that is 164 duly registered DT SACCOs and 12 with restricted licenses between 2013-2020, individual deposit-taking SACCOs in Kenya under study (Source: SASRA Annual Report, 2022). Miles, Huberman, and Johnny (2014) characterized information accumulation in research as the way toward the social event and estimating data on focused factors in setting up a methodical style that empowers the interviewee to draft applicable inquiries and decide the normal result. As per Johnston (2014), quantitative research inclines toward an optional information investigation to an essential wellspring of examination. The creator noticed that the optional investigation of the current research has turned into an expanding well-known technique dissimilar to essential examination because of its upgraded by and large productivity. Johnston (2014) further contended that auxiliary information has a much clear arrangement since it maintains a strategic distance from disarray.

Hui and Phillips (2014) argued that the use of secondary data analysis is viable since it utilizes the process of inquiry, especially in studies that are prone to biases. Secondary data is data that was collected by someone else for another primary purpose; the existing data provides a viable option for researchers who may have inadequate time resources or researchers with other limiting factors (Hui & Phillips, 2014).

The researcher indicates that secondary analysis is an empirical exercise that applies the same basic research principles as studies utilizing primary data and has steps to be followed just as any research method (Arain, Campbell, Cooper, & Lancaster, 2010; Johnston, 2014). Saunders, Lewis, and Thornhill (2009) defined secondary data as reanalyzing data that has already been collected for some other purpose and it will include both primary and published data. Dawson (2009) argued that secondary research data involves the data collected using information from studies that other researchers have made on a subject.

The data collection covered a seven (9) year period from 2013 to 2020, this period of seven years was selected for the study to establish the changes in deposit-taking SACCOs over time and to base the analysis on as recent data as possible. This could also be important since several SASRA amendments for SACCOS had been put in place. Kosikoh (2014) argued that a period of more than five years could help in the computation of various ratios of both the independent and dependent variables for several years for better analysis. Therefore, data about the independent variables was collected from the financial statements of various deposit-taking SACCOs using a secondary data collection guide/form. The secondary data collected was assets, equity, liabilities, and other financial information that was necessary for data analysis.

Various studies have relied on secondary data to collect data, especially where quantitative data is required, Olweny and Themba (2011) examined the effects of banking sectorial factors on the profitability of commercial banks in Kenya and adopted an explanatory approach by using panel data research design for collecting secondary data from 38 Kenyan banks from 2002 to 2008. Ongore (2013) used an explanatory study that was based on secondary data obtained from a published statement of accounts for ten years and thereby ignoring the use of primary data. Panel data has more variability and less collinearity among the variables than cross-sectional or time series data.

It also controls heterogeneity and can identify and estimate effects that are not easily detectable in pure cross-section and pure time series data, in particular, therefore, panel data sets are better able to study complex issues of dynamic behavior (Baltagi, 2005; Greene, 2002; Gujarati, 2012).

### 3.7 Data Processing and Analysis

As per Blumberg, Donald Cooper, and Schindler (2014) information handling includes altering, coding, order, classification, and graphical introduction. The examination separated information containing quantitative subtleties from monetary establishments, the board information gathered was investigated quantitatively through scientific and relapse conditions and this was understood by utilizing a

factual device (STATA). Olweny (2012) contended that numerous relapse strategies give both quantitative and subjective outcome that is convincing and hearty too. STATA investigated engaging insights and numerous direct relapse examinations between ward factors (money-related pain) and autonomous factors.

As per Polit and Beck (2006), the measure of information gathered in an examination study can't be dissected and replied by utilization of straightforward numeric data, the information gathered should be prepared and broken down methodically. Quantitative data is normally investigated through factual methodology; whose systems spread the expansive scope of strategies. Anyway, a few strategies are computationally considerable, the basic rationale of factual tests is significant and fundamentally PCs are utilized to cause the examination to turn out to be well disposed as opposed to the utilization of complex numerical and point-by-point tasks in the investigation (Polit & Beck, 2006). The outcomes were displayed utilizing tables, for simple comprehension.

Finally, panel data model was used to test the significance of the influence of the independent variables on the dependent variable. The Zmijiwesike model was used to develop the Z scores. The Zmijewski Score is a bankruptcy model used to predict a firm's bankruptcy. Zmijewski model is the most appropriate model to be used for predicting financial distress because it has the highest level of significance compared to the other models. The dependent variable in the panel data analysis model is as shown below;

Zimijewiske Financial Distress Model

$$FD_{it} = \beta_0 + \beta_1 ROA_{it} + \beta_2 LEV_{it} + \beta_3 LIQ_{it} + \alpha_{iit} + u_{it} \quad (3.1)$$

Where:

FD = Financial Distress derived from the Zimijewiske Z Score

ROA Ratio = net income / total assets

Leverage Ratio = total liabilities / total assets

Liquidity Ratio = current assets / current liabilities

$\alpha_{it}$ = between entity error term

$\varepsilon_{it}$ = within entity error

$\beta_0$= intercept for each DT SACCO

i = DT SACCO

t = time

Equilibrium model analysis model without moderating variables

$$FD_{it} = \beta_0 + \beta_1 RPT_{it} + \beta_2 IRS_{it} + \beta_3 NPL_{it} + \beta_4 ERE_{it} + \alpha_{iit} + u_{it+e} \quad (3.2)$$

Where:

FDit = Financial Distress of SACCO i in year t

β0 = Intercept for each DT SACCO

RPTit= Related Party Transactions in DT SACCO i in year t

IRSit= Interest Rate Spread in DT SACCO i in year t

NPLit= Non – Performing Loan in DT SACCO i in year t

EREit= Exchange Rate Exposure in DT SACCO i in year t

i = DT SACCO and

t = time

$$FD_{it} = \beta_0 + \beta_i Xit * Z_{(1,2)it} + \alpha_{iit} + u_{it+e} \quad (3.3)$$

Where:

$FD_{it}$ = Financial Distress of SACCO i in year t.

Xit = determinants of related party transactions, interest rate spread, non-performing loans and exchange rate exposure in DT SACCO i in year t

$\beta 0$ = intercept for each entity (n entity-specific intercepts)

$Z_1$ = Controling variables of SASRA Regulation of DT SACCO, DT SACCO i in year t

$Z_2$ = moderating variables of firm size of DT SACCO, DT SACCO i in year t

### 3.8 Operationalization of Study Variables

Operationalization is the procedure of carefully characterizing factors into quantifiable variables. The procedure characterizes fluffy ideas and enables them to be estimated, observationally and quantitatively (Ardelt, 2004). The literature review identified various independent variables identified as financial distress determinants that needed to be operationalized for the current study. These financial distress determinants included; Related Party Transaction, Interest Rates Spread, and Non Performing Loans as independent variables while the dependent variable is financial distress in deposit-taking SACCOs measured using Zimijewiske X - Score.

**Table 3.1: Operationalization of Study Variables**

| Variables | Operationalization (Measurement) | Supporting Literature | Theories Related to Variable |
|---|---|---|---|
| **Dependent** | Zimijewiske X – Score | Zmijewski (1984) | Wrecker's Theory of |
| **Financial distress of SACCOs** | ROA Ratio = NI/TA | | Financial Distress |
| | Leverage Ratio = TL/TA | | |
| | Liquidity Ratio = CA/CL | | |
| **Independent Variables** | | | |
| **Related Party Transaction** | Directors loans | (Berkman, Cole & Fu 2010; Kang et al. 2014; Wan & Wong 2015). | Ageancy Theory |
| | Inside lending Cost | | |
| **Interest Rates spread** | Lending Interest Rate Less Borrowing Interest Rate | Makkar & Singh, 2013, Lipunga, 2014, Macit, (2011) | Econmic Regulatory Theory |
| **Exchange Rate** | Exhange rate in terms of Kshs against USD | (Aggarwal & Harper, 2010) | Econmic Regulatory Theory |
| **Non performing Loans** | Outstanding loans to loan portfolio Ratio | Mombo (2013); Fawad and Taqadus (2013) | Information Assymetric Theory |
| **Firm size** | Log of total assets (TA) | Kithuka (2013); Mahfoudh (2013); Njoroge (2014) | Neoclassical Theory of Investment |
| **SASRA Ammendment** | Regulated denoted by a bit 1 or 0 for non regulated | Kilonzi (2012); Kamau (2013) | Kayenes Liquidity Theory |

### 3.9 Panel Model Specification

The study used panel data to carry out the research analysis for 8 years starting from 2013 to 2020. Panels are very important and increase precision as they contain detailed information as compared to cross-sectional data (Blundell & Bond, 1998)

and (Hoechle, 2007). According to Cheng Hsiao (2004), panel data usually gives the researcher a large number of data points, it, therefore, increases the freedom on one hand and decreases the collinearity on the other hand, and this means that the efficiency of econometric estimates will be achieved or improved. Further, Cheng Hsiao (2004) concluded that longitudinal data allows a researcher to analyze several important economic issues that can be addressed using cross-sectional or time series data sets with ease. Gujarati (2012) has suggested various estimating techniques that can be used in the estimation of the panel data that is pooled OLS, Random effect (RE), and Fixed Effect (FE).

First, Pooled OLS simply combines or pools all the time series and cross-sectional data and estimates the underlying model by utilizing ordinary least squares (OLS).

The fixed effect model (FEM) is because although the intercept may differ across individuals, FEM will assume the slope coefficients of the regressions do not vary across individuals or over time, and whenever the study is analyzing the impact of variables that vary over time within an individual. FEM is used when the specific panels correlate with the predictors. Fixed effect intercept may be allowed between companies by creating a dummy variable correlate with the predictors. Fixed effect intercept may be allowed between companies by creating a dummy variable technique, this fixed effect model involves the recognition that omitted variables may lead to changes in cross-sectional and time series intercepts (Gujarati, 2012).

FEM model assumes that differences across units can be captured in differences in the constant term (Greene, 2002). Since dummies will be used to estimate the fixed effects, then the fixed effects will also be referred to as the least square dummy variable (LSDV) models and fixed effects can be used interchangeably (Gujarati, 2012). However, Gujarati (2012) argued that the use of the fixed effects model may have some limitations. The use of many dummy variables may run up against or bring about the degrees of freedom problem. Many variables always bring multicollinearity and this makes precise estimation of one or more parameters difficult, FEM may not be able to identify the impact of time-invariant variables, and

the error term according to Gujarati (2012) the error term may not follow the classical assumption as it may have been assumed.

Finally, the third model is the random effect model, which introduces the disturbances term U as a result of ignoring the dummy variables that represent a lack of knowledge, this approach was suggested by the proponent of the so-called error components model; instead of treating one variable or the other as fixed or constant, it is assumed to be random (Gujarati, 2012). The rationale behind the the Random Effect model is that, unlike the fixed effect model, the variation across entities is assumed to be random and uncorrelated with the predictor or independent variable included in the model: "…crucial distinction between fixed and the Random Effect is whether the unobserved individual effects embody elements that are correlated with the repressors in the model, not whether those effects are stochastic or not" (Greene, 2008). Greene (2008) further argued that if there is reason to believe that differences across entities have some influence on the dependent variable then the Random Effect should be used.

### 3.9.1 Model Specification Tests

To determine the nature of the panel data and determine the best analysis model, diagnostic tests for heteroskedasticity, serial correlation, fixed effects, the Random Effect, and autocorrelation among others were carried out. A summary of the test to be carried out and the criteria for making the decision is presented in Table 3.1.

**Table 3.2: Panel Data Diagnostic Tests**

| | Test Used | |
|---|---|---|
| Use of pooled or the Random Effect model | Breusch-Pagan Lagrange multiplier (LM) | If P value >0.05, use pooled effects model. |
| Time Fixed Effects | Testsparm test | If p value >0.05, there are no time fixed effects do not use two-way model or introduce dummy variables so we fail to reject the null that the coefficients for all years are jointly equal to zero, therefore no time fixed-effects are needed in this case. |
| Heteroskedasticity | Wald Chi-square test | If P value <0.05, presence of Heteroskedasticity |
| Serial correlation | Wooldridge Drukker test | If P>0.05, no serial correlation, and the study will fail to reject the null and conclude the data does not have first-order autocorrelation. |
| Random or fixed effects | The Hausman test | If P value>0.05, use the Random Effect model. |
| Multicollinearity | VIF | If VIF<2, there is no multicolliniarity between independent and dependent variables. |
| Unit roots/stationarity | Levin-Lin-Chu Unit test for icfs/ Harris-Tzavalis test for icfs | If p-value<0.05 use stationary alternative; null hypothesis of a unit root is rejected in favor of the stationary alternative in each case if the test statistic is more negative than the critical value. |
| Cross-sectional dependence/contemporaneous correlation | Pasaran CD test/ Breusch-Pagan Lagrange multiplier (LM) | If P>0.5 there is no cross sectional dependency thus the null hypothesis is that residuals are not correlated. According to Baltagi and Griffin (1997) cross-sectional dependence is a problem in macro panels with long time series (over 20-68 years). This is not much of a problem in micro panels (few years and large number of cases). |
| Normality | Jacque Beta test | If P>0.05 then this implies normality. |

### 3.9.2 Panel Data Analysis Plan

The study used three main steps in panel data analysis. Firstly exploratory data analysis was carried out (Greene, 2002). The exploratory analysis used visual plots for financial distress in deposit-taking SACCOs as a dependent variable only and this stage involved within and between deposits-taking SACCOs analysis. In the case of deposit-taking SACCOs, the study used growth plots where a trend plot was established for each deposit-taking SACCO. This output helped to determine whether to use POLS or panel data models (FE and RE).

A correlation matrix for study variables was drawn and since it was a linear regression methodology, the study ensured very high correlation does not occur in any two variables of the study; this was done to preclude the multicollinearity problem by use of Collin's earliest command. Other specifications in the panel data set such as the presence of unit root/stationarity and serial correlation in the panel data. Levin–Lin-Chu unit-root test and Harris-Tzavalis unit-root test were carried out for unit root/stationarity and Wooldridge Drukker test was used for Serial Correlation.

Secondly; diagnostics analysis was carried out, specifically this step checked the appropriate model to use between the use of POLS or panel data models (FE or RE); where The Hausman test was used to choose between RE and FE models, and the B-P LM test (to check for RE effects) was used to choose between RE and POLS Model. The existence of time-related fixed effects was checked using testparm test (Greene, 2002).

Finally, other diagnostics after fitting the FE models were carried out to test for heteroskedasticity through the use of a modified Wald test, and since heteroskedasticity existed then robust standard errors for the model were used to report the results, and thereafter a check was carried out to determine if the residuals were normally distributed and plot the normality plots. However, the model fitted violated most of the OLS classical assumptions and therefore feasible generalized least squares (FGLS) were used.

Kumbhakar, Lien, and Hardaker (2014) argued that when violations of the OLS classical assumptions exist in the model fitted, an alternative robust model is normally used instead. FGLS estimators were used as it was considered efficient (Park, 2009). According to Rasheed, Adnan, and Saffari (2016) the regression model estimator is considered efficient if it is robust and resistant to the presence of heteroscedasticity variance, multicollinearity or unusual observations called outliers.

### 3.9.3 Interpreting Zmijewski Model

Zmijewski (1984) used the probit method to predict bankruptcy. The outcome of a probit regression is similar to the outcome of a logit regression between 1 and 0. Most bankruptcy predicting models select the independent variables based on theory and select the variables with the most predictive power. Zmijewski (1984) however, based his selection of independent variables purely on how well the variables were predicted in previous models. Zmijewski (1984) uses the three variables that are most used in previous bankruptcy predicting models, and the model is as follows: $Zm = -4.336 - 4.513\ X1 + 5.679X2 - 0.004X3$ Where X1 = net income/total assets, x2= total debt/total assets and x3= current assets/current liabilities.

A firm with a probability greater than 0.5 is classified as bankrupt and a firm with a probability smaller than 0.5 is classified as non-bankrupt. The overall out-of-sample accuracy rate of Zmijewski's model is 95.29%, but it is important to note that none of the bankrupt firms are predicted to go bankrupt in this classification, and in 99.39% of all non-bankrupt firms the model classified the firms as non-bankrupt. In fact, the cut-off point here is not corrected for the different numbers of bankrupt and non-bankrupt firms. Since for every bankrupt firm, Zmijewski has 20 non-bankrupt firms in his sample, the classification matrix shows that almost all observations are predicted to go bankrupt since 95% of the total sample consists of non-bankrupt firms.

The interpretation from the coefficients of probit models is not straightforward. For example, if ß2 is the coefficient belonging to variable X1 is 0.2, if X1 changes one unit, the Zmijewski-score increases by 0.2. Instead of knowing an increase/decrease in the Zmijewski score, the effect of a change on the probability can also be calculated. To interpret changes in a variable on the probability of going bankrupt, the marginal effect of each variable is needed. The marginal effect indicates how much the probability of bankruptcy changes when one of the independent variables increases/decreases by one unit, ceteris paribus. The justification for using Zmijewski's model is that the model has the highest level of accuracy and the lowest error rate (Viciwati, 2020).

### 3.10 Ethical Issues

In conducting the study, the researcher strived to adhere to research ethical guidelines. Consent from entities, therefore, was the basis for a SASRA to be the unit of analysis in the study. Information was treated with confidentiality and data collected was used for the research alone and therefore not revealed to any other party with the need to carry out a similar study. To avoid plagiarism, all sources cited in the study were acknowledged. Data collected were presented and analyzed as accurately as possible. Furthermore, the researcher acknowledged all persons who contribute to the success of the study.

# CHAPTER FOUR

# RESEARCH FINDINGS AND DISCUSSIONS

## 4.1 Introduction

This chapter contains the findings and discussions of the study and tests of the hypothesis depicted in the study. It begins with providing; the respondents' rate, general descriptive statistics of the study, objectives, unit test for panel data stationary, panel data estimation model, diagnostic tests, The Hausman test, data normality test, statistical modeling, hypotheses test, optimal model presentations and revised conceptual framework based on findings.

## 4.2 Descriptive Analysis of Study Variables

The study targeted 68 Deposit-taking SACCOs licensed by SACCO Societies Regulatory Authority. The study sought to examine the moderating effect of firm size on the determinants of financial distress in savings and credit cooperative organizations (SACCOs) in Kenya. The researcher used the sampling technique recommended by Yamane (1967) to sample the 176 targeted SACCOs and considered a sample size of 68 DT SACCO Societies population. Secondary data was collected for various financial ratios used to measure financial distress probability across a period of 9 years yielding panel data.

The composite nature of the selected determinants of financial distress in SACCOs meant that they were to be derived through the computation of a representative ratio or score from the relevant information presented in their respective financial statements and SASRA annual reports. Related party transactions were derived from the loans that the SACCO directors borrowed from within the SACCOs, interest rate spread was derived from the various interest the different SACCOs charged on the loans, and Non-performing loan was obtained by the ratio between the outstanding loan and the total loan portfolio in the financial year, individual SACCO size was obtained by the volume of members deposit within the financial years and the intervening effect of SASRA amendment was derived from whether the SACCOs

were regulated or not. The adoption of Zmijewski as a predictor of distress in SACCOs was derived from ROA, leverage, and liquidity ratios. The following sub-section presents reviews of the individual variables.

### 4.2.1 Descriptive Statistics of Determinants of Financial Distress

Related party transactions were derived from the SACCO directors taking loans from the operations and measured in terms of how much money they took as loans. This was important because Prejudicial RPTs are found to erode firm value (Peng et al., 2011) and many of the notorious corporate collapses in the early twenty-first century are associated with prejudicial RPTs (Ge, Drury, Fortin, Liu and Tsang 2010). The study, therefore, wanted to statistically establish whether such transactions had a significant relationship the financial distress.

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Interest spread refers to the amount received concerning an amount loaned, generally expressed as a ratio of shillings received per hundred shillings lent (Radha, 2011). An increase in interest rates should lead to an increase in the financial performance of commercial banks since this leads to an increase in the spread between the interest rates for savings and the interest rates for borrowing.

When the interest rates rise, customers are unable to service their existing loans which leads to losses to the commercial banks since if the situation continues that way, they are forced to write off their debts. This eats into the profits of the company since it means that the commercial bank is not able to recover both the principal amounts loaned as well as the expected interest from the customers (Makkar & Singh, 2013). When the interest rates are too low, the interest earned from the

loaned-out amounts is negligible and thus contributes little to the profitability of the commercial bank. There is, therefore, a need for a balance in the interest rates to ensure the banks' benefit (Lipunga, 2014).

Customers on the other hand avoid the consumption of bank loans when the interest rates are too high since they can either not afford to take up loans or the interest rates are too high that they just prefer to seek other cheaper alternatives such as microfinance institutions and other cheaper lending institutions. This affects negatively the ability of the commercial banks to earn interest from their customer deposits since they cannot loan them out to borrowers. This, therefore, leads to poor performance of the commercial bank as well as its profitability. It is important to note that this is the case that happened when the financial crisis of 2008 occurred. Macit (2011) analyzed the bank-specific and macro-economic determinants of the profitability of commercial banks and found that interest rates are a major determinant. Evidence that banks in poorer financial health charge more for loans come from Hubbard, Kuttner, and Palia (2002), who, using data on syndicated loans, find that less well-capitalized banks tend to charge higher loan rates than well-capitalized banks.

Non-performing loans are those assets that are no longer generating income. Non-performing loans as per the SACCO Act, refer to all loans in the portfolio more than 90 days overdue on interest or principal repayments and are disclosed as supplemental financial statement information.

**Table 4.1: Descriptive Statistics of the Determinants of Financial Distress**

| Variable | Obs | Mean | Std. Dev. | Min | Max | Skewness |
|---|---|---|---|---|---|---|
| rpt | 1400 | 0.031 | 0.042 | 0.003 | 0.352 | 0.530 |
| npl | 1400 | 0.049 | 0.044 | 0.002 | 0.352 | 0.789 |
| int_rate | 1400 | 0.006 | 0.005 | 0.000 | 0.020 | 0.907 |
| regul | 1400 | 0.711 | 0.453 | 0.000 | 1.000 | 0.705 |
| size | 1400 | 9.668 | 0.879 | 5.977 | 10.525 | 0.999 |
| dist | 1400 | 0.835 | 1.082 | -2.520 | 6.450 | 0.838 |
| ex_rate | 1400 | 98.013 | 7.369 | 83.100 | 103.500 | 0.939 |

The mean 0.031 indicated that the SACCOs RPT was 0.03 (in billions Kenya Shillings) in terms of the amount of money the directors took as loans from the SACCOs operations, deviating from the actual mean by Ksh. 0.042 billion with the maximum RPT of Kshs. 0.352 billion and a minimum of Kshs. 0.003 billions. This finding indicates that the DT-SACCOs lent much money to the directors which exposed such SACCOs to financial risks that can contribute to their financial distress. The skewness for RPT was 0.530 which was within the threshold of normality indicating that the data was normally distributed.

The mean NPL was 0.049 with a standard deviation of 0.44, a maximum value of 0.352 and minimum of 0.002. The skewness for RPT was 0.789 which was within the threshold of normality indicating that the data was normally distributed. Further findings indicated that mean of the DT-SACCO s interest rate spread was 0.006 deviating from the actual mean with 0.005 with the maximum interest rate spread of 0.00 and minimum of 0.020. The average yield from the loans given out by the DT-SACCO s was 0.015 which was an indication of a yield of 1.5% which is low bearing in mind the low level of liquid assets that the SACCOs maintained. The mean SASRA amendments was 711 with standard deviation of 0.543, maximum value of 1 and minimum of 0. The skewness for SASRA amendment was 705 which was within the threshold of normality indicating that the data was normally distributed.

The mean SACCO size was 9.668 with a standard deviation of 0.875, a maximum value of 59.77 and a minimum of 10.525. The skewness for SACCO size was 099 which was within the threshold of normality indicating that the data was normally distributed. The mean financial distress was 0.835 with a standard deviation of 1.085, a maximum value of 6.450 and a minimum of -2.520. The skewness for financial distress was 0.838 which was within the threshold of normality indicating that the data was normally distributed. The mean exchange rate exposure was 98.031 with standard deviation of 7.369, maximum value of 103.5 and minimum of 83.100. The skewness for exchange rate exposure was 0.939 which was within the threshold of normality indicating that the data was normally distributed as per Table 4.1.

### 4.2.2 Descriptive Statistics of the Moderating Variable

This section presents the descriptive statistics of the moderating variable which was the firm size and amendment status of the DT-SACCO societies. The Size is the amount of money deposited by members whom they leverage to gain an income which if further shared among members based on the members' shareholding strength. In this study, SACCO size was measured using a member's deposit.

## 4.3 Diagnostic Tests

### 4.3.1 Unit Root Test for Panel Stationary

Given the changes in mean financial distress by the DT-SACCO s in Kenya with groups of time in years as shown by the analysis of variance, it is key to determine that the changes are not due to an increasing or decreasing trend of financial distress with time. Being the dependent variable, significance in a linear trend of financial distress would imply non-stationarity and the need to de-trend the data before further panel model analysis. To determine whether financial distress exhibits a trend, the study used a unit root test. The stationarity unit-root test was done to confirm whether there is stationarity in all panels.

**Table 4.2: First Differenced Panel Unit Root Test Results**

| Exogenous variables: Individual effects<br>Automatic selection of maximum lags | | |
|---|---|---|
| **Methods – ADF-Fishers Chi-Square** | **Statistic** | **Prob.**** |
| Distr | 107.314 | 0.0027 |
| Rpt | 116.342 | 0.01315 |
| Intrs | 205.371 | 0.0000 |
| Npl | 17.291 | 0.0143 |

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution.

In view of the results in Table 4.2, the test for the unit root test indicated that all the variables had p-value that is less than 0.05, which then indicates that the null

hypothesis of unit root for all the variables under consideration is rejected, hence, the conclusion that the panel data is stationary, which points to the fact that its resultant regression results cannot be regarded as spurious or directionless for both the independent (related party transaction, interest rate spread and non-performing loans) and the dependent variable (Zimijiweski X – Score).

### 4.3.2 The Random Effect or Pooled OLS Model Findings

The researcher was to make a decision on whether to use random effect regression or pooled OLS model regression should be done using the Breusch-Pagan Lagrange multiplier (LM) test. The null hypothesis in the LM test is that there is no significant difference across units (no panel effect) and therefore variances are zero, as a result, random effect should not be used. While the alternative hypothesis is that random effect should be adopted.

**Table 4.3: Lagrange Multiplier Test - (Breusch-Pagan)**

| **Var** | | **sd = sqrt(Var)** | |
|---|---|---|---|
| | Distress posibility | 1.359397 | 1.165932 |
| | e | .8546489 | .9244722 |
| | u | .3608517 | .6007093 |
| Var(u) = 0 | | | |
| chibar2(01) = 113.16 | | | |
| Prob > chibar2 = 0.0000 | | | |

Table 4.3 shows the results of the Breusch Pagan LM test which gives a P-value of 0.000 which is less than 0.05. The null hypothesis is therefore rejected and the alternative hypothesis accepted. Based on Breusch Pagan LM test pooled effects model was not appropriate for the study, as result, the current study went ahead to use the Random Effect model (REM).

**Table 4.4: Breusch and Pagan Lagrangian Multiplier Test for The Random Effect**

| Estimated results: | Var | sd=sqrt (Var) |
|---|---|---|
| Distress probability | 0.102 | 0.31 |
| *E* | 0.021 | 0.169 |
| *U* | 0.013 | 0.107 |

Test: Var (u) = 0

chibar2 (01) = 163.47

Prob > chibar2 = 0.0000

Table 4.4 shows the results of the Breusch Pagan LM test which gives a P-value of 0.000 which is less than 0.05. The null hypothesis is therefore rejected and the alternative hypothesis accepted. Based on Breusch Pagan LM test pooled effects model was not appropriate for the study, as result, the current study went ahead to use the Random Effect model (REM).

### 4.3.3 Multicollinearity

The study used Variance inflation factors was used for the study and the results were compared to those from the correlation matrix, to test for multicolleniarity as per Table 4.5.

**Table 4.5: Multicollinearity**

| Variable | VIF | 1/VIF |
|---|---|---|
| npl | 3.14 | 0.319 |
| rpt | 2.36 | 0.424 |
| int_rate | 1.65 | 0.605 |
| ex_rate | 1.00 | 0.998 |
| Mean VIF | 2.04 | |

The outcomes showed that multicollinearity did not exist between all the variables as the VIF was less than 5 (Hair et al., 1999).

**Table 4.6: Correlation Matrix**

| Variable | dist | rpt | npl | int_rate | ex_rate |
|---|---|---|---|---|---|
| dist | 1 | | | | |
| rpt | 0.125 | 1 | | | |
| npl | 0.2116 | 0.7569 | 1 | | |
| int_rate | 0.0063 | 0.4342 | 0.6249 | 1 | |
| ex_rate | -0.0809 | -0.0137 | 0.0025 | -0.0227 | 1 |

The findings in Table 4.6 indicate that there was no multicollinearity problems with the correlation coefficient being less than 0.8 (Bryman and Bell, 2003).

### 4.3.4 Serial/Auto Correlation Test Findings

**Table 4.7: Serial/Autocorrelation Test**

| | |
|---|---|
| F(1,49) | 1.8736 |
| Prob>F | 0.4061 |

The test for autocorrelation Durbin-Watson statistics was used. As shown in Table 4.7, F statistics for the models without and with the moderation of firm size were (F=1.8736, p=0.4061>0.05). Serial autocorrelation test was not significant and therefore, serial correlation was found not to pose a problem.

### 4.3.5: Heteroscedasticity Test Findings

**Table 4.8: Breusch-Pagan / Cook-Weisberg test for heteroskedasticity**

| **Breusch-Pagan / Cook-Weisberg test for Serial Correlation** | |
|---|---|
| Ho | : Constant variance |
| Variables | : RPT, Intrs and NPL |
| chi2(5) | = 4721.39 |
| Prob > chi2 | = 0.2314 |

Results in Table 4.8 test the null hypotheses that there was no heteroscedasticity for model with and without moderation, the test result yielded a chi-square value of 47.139 and p=0.2314> 0.05 for model, the null hypotheses was not rejected and concluded that heteroscedasticity was not present.

### 4.4 Panel Data Findings

The aim of the study was to examine the determinants of financial distress DT SACCOs in Kenya. Christiano, Rostagno and Motto (2010) argued that factors are score cards on the financial performance of an organization that reflects forces that may cause financial distress and financial performance fluctuations. Thorley, Perry and Andes (2012) argued that financial distress factors are economic indicators and variables of financial distress that will affect performance of an organization as was adopted by the current study. Khalid (2017) argued that financial distress factors may be broken down into micro and macroeconomic distress factors. The current study adopted related party transactions, interest rate spread, and non-performing loan as the the moderating effect of firm size on the the moderating effect of firm size on the the moderating effect of firm size on the the moderating effect of firm size on the determinants of financial distress in savings and credit cooperative organizations (SACCOs) in Kenya.

Conclusions for the study objectives were drawn based on inferential statistical analysis. The techniques used for this analysis were to determine the level of influence that each determinant; related party transaction, interest rate spread, and non-performing loans on the independent variable, the probability of financial distress. The techniques involved bivariate analyses between each independent variable and the dependent variable and thereafter a combined influence analysis by multivariate analysis to determine the combined influence of the financial distress determinants on the probability of financial distress of the SACCOs.

Statistical models were fitted to determine the influences and relationships. The models fitted considered that the data collected was panel data consisting of both cross-sectional and time series components. The data contained cross-sections consisting of 68 entities over only 8 years. Each of the entities of the data had the

information required for all 9 years implying that the panels were strongly balanced. The general form of the fixed effect model structure adopted was of the form given by the following equation;

$$Y_{it} = a_0 + \sum_{i=1}^{4} \beta 1 Xit + \mu it \quad \text{.....} \quad \text{random effect equation}$$

Where X*it* is the predictor variable and is the dependent variable in the fixed effect model assumes homogeneity of estimates across entities and that the independent variable that the probability of financial distress varies over time but has a fixed effect across the entities, $\beta_i$ is the coefficients of the regressor variables and $a_0$ is the coefficient of the moderator variable.

### 4.4.1 Regression Analysis of Related Party Transaction and Probability of Financial Distress of SACCOs

The first study objective was to examine the effect of related party transactions on financial distress in savings and credit cooperative organizations in Kenya. Having gone by the random effect model based on the The Hausman test, the results of the random effect model are presented in Tables 4.12. The analysis shows that the panels were strongly balanced for this bivariate analysis as shown by the number of observations per group.

#### 4.4.1.1 The Hausman Test

In the panel data regression model testing the relationship between related party transactions and probability of distress, the fixed effect model and random effect model were fitted and the The Hausman test was used to determine the appropriate multivariate model to adopt for the two. The Haussmann specification test results for the multivariate model between financial distresses determinants is shown in Table 4.9.

**Table 4.9: The Hausman Test**

| | (b) fe | (B) re | (b-B) Difference | sqrt(diag(V_b-V_B)) S.E. |
|---|---|---|---|---|
| | 3.290715 | 1.904384 | 1.386331 | . |
| RPT | | | | |
| | b = consistent under Ho and Ha; obtained from xtreg | | | |
| B = | inconsistent under Ha, efficient under Ho; obtained from xtreg | | | |
| Test: | difference in coefficients not systematic | | | |
| Ho: | | | | |
| | chi2(1) = (b-B)'[(V_b-V_B)^(-1)](b-B) | | | |
| | 2.93 | | | |
| | Prob>chi2 = 0.3501 | | | |

The null hypothesis of the The Hausman Test is that the The Random Effect model is preferable and since the results in Table 4.9 indicate P-value = 0.3501which is greater than 0.05 confidence level, the null hypothesis is not rejected and hence The Random Effect model was employed for the analysis of RPT as per Table 4.9 This implies that the most appropriate model to explain the relationship between financial distress determinants in DT SACCOs in Kenya was the the Random Effect regression model.

**Table 4.10: Regression Analysis of Related Party Transaction and Probability of Financial Distress**

| Random-effects GLS regression | | | Number of obs = | | | 1400 |
|---|---|---|---|---|---|---|
| Group variable: code | | | Number of groups = | | | 175 |
| R-sq: within = 0.1238 | | | Prob > chi2 = | | | 0.005 |
| distr | Coef. | Std. Err. | z | P>z | [95% Conf. | Interval] |
| rpt | 3.290715 | 1.580726 | 2.08 | 0.005 | .1925483 | 6.388881 |
| _cons | .7361943 | .0995763 | 7.39 | 0.000 | .5410284 | 0.9313602 |
| sigma_u | .61515862 | | | | | |
| sigma_e | .93717335 | | | | | |
| rho | .30111873 (fraction | | variance due to u_i) | | | |

There were a total of 1400 observations used in this analysis considering 176 groups of entities implying strongly balanced panels. The overall $R^2$ was 0.1238 indicating that 12% of the variance of SACCOs financial distress is explained by Related Parties Transaction (RPT) compared to 78% which were explained by other factors outside the current study. The study established a statistically significant positive relationship between Related Parties Transaction (RPT) and SACCOs financial distress (r=3.290715, p=.005) as per Table 4.13. This finding is also consistent with the real world, where the increase in directors taking loans from the same firms where they are executives will distress such firms because of undeclared conflicting interests which in some cases are not disclosed.

The F value for related party transaction was significant (F1, 1400) =13.24, p=0.005). This implies that there is a significant effect of RPT on the financial distress of DT-SACCO s in Kenya. RPT therefore could be used to predict the financial distress of DT-SACCO s in Kenya. This finding indicated that an increase in the RPT by 1 unit will lead to an increase in financial distress of DT-SACCO s in Kenya by 3.290715 multiple units. This implies that RPT was a predictor of the financial distress of DT-SACCO s in Kenya. This finding is supported by Peng, Wei and Yang (2011) who found out that controlling shareholders resort to prejudicial RPTs for private benefit at the cost of minority shareholders. Peng et al. (2011) also agree with Peng, Wei and Yang (2011) based on his finding that prejudicial RPTs are found to erode firm value and Ge, Drury, Fortin, Liu and Tsang (2010) also agreed with Peng et al. (2011) and Peng, Wei and Yang (2011) by observing that many of the notorious corporate collapses in the early twenty-first century are associated with prejudicial RPTs.

In terms of reduction of value, the finding is supported by Berkman, Cole & Fu (2010); Kang et al. (2014); Wan & Wong (2015) who equally found out that the total number of RPTs and find that it has negative relationship with industry adjusted returns. As far as imbalanced distribution of returns on shareholders investment, Berkman, Cole and Fu (2010) also agreed with Kang et al. (2014); Wan & Wong (2015) who established that during the year before the new amendments to protect minority shareholders were implemented, minority shareholders of the firms with

higher total value of RPTs have higher abnormal returns compared to those with lower total value of RPTs. Kang et al. (2014) further found that control ownership has positive association with total amount of RPTs and total amount of RPTs have negative impact on firm performance measured with Tobin‘s Q. Similarly, Wan and Wong (2015) find that RPTs have negative impact on firm performance disagreed with the findings of the current study.

When Chen, Y, Chen and Chen (2009) who also agree with Wan and Wong (2015) who observed that separate the control relationship into three conditions: no control relationship, listed firm is the controlling party and listed firm is controlled by related party, RPTs sales are found to have significant negative influence on firm performance measured with ROA in the third condition. Chauhan, Lakshmi and Dey (2016); Habib, Muhammadi and Jiang (2017) also agree with Wan and Wong (2015) in their observation that when one year ahead or future ROA is used to measure the future firm performance, inter-corporate loan and loan guarantees to controlling owner and abnormal RPTs net credit are found to have a negative influence on future firm performance.

The significant positive relationship between Related Party Transaction and financial distress among the SACCOs, therefore, was used to expand Agency Theory which describes the relationship in terms of behavioral characteristics and economic exchange relations between a principal (SACCOS) and agent (SACCO Board members). According to Abdullah and amp; Valentine (2009), agency theory explains the relationship between the principals, such as members and agents. In this theory, members who are the owners or principals of the SACCO, hires by electing the management board as their agent. Principals (members) delegate the running of a business to the management board which in turn hires and delegates authority to the managers.

The findings that RPT has a significant and positive relationship with financial distress supports the agency theory that management interests are different from those of owners of the firm. Management tends to exploit their privileged position of being full-time in the firm and the owners being largely away from the firm by

awarding themselves high remuneration and fringe benefits including transacting with the firm (related party transactions) at the expense of the firms and their owners.

#### 4.4.2.2 Regression Analysis of Interest Rate Spread and Probability of Financial Distress of SACCOs

The second study objective was to establish the effect of interest rates on loans on financial distress in savings and credit cooperative organizations in Kenya. Having gone by the random effect model based on the The Hausman test, the results of the random effect model are presented in Tables 4.4.2.1. The analysis shows that the panels were strongly balanced for this analysis as shown by the number of observations per group.

#### 4.4.2.1 The Hausman Test

In the panel data regression model testing the relationship between interest rate spread and probability of distress, the fixed effect model and random effect model were fitted and the The Hausman test was used to determine the appropriate multivariate model to adopt for the two. The The Hausman specification test results for the multivariate model between financial distresses determinants are shown in Table 4.11.

**Table 4.11: The Hausman Test**

| | **(b) fe** | **(B) re** | **(b-B) Difference** | **sqrt(diag(V_b-V_B)) S.E.** |
|---|---|---|---|---|
| Intrs | -29.37037 | -60.02753 | 30.65716 | - |
| | b = consistent under Ho and Ha; obtained from xtreg | | | |
| B = | inconsistent under Ha, efficient under Ho; obtained from xtreg | | | |
| Test: Ho: | difference in coefficients not systematic | | | |
| | chi2(1) = (b-B)'[(V_b-V_B)^(-1)](b-B) 0.98 | | | |
| | Prob>chi2 = 0.4016 | | | |

The null hypothesis of the Hausman Test is that The Random Effect model is preferable and since the results in Table 4.11 indicate P-value = 0.4016 which is greater than 0.05 confidence level, the null hypothesis is not rejected and hence The Random Effect model was employed for the analysis of RPT as per Table 4.9. This implies that the most appropriate model to explain the relationship between financial distress determinants in DT SACCOs in Kenya was the Random Effect regression model.

**Table 4.12: Regression Analysis of Interest Rate Spread and Probability of Financial Distress**

| | | | **Number of obs** | = | | **1400** |
|---|---|---|---|---|---|---|
| | | | **Number of groups** | = | | **175** |
| **R-sq: within** | **= 0.10793** | | | | | |
| **corr(u_i, X)** | **= 0 (assumed)** | | **Prob > chi2** | = | | **0.004** |
| **distr** | **Coef.** | **Std. Err.** | **z** | **P>z** | **[95% Conf.** | **Interval]** |
| int_rate | -29.37037 | 13.44341 | -2.18 | 0.004 | -55.71897 | -3.021778 |
| _cons | 1.022042 | .1192198 | 8.57 | 0.000 | .7883753 | 1.255708 |
| rho | .32221486 | (fraction | of variance due to u_i) | | | |

There were a total of 1400 observations used in this analysis considering 175 groups of entities implying strongly balanced panels. The overall $R^2$ was 0.10793 indicating that 11% of the variance of SACCOs financial distress is explained by the interest rate spread compared to the rest rate spread 89% which were explained by other factors outside the current study. The study established a statistically negative significant relationship between interest rate spread and SACCOs financial distress (r=-29.37037, p=0.004) as per Table 4.12. This finding is consistent with the reality that when financial institutions increase the interest they charge on the loans, they are also able to increase their revenues which they can use to come out of any financial distress that they may be facing.

The F value for interest rate spread was significant (F1, 1398) =37.08, p=0.004). This implies that there was a significant effect of interest rate spread on the financial distress of DT-SACCO s in Kenya. Interest rate spread therefore could be used to predict the financial distress of DT-SACCO s in Kenya. This implies that interest rate spread was a predictor of the financial distress of DT-SACCO s in Kenya. This finding is supported by Kirimi, Simiyu and Murithi (2017) who investigated the effect of debt finance on the financial performance of Savings and Credit Cooperative Societies in Maara Sub-county, TharakaNithi County, Kenya. This result revealed that loan interest rate and ROE had a negative relationship. This finding indicated that an increase in the interest spread by 1 unit will lead to a decrease in financial distress of DT-SACCO s in Kenya by 29.37037 multiple units.

Liquidity preference theory encompasses the need for liquidity (cash or near cash) in an economy by institutions and individuals i.e transaction motive, precautionary motive, and speculative motive. DT SACCOs need liquidity to be able to lend to their members upon receiving loan requests and if DT SACCOs receive more loan requests than the available liquid assets the DT SACCOs are forced to borrow at the high-interest rate from other lenders including commercial banks that may have more liquid assets. The high-interest rate on borrowed funds erodes the profit margin for DT SACCOs arising from the difference or spread between lending and borrowing interest rates and this small spread can cause financial distress in the DT SACCO. The current findings that interest rate spread had a significant and negative relationship with financial distress thus supports the liquidity preference theory.

### 4.4.3 Regression Analysis of Non-Performing Loan and Probability of Financial Distress of SACCOs

The third study objective was to determine the effect of non-performing loans on financial distress in savings and credit cooperative organizations in Kenya. Having gone by the random effect model based on

the Hausman test, the results of the random effect model are presented in Tables 4.13. The analysis shows that the panels were strongly balanced for this analysis as shown by the number of observations per group.

#### 4.4.3.1 The Hausman Test

In the panel data regression model testing the relationship between the non-performing loan and probability of distress, the fixed effect model and random effect model were fitted and the Hausman test was used to determine the appropriate multivariate model to adopt for the two. The Hausman specification test results for the multivariate model between financial distresses determinants are shown in Table 4.13.

**Table 4.13: The Hausman Test**

| | **(b) fe** | **(B) re** | **(b-B) Difference** | **sqrt(diag(V_b-V_B)) S.E.** |
|---|---|---|---|---|
| NPL | 5.674685 | 2.239423 | 7.914108 | 5.511958 |
| | b = consistent under Ho and Ha; obtained from xtreg | | | |
| B = | inconsistent under Ha, efficient under Ho; obtained from xtreg | | | |
| Test: Ho: | difference in coefficients not systematic | | | |
| | chi2(1) = (b-B)'[(V_b-V_B)^(-1)](b-B) | | | |
| | 2.06 | | | |
| | Prob>chi2 = 0.20736 | | | |

The null hypothesis of The Hausman Test is that The Random Effect model is preferable and since the results in Table 4.13 indicate P-value = 0.20736 which is greater than 0.05 confidence level, the null hypothesis is not rejected and hence The Random Effect model was employed for the analysis of RPT as per Table 4.13. This implies that the most appropriate model to explain the relationship between financial distress determinants in DT SACCOs in Kenya was the Random Effect regression model.

**Table 4.14: Regression Analysis of Non-Performing Loans and Probability of Financial Distress**

| **Random-effects GLS regression** | | | **Number of obs = 1400** | | | |
|---|---|---|---|---|---|---|
| | | | **Number of groups = 175** | | | |
| **R-sq: within = 0.1460** | | | **Obs per group: min = 8** | | | |
| **corr(u_i, X) = 0 (assumed)** | | | **Prob > chi2 = 0.001** | | | |
| distr | Coef. | Std. Err. | z | P>z | [95% Conf. | Interval] |
| npl | 2.932741 | 1.384188 | 2.12 | 0.001 | .2197824 | 5.645699 |
| _cons | .699862 | .1061543 | 6.59 | 0.000 | .4918033 | 0.9079207 |
| rho | .2736012 | (fraction variance due to u_i) | | | | |

There were a total of 1400 observations used in this analysis considering 175 groups of entities implying strongly balanced panels. The overall $R^2$ was 0.1460 indicating that 15% of the variance of SACCOs financial distress is explained by Non-Performing Loans (NPL) compared to 85% which were explained by other factors outside the current study. The study established a positive statistically significant relationship between Non-Performing Loans (NPL) and SACCOs financial distress (r=2.932741, p=.001) as per Table 4.14. The increase in non-performing loans in the real world is a serious problem to firms which the findings of the study have statistically proved.

The F value for non-performing loan was significant (F1, 542) =26.12, p=0.001). This implies that there is a significant effect of Non-Performing Loans (NPL) on the financial distress of DT-SACCO s in Kenya. Non-Performing Loans (NPL) therefore could be used to predict the financial distress of DT-SACCO s in Kenya. This finding indicated that an increase in the RPT by 1 unit will lead to an increase in financial distress of DT-SACCO s in Kenya by 2.932741 multiple units. This implies that Non-Performing Loans (NPL) were a predictor of the financial distress of DT-SACCO s in Kenya. This finding is supported by Wanjira (2010) who conducted a

study on the relationship between non-performing loans management practices and the financial performance of commercial banks in Kenya and found out that the type of nonperforming loans management practices adopted by commercial banks determines their financial performance.

Nkusu (2011) agrees with the findings and also supports Wanjira (2010) when he analyzed the link between nonperforming loans (NPL) and macroeconomic performance from a sample of 26 advanced countries. The study found that a sharp increase in NPL triggers long-lived tailwinds that cripple macroeconomic performance from several fronts. The impulse response functions (IRFs) indicate that, of all the variables included in the model, NPL is the only one that has both a statistically significant response to- and predictive power on- every single variable over a 4-year forecast period. Louzis et al. (2012) also agree with Wanjira (2010) in his examination of the determinants of non-performing loans (NPLs) in the Greek banking sector, separately for each loan category (consumer loans, business loans, and mortgages). The study is motivated by the hypothesis that both macroeconomic and bank-specific variables have an effect on loan quality and that these effects vary between different loan categories.

In the context of the current study information asymmetry theory supported non-performing loans independent variable. Information asymmetry implies an imbalance of information between 2 parties in a transaction whereby the party with more information will most likely tend to exploit the party with less information. In the context of lending loans, the borrower has more information than the lender since it is the borrower who knows his or her true intentions. Information asymmetry is divided into 2 concepts i.e adverse selection which occurs before loans are advanced and moral hazard which occurs after loans are advanced. Adverse selection occurs when the lenders lack good systems of establishing creditworthy borrowers and end up lending to uncredited worthy borrowers. A moral hazard occurs when borrowers divert the loan they have borrowed to other risker projects than what they had agreed with lenders.

For the current study non-performing loans have a positive and significant relationship with financial distress and this supports the information asymmetry theory since the non-performing loans arise as a result of an imbalance in information between the lenders and borrowers i.e information asymmetry and cause losses to the lenders leading to financial distress.

### 4.4.4 Regression Analysis of Exchange Rate Exposure and Probability of Financial Distress of SACCOs

The fourth study objective was to determine the effect of exchange rate exposure on financial distress in the SACCO societies in Kenya. Having gone by the random effect model based on the Hausman test, the results of the random effect model are presented in Tables 4.13. The analysis shows that the panels were strongly balanced for this analysis as shown by the number of observations per group.

#### 4.4.3.1 The Hausman Test

In the panel data regression model testing the relationship between non-performing loans and probability of distress, the fixed effect model and random effect model were fitted and the Hausman test was used to determine the appropriate multivariate model to adopt for the two. The Hausman specification test results for the multivariate model between financial distresses determinants are shown in Table 4.15.

**Table 4.15: The Hausman Test**

| | **(b) fe** | **(B) re** | **(b-B) Difference** | **sqrt(diag(V_b-V_B)) S.E.** |
|---|---|---|---|---|
| ex_rate | 5.10789 | 2.1736 | 7.47236 | 5.3876 |
| | b = consistent under Ho and Ha; obtained from xtreg | | | |
| B = | inconsistent under Ha, efficient under Ho; obtained from xtreg | | | |
| Test: Ho: | difference in coefficients not systematic | | | |
| | chi2(1) = (b-B)'[(V_b-V_B)^(-1)](b-B) | | | |
| | 2.06 | | | |
| | Prob>chi2 = 0.311706 | | | |

The null hypothesis of The Hausman Test is that The Random Effect model is preferable and since the results in Table 4.15 indicate P-value = 0.311706 which is greater than 0.05 confidence level, the null hypothesis is not rejected and hence The Random Effect model was employed for the analysis of RPT as per Table 4.15. This implies that the most appropriate model to explain the relationship between financial distress determinants in DT SACCOs in Kenya was the the Random Effect regression model.

**Table 4.16: Regression Analysis of Exchange Rate Exposure and Probability of Financial Distress**

| | | | |
|---|---|---|---|
| | **Number of obs =** | | **1400** |
| | **Number of groups =** | | **175** |
| **R-sq: within = 0.16831** | **Obs per group: min =** | | **8** |
| **corr(u_i, X) = 0 (assumed)** | **Prob > chi2 =** | | **0.0003** |
| dist Coef. Std. Err. | z P>z | [95% Conf. | Interval] |
| ex_rate .0118763 .0032703 | -3.63 0.000 | -.0182861 | -0.005467 |
| _cons 1.999054 .3245574 | 6.16 0.000 | 1.362933 | 2.635175 |
| rho .30259128 (fraction | of variance due to u_i) | | |

There were a total of 1400 observations used in this analysis considering 175 groups of entities implying strongly balanced panels. The overall $R^2$ was 0.16831 indicating that 17% of the variance of SACCOs financial distress is explained by exchange rate exposure compared to 83% which were explained by other factors outside the current study. The study established a positive statistically significant relationship between exchange rate exposure and SACCOs financial distress (r= 0.0118763, p=.000) as per Table 4.16. The increase in exchange rate exposure in the real world is a serious problem to firms which the findings of the study have statistically proved.

The F value for non-performing loan was significant (F1, 1398) =9.21, p=0.000). This implies that there is a significant negative effect of exchange rate exposure on the financial distress of DT-SACCO s in Kenya. Exchange rate exposure therefore could be used to predict the financial distress of DT-SACCO s in Kenya. This finding indicated that an increase in the exchange rate exposure by 1 unit will lead to

an increase in financial distress of DT-SACCO s in Kenya by 0.0118763 multiple units. This implies that exchange rate exposure was a predictor of the financial distress of DT-SACCO s in Kenya. This finding is supported by Jeon, Zheng and Zhu (2017) who found evidence that change in the trade-weighted multilateral exchange rate systematically impacts individual firms' stock returns for all seven emerging markets and some advanced economies. Baba and Nasieku (2016) also found a positive significant effect on microeconomic variables (real interest rate, exchange rate, and unemployment rate) on the financial performance of the commercial banks in Nigeria. Lagat and Nyandema (2016) further found a strong positive relationship between a foreign exchange (inflation rates, interest rates) and financial performance (ROE). The finding is further supported by Gachua (2011) who found that the rate of exchange significantly affects imports and exports.

In the context of the current study, liquidity preference theory supported exchange rate exposure independent variable. This implies that the high exchange rate being experienced between Kenya Shillings against US Dollars denies the DT- SACCO societies liquidity which is a serious challenge as far as financial distress is concerned. Such a high exchange rate also creates pressure on interest rate spread leading to expensive loans which may not be bought by customers which in a multiplying effect affects the liquidity and for those with loans, it also increases the possibility of non-performing loans. For the current study exchange rate exposure has a positive and significant relationship with financial distress and this supports the liquidity preference theory since the rising in the exchange rate of Kenya Shillings against the US Dollar predisposes the DT-SACCOs to liquidity challenges that can cause a serious loss leading to financial distress among these societies.

### 4.4.5 Combined Effect of the Determinants of Financial Distress

#### 4.4.5.1 The Hausman Test

**Table 4.17: The Hausman Test for Combined Effect of Determinants of Financial Distress**

| | (b) fe | (B) re | (b-B) Difference | sqrt(diag(V_b-V_B)) S.E. |
|---|---|---|---|---|
| Rpt | 1.469529 | 8.126541 | -6.657012 | . |
| int_rate | -56.98854 | -63.31921 | 6.330671 | . |
| Npl | 5.179601 | -3.104778 | 8.284379 | . |
| | b = consistent under Ho and Ha; obtained from xtreg | | | |
| B = | inconsistent under Ha, efficient under Ho; obtained from xtreg | | | |
| Test: Ho: | difference in coefficients not systematic | | | |
| | chi2(1) = (b-B)'[(V_b-V_B)^(-1)](b-B) | | | |
| | 2.73 | | | |
| | Prob>chi2 = 0.1873 | | | |

The null hypothesis of The Hausman Test is that The Random Effect model is preferable and since the results in Table 4.17 indicate P-value = 0.1873 which is greater than 0.05 confidence level, the null hypothesis is not rejected hence The Random Effect model was employed for multivariate analysis of the combined effect of RPT, Intr_Rate, and NPL as per Table 4.17. This implies that the most appropriate model to explain the relationship between financial distress determinants in DT SACCOs in Kenya was the Random Effect regression model.

#### 4.4.4.2 Combined Effect of the Determinants of Financial Distress

**Table 4.18: Random Effect Model for Financial Distress**

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | **Number of obs =** | | | **1400** |
| | | | **Number of groups =** | | | **175** |
| **R-sq: Overall = 0.1574** | | | **Obs per group: min =** | | | **8** |
| **corr(u_i, X) = 0 (assumed)** | | | **Prob > chi2 =** | | | **0.000** |
| dist | Coef. | Std. Err. | z | P>z | [95% Conf. | Interval] |
| rpt | .0489545 | 1.502851 | 0.03 | 0.974 | -2.896579 | 2.994488 |
| npl | 6.252342 | 1.463895 | 4.27 | 0.000 | 3.383162 | 9.121523 |
| int_rate | -52.17686 | 9.33545 | -5.59 | 0.000 | -70.47401 | -33.87972 |
| ex_rate | -.0127184 | .0032778 | -3.88 | 0.000 | -.0191428 | -0.006294 |
| _cons | 2.088269 | .3293909 | 6.34 | 0.000 | 1.442675 | 2.733864 |

$$Y = 2.088269 + .0489545X_1 + 6.252342X_2 - 52.17686X_3 - .0127184 + \varepsilon it$$

(0.000) (0.974) (0.000) (0.000) (0.000)

There were a total of 1400 observations used in this analysis considering 175 groups of entities implying strongly balanced panels. The minimum, maximum and average numbers of observations per group were all equal to 8. The overall $R^2$ was 0.1692 indicating that 17% of the variance of SACCO's financial distress is explained by Related Parties Transaction (RPT), Interest Rate Spread, Non-Performing Loan, and exchange rate exposure compared to 83% which were explained by other factors outside the current study.

The study established a significant positive relationship between the non-performing loan and financial distress of DT-SACCOs (non-performing loan r=6.252342, p=0.000) as per table 4.16. The study also established a statistically negative significant relationship between Interest Rate Spread, Exchange rate Exposure, and financial distress of DT-SACCOs (for interest rate spread r=-52.17686, p=0.000; Exchange Rate Exposure r=-.0127184, p = 0.000). First, this implies that there is a psotive significant effect of non-performing loans and financial distress of DT-SACCO societies in Kenya. This finding indicated that an increase in the non-performing loan by 1 unit will lead to an increase in financial distress of DT-SACCO

societies in Kenya by 6.252342 multiple units. This implies that non-performing loans predicted the financial distress of DT-SACCO societies in Kenya.

Further, this finding implies that there is a significant effect of interest rate spread on the financial distress of DT-SACCO s in Kenya. Interest rate spread therefore could be used to predict the financial distress of DT-SACCO s in Kenya. This finding indicated that an increase in the interest rate spread by 1 unit will lead to a decrease in financial distress of DT-SACCO s in Kenya by 52.17686 multiple units. This implies that the interest rate spread also predicted the financial distress of DT-SACCO societies in Kenya.

Concerning exchange rate exposure, this finding implies that there is a significant effect of exchange rate exposure on the financial distress of DT-SACCO s in Kenya. Exchange rate exposure therefore could be used to predict the financial distress of DT-SACCO s in Kenya. This finding indicated that an increase in the exchange rate exposure by 1 unit will lead to a decrease in financial distress of DT-SACCO s in Kenya by 0127184 multiple units. This implies that exchange rate exposure also predicted the financial distress of DT-SACCO societies in Kenya.

### 4.4.6 The Controlling Effect of SASRA Regulation Amendments on the Determinants of SACCO Societies Financial Distress

**Table 4.19: Effect of SASRA Amendment on the Determinants of Financial Distress**

| | | |
|---|---|---|
| | **Number of obs =** | **1400** |
| **Group variable: code** | **Number of groups =** | **175** |
| **R-sq: within = 0.0228** | **Obs per group: min =** | **8** |
| **corr(u_i, X) = 0 (assumed)** | **Prob > chi2 =** | **0.000** |

| dist | Coef. | Std. Err. | z | P>z | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| rpt | .0656984 | 1.504436 | 0.04 | 0.965 | -2.882941 | 3.014338 |
| npl | 6.165792 | 1.465936 | 4.21 | 0.000 | 3.29261 | 9.038975 |
| int_rate | -50.80583 | 9.406317 | -5.40 | 0.000 | -69.24187 | -32.36979 |
| ex_rate | -.0128301 | .0032776 | -3.91 | 0.000 | -.0192541 | -0.0064061 |
| regul | .0843682 | .0687773 | 1.23 | 0.220 | -.0504327 | 0.2191692 |
| _cons | 2.034681 | .3321955 | 6.12 | 0.000 | 1.38359 | 2.685772 |

First, the study established that SASRA amendment did not have a statistically controlling effect on the determinants of DT SACCOs financial distress, p=0.0005<0.05. Further, although this relationship was significant, it is important to note that the introduction of SASRA amendment did not change the relationship between the determinants and DT SACCOs financial distress. The relationship between related party transaction cost and financial distress remained statistically insignificant p=0.965>0.05, that of interest rate remained statistically significant at p=0.000<0.05, that of non-performing loans remained statistically insignificant at p=0.000<0.05 and that of exchange rate exposure also remained statistically insignificant at p=0.000<0.05. This finding, therefore, made the researcher conclude that SASRA amendments did not have a controlling effect on the determinants of financial distress in the DT SACCOs in Kenya since the relationships between the determinants and financial distress of DT-SACCO societies remained the same as it was before the introduction of SASRA amendment as per Table 4.19.

$$Y = 2.034681 + .0656984X_1 + 6.165792X_2 - 50.80583X_3 + .0128301\ X_4 + .0843682\ X_5 + \varepsilon$$

(0.000) (0.965) (0.000) (0.000) (0.000) (0.220)

### 4.4.7 The Moderating Effect of SACCOs Size on the Determinants of Financial Distress

The researcher introduced the SACCOs Size as moderating variable with an aim to establish the moderation effect of firm size on the relationship between the determinants and financial distress in savings and credit cooperative organizations in Kenya.

**Table 4.20: Changes in R Square and F Statistics Before and After Moderation**

| Model | R Square | F | Sig. |
|---|---|---|---|
| 1 Before Moderation | .1574 | 57.36 | 0.0000 |
| 2 After Moderation | .1838 | 59.52 | 0.0000 |
| Difference | .0264 | -2.65 | 0.0000 |

Table 4.20 presents the changes in R Square and F Statistics before and after the interaction of moderating factor Firm Size and the determinants of distress. The study established a slight change in the R square of 0.0264 and F statistics of -2.65 after the introduction of Firm Size as a moderating factor in the regression. The finding indicated an increase in $R^2$ by about 3% indicating that the determinants contributed more to the relationship between the determinants and financial distress of the SACCO societies in Kenya by 3% more after the introduction of SACCO size as a moderator variable. This is an indication that Firm Size had a slight moderating effect on the relationship of the determinant of financial distress in the DT-SACCO s in Kenya.

**Table 4.21: Moderating Effect of Firm Size on the determinants of financial distress**

| | | | |
|---|---|---|---|
| | **Number of obs =** | | **1400** |
| | **Number of groups =** | | **175** |
| **R-sq: Overall = 0.1838** | **Obs per group: min =** | | **8** |
| **corr(u_i, X) = 0 (assumed)** | **Prob > chi2 =** | | **0** |
| dist Coef. Std. Err. | z P>z | [95% Conf. | Interval] |
| size_rpt -.0176778 .1551187 | -0.11 0.909 | -.3217048 | 0.2863491 |
| size_npl .6488916 .1511308 | 4.29 0.000 | .3526807 | 0.9451026 |
| size_in_rate -5.51775 .9581382 | -5.76 0.000 | -7.395666 | -3.639834 |
| size_ex_rate -.0007232 .0001847 | -3.92 0.000 | -.0010851 | -0.0003613 |
| _cons 1.542373 .1824118 | 8.46 0.000 | 1.184853 | 1.899894 |

First, the study established that SACCOs size had a statistically significant relationship with DT SACCOs financial distress, p=0.0.000<0.05. Further, although the introduction of firm size had a significant relationship in the regression results, the introduction of SACCO Size did not change the relationship between the determinants and DT SACCOs financial distress. The relationship between related party transaction cost and financial distress remained statistically insignificant p=0.547>0.05, that of interest rate remained statistically significant at p=0.0.000<0.05, that of non-performing loans remained statistically significant at p=0.000<0.05 and that of exchange rate exposure also remained significant at

p=0.000<0.05. This finding, therefore, made the researcher to conclude that SACCO's size to have a moderating effect on the determinants of financial distress in the DT SACCOs in Kenya. This was because of the increase in $R^2$ by about 3% making the determinants to contribute more to the relationship between the determinants and financial distress of the SACCO societies in Kenya by 3% more after the introduction of SACCO size as a moderator variable.

$$Y = 1.542373 - .0176778X_1 + .6488916X_2 - 5.51775X_3 - .0007232 + \varepsilon$$

(0.909) (0.000) (0.000) (0.000) (0.000)

**4.5 Hypothesis Testing**

The final multivariate GLS fitted model was considered a better model compared to the OLS model which violated the assumptions. The GLS model taking care of the violations was considered a more robust model and was used to test the hypotheses of the study. This section, therefore, presents the test of the set hypothesis of the study

**4.5.1 Related Party Transactional Cost as a Financial Distress Factor on Probability of Financial Distress**

The study used related party transactional Cost as its first variable whose objective was to examine the effect of related party transactions on financial distress in savings and credit cooperative organizations in Kenya. Directors borrowed loans from the SACCOs operations and were used as a measure of related party transaction. The study predicted an insignificant relationship between related party transaction cost as financial distress determinant on the probability of financial distress in savings and credit cooperative organizations in Kenya. The Random Effect regression model was used to assess if the relationship was statistically significant and as a result, the following null hypothesis was tested:

In light of the positive and significant effect of related party transactional cost on financial distress finding, the null hypothesis $H_0 1$ that related party transactional cost has no significant effect on financial distress in savings and credit cooperative

organizations in Kenya was rejected at 0.05 level of significance and a conclusion drawn that related party transactions have no significant effect on financial distress in savings and credit cooperative organizations in Kenya.

This finding is supported by many scholars who established that the total number of RPTs had a negative relationship with industry-adjusted returns (Berkman, Cole & Fu, 2010; Kang et al., 2014; Wan & Wong, 2015); (Gordon, Henry & Palia, 2004) and insignificant negative relationship with earnings management measured by adjusted absolute abnormal accruals (Gordon & Henry, 2005). Meanwhile, Berkman, Cole, and Fu (2010) use the total value of all RPTs that are potentially harmful to the firm (RPTs asset acquisitions, RPTs asset sales, RPTs equity sales, RPTs trading relationships, and RPTs cash payment) and find that during the year before the new amendments to protect minority shareholders were implemented, minority shareholders of the firms with the higher total value of RPTs have higher abnormal returns compared to those with the lower total value of RPTs. Kang et al. (2014) find that control ownership has a positive association with the total amount of RPTs and the total amount of RPTs has a negative impact on firm performance measured with Tobin‘s Q. Similarly, Wan and Wong (2015) find that RPTs have a negative impact on firm performance.

The finding is further supported by Kohlbeck and Mayhew (2010) who observe RPTs with directors, officers, shareholders, or their affiliates and RPTs with firm investment. Transactions with a director, an officer of the firm, a shareholder of the firm with more than 5% ownership, or an affiliate of a director, officer, or shareholder of the firm are classified as RPTs with directors, officers, and shareholders or their affiliates. Meanwhile, transactions with a joint venture or other operation that are owned by the firm and not consolidated with the firm‘s financial statements are classified as RPTs investments. They reveal that RPTs loans to directors, officers, shareholders, or their affiliates have a negative impact on firm performance measured with Tobin‘s Q, the market value of common shareholders‘ equity, and annual returns (Kohlbeck & Mayhew, 2010).

Kang et al. (2014) discover that the size of RPTs, as well as RPTs operating and RPTs non-operating, are positively influenced by the control ownership block. RPTs increase when the voting rights increase, whereas RPTs decrease when cash flow rights increase which is an appetite for the directors to interfere with SACCO operation by borrowing loans. The study is also supported by Berkman, Cole and Fu (2010) who found that firms with higher RPTs have larger Cummulative Abnormal Returns (CARs), while Du, He and Yuen (2013) reveal that RPTs have negative association with CARs in the firms that are going to private. The controlling shareholders seem to engage in RPTs that cause losses and result in decreased stock price. Then, the controlling shareholders can acquire the firm‘s shares with a low price to minority shareholders (Du, He & Yuen, 2013).

The finding is supported by Gepp and Kumar (2015) who completed an examination on foreseeing monetary trouble through a Comparison of Survival Analysis and Decision Tree Techniques. They previously noticed that discriminant examination and calculated relapse have been the most prominent methodologies, nonetheless, they fought that there is additionally an enormous number of elective cutting–edge information mining procedures that can be utilized. The investigation utilized huge board information while noticing that monetarily upset firms are considered dependent on obligation default criteria to limit polluted information and keep away from huge numbers of the issues with utilizing a lawful meaning of chapter 11. The examination built up that Decision trees, explicitly the CART model would be wise to arrangement exactness than different systems. All the more significantly, both the CART choice–tree method and the Cox survival examination strategy were equivalent to one another and discriminant investigation over both scopes of misclassification expenses and expectation interims.

The findings on the effect of related party transactions on the financial distress of DT-SACCOs were therefore the basis of the expansion of Agency Theory.

### 4.5.2 Interest Rate Spread as a Financial Distress Determinant on Probability of Financial Distress

The study used interest rate as its second variable whose objective was to examine the effect of interest rate on financial distress in savings and credit cooperative organizations in Kenya. The study predicted an insignificant relationship between interest rate as financial distress determinant on the probability of financial distress in savings and credit cooperative organizations in Kenya. The Random Effect regression model was used to assess if the relationship was statistically significant and as a result, the following null hypothesis was tested:

In light of the positive and significant effect of interest rate spread on financial distress finding, the null hypothesis $H_0 2$ **is** that interest rate spread has no significant effect on financial distress in Savings and Credit Cooperative Organizations in Kenya. From the RGLS model fitted, the p-value of the t-statistic for the estimated coefficient of interest rate spread is 0. 0289 which is less than 0.05, rejecting the null hypothesis at 0.05 level of significance and a conclusion drawn that interest rate spread as a financial distress determinant has a significant influence and distressing effect on the probability of financial distress in savings and credit cooperative organizations in Kenya.

The finding is the contrast of Malik, Khan, Khan and Khan (2014) in their analysis of the effect of interest rate in the market and its effects on the profitability of banks in Pakistan. Both public sector banks and private sector banks were included in the sample. The regression results for the public sector showed that the interest rate has significant effects on the profitability (ROA) in the public sector banks of Pakistan. The value of $R^2$ shows that in the case of public sector banks the interest rate affect the profitability (ROA) by about 25 percent. In the case of return on equity (ROE) in the public sector, the interest rate has significant effects on profitability. But in case of ROE the interest rate only affects 14 percent of the profitability. In private sector banks, the interest rate has a significant effect on their return on asset (ROA). But here the $R^2$ value is very big then as in public sector banks. The $R^2$ value for ROA in private banks is 34 percent which is high than public sector banks' ROA. In ROE of

private banks, the interest rate affects significantly the profitability by about 19 percent. The study concluded that in both different proxies of profitability in both public and private sectors, the interest rate affects the private sector the most.

Still, the finding is in contrast with the study in Pakistan, by Khan and Sattar (2014) who found that interest rates considerably affected the banks' interest income as evidenced by Pearson correlations for the variables. This meant the banks' income by interest was extremely related to interest rates which shows the banks' profitability is dependent on the monetary policy tool known as an interest rate. Particularly, when the interest rate is high, usually the rise in the lending rate is higher than the deposit rates which as a result increases the bank spread. But on the other side when interest rates are low the rise in deposit rate is higher than the lending rates. As compared to deposit rates, the rates of lending are adjusted more rapidly when interest rates increase. Whereas when the interest rate decreases then the deposit rates are adjusted more rapidly as compared to lending rates.

The regional study by Musah, Anokye and Gakpetor (2018) supports the findings of the current study when they examined the impact of interest rate spread on the profitability of commercial banks in Ghana. The study results showed that interest rate spread is positively associated with bank profitability in Ghana contrary to expectations. The results could be interpreted within the context of the loanable funds' theory to suggest that the demand for loans far exceed the supply of loans compelling banks to maintain higher interest rate for lending. This implies that to improve profitability, the bank will seek to increase net interest margin by effectively and efficiently increasing interest income and decreasing interest expense. The bank will also raise interest margin to cover increases in operating costs, thus the increase in ROA will encourage banks to raise interest margin. The results suggest that policies aimed at reducing interest rate spread in Ghana should focus on making credit facilities available at a cheaper rate to compel commercial banks to reduce the interest rates. It is only when interest rate spread reduces banks profit that they will head to the general call of reducing interest rate spread.

The local study by Murage, Muya and Mogwambo (2018) supports the findings when they sought to determine the effect of interest rates on the financial performance of Deposit-taking SACCOs in Kisii County. To realize the objective of the study, a descriptive survey research design comprised of the seven DTSs operating in Kisii County was adopted. The DTSs are Gusii Mwalimu SACCO, Kenya Achievers SACCO, Wakenya Pamoja SACCO, Egerton SACCO, Mwalimu National SACCO, Afya SACCO, and vision point SACCO. The study revealed that interest rates had a positive effect on the financial performance of DTSs. It was also revealed that all DTSs adopted the interest rate technique as a strategy to generate income from the loans issued. This finding agreed with findings by Kariuki and Ngahu (2016) that interest charged by micro-finance institutions in Naivasha influenced loan repayment which further influenced the financial performance of the MFIs. If the interest rate charged was higher, the level of loan default will be higher therefore poor financial performance. The findings on the effect of non-performing loans on financial distress of DT-SACCOs were therefore the basis of the expansion of Keynes Liquidity Preference Theory.

### 4.5.3 Non-Performing Loans as a Financial Distress Factor on Probability of Financial Distress

The study used non-performing loans as its third variable whose objective was to determine the effect of non-performing loans on financial distress in savings and credit cooperative organizations in Kenya. Outstanding loan due past 90 days period to total loan portfolio ratios were used as measures of the non-performing loans. The study predicted an insignificant relationship between financial leverage as financial distress determinant on the probability of financial distress in savings and credit cooperative organizations in Kenya. The Random Effect regression model was used to assess if the relationship was statistically significant and as a result, the following null hypothesis was tested:

The established positive and significant effect of NPL on financial distress find, lead to the rejection of the null hypothesis $H_0 3$ that non-performing loans had a significant effect on financial distress in Savings And Credit Cooperative Organizations in

Kenya. The RGLS model fitted the p-value of the t-statistic for the estimated p-value of 0.0341 which is less than 0.05 and a conclusion was drawn that non-performing loans as a financial distress determinant had a significant distressing effect on the probability of financial distress in savings and credit cooperative organizations in Kenya.

This finding is supported by Mombo (2013) found that non-performing loans in deposit-taking microfinance institutions in Kenya accounted for the greatest percentage of the variance in the profitability of these institutions. Studies have also shown that nonperforming loans can fuel banking crises and result in the collapse of institutions and have repercussions in the entire economy. Fawad and Taqadus (2013) also conducted a study to investigate the explanatory power of bank-specific variables as determinants of nonperforming loans in the Pakistan banking sector. Their study involved the usage of 6 years of panel data (2006-2011) of 30 banks in Pakistan. The study concluded that NPLs affect the bank's financial performance. They further suggested that the bank supervisors must include the level of loan losses, quality of borrowers, and credit risk with cost efficiency to measure the bank's performance. Their study attributed the rise in levels of nonperforming loans to banks' internal inefficiency.

The finding is further supported by Mwangi (2012) carried out a study on the effect of nonperforming loans on the financial performance of commercial banks in Kenya. The study aimed at establishing how nonperforming loans portfolio impacted the financial profitability of commercial banks in Kenya. The study focused on all the 46 commercial banks in Kenya for the period 2005 – 2011. Secondary data was obtained from the banks relating to two variables; Return on assets (ROA) which was the dependent variable and NPL which was the independent variable.

Muriithi (2013) supports the findings when he conducted a study to determine the causes of non-performing loans in commercial banks in Kenya. The study established that the non-performing loans were positively correlated to the inflation rate and negatively correlated with the real interest rate and growth rate in loans in Kenya. The study applies macroeconomic indicators as determinants of NPLs but

does not incorporate the bank-specific factors. The finding is finally supported by Ndungu (2014) who sought to find out the factors that influence non-performing loans of microfinance institutions in Kenya. The study established that institutional characteristics contribute most to the non-performing loans of microfinance institutions in Kenya followed by Macroeconomic variables and finally Customer characteristics. These factors are established to have a statistically significant positive influence on the levels of NPLs.

The finding is also supported by Gebreslassie (2015) who researched the determinants of money-related trouble states of business banks in Ethiopia. The investigation utilized the Altman Z-score model (ZETA Analysis) and evaluated determinants of budgetary trouble utilizing board information beginning from 2002/03 to 2011/12 and six private business banks in Ethiopia utilizing board information relapse. The examination found that non-performing credit apportions (NPL) essentially impacted the monetary strength of the saved money with unit increments in NPL bringing about the decay of budgetary soundness of the banks since low Z" means high monetary trouble which even can prompt insolvency. The examination additionally discovered that net premium payments to add up to income (NITTR) has a positive connection with money-related misery with a one-unit increment in NITTR will prompt an expansion in the Z score of the bank which is monetary wellbeing (trouble). At the point when the Z score of the banks improves, the money-related wellbeing of the banks likewise improves. Be that as it may, the examination found that bank effectiveness has no statically noteworthy impact on the Zeta score of the chosen private business banks. This deviation from the normal positive impact could be because of the reason that no interest paid to non-premium costs has been utilized as the intermediary of the bank's effectiveness. At last, that review found that the size of the banks has no noteworthy impact on their budgetary wellbeing. The findings on the effect of non-performing loans on financial distress of DT-SACCOs were therefore the basis of the expansion of Information Asymmetric Theory.

### 4.5.4 Exchange Rate Exposure and financial distress

The study used exchange rate exposure as the fourth variable to statistical test whether it affects financial distress among the SACCO societies in Kenya. The null hypothesis $H_0$4 that Exchange rate exposure has no significant effect on financial distress in savings and credit cooperative organizations in Kenya was rejected at 0.05 significance level. The finding was supported by Jeon, Zheng and Zhu (2017) who found evidence that changes in the trade-weighted multilateral exchange rate systematically impact individual firms' stock returns for all seven emerging markets and some advanced economies. Baba and Nasieku (2016) also found a positive significant effect on microeconomic variables (real interest rate, exchange rate, and unemployment rate) to the financial performance of the commercial banks in Nigeria. Lagat and Nyandema (2016) further found a strong positive relationship between a foreign exchange (inflation rates, interest rates) and financial performance (ROE). The findings are further supported by Gachua (2011) who found that the rate of exchange significantly affects imports and exports.

### 4.5.5 SASRA Amendment as a Controlling Factor Probability of Financial Distress

The study used SASRA amendment of 2018 as a controlling factor on the factor probability of financial distress whose objective was to assess the controlling effect of SASRA amendment on the relationship between the determinants and financial distress in savings and credit cooperative organizations in Kenya. The Random Effect regression model was used to assess if the relationship was statistically significant and as a result, the following null hypothesis was tested:

$H_0$6**:** SASRA amendment has no significant controlling effect on the determinants of financial distress in savings and credit cooperative organizations in Kenya. The relationship between related party transaction cost and financial distress remained statistically insignificant $p=0.965>0.05$, that of interest rate remained statistically significant at $p=0.000<0.05$, that of non-performing loans remained statistically insignificant at $p=0.000<0.05$ and that of exchange rate exposure also remained statistically insignificant at $p=0.000<0.05$. This finding, therefore, made the

researcher conclude that SASRA amendments did not have a controlling effect on the determinants of financial distress in the DT SACCOs in Kenya since the relationships between the determinants and financial distress of DT-SACCO s remained the same as it was before the introduction of SASRA amendment as per Table 4.19. This finding, therefore, made the researcher conclude that SASRA amendments did not have a controlling effect on the determinants of financial distress in the DT SACCOs in Kenya since the relationships between the determinants and financial distress of DT-SACCO s remained the same as it was before the moderating effect. The hypothesis $H_0$5**:** SASRA amendment has no significant controlling effect on the determinants of financial distress in savings and credit cooperative organizations in Kenya were therefore accepted.

This finding is supported by Kilonzi (2012) who carried out a study to establish the impact of SASRA amendments on the financial performance of SACCOs in Kenya. The sample size used was 30 for the period 2008 – 2011. Regressions were run for 2008-2009, 2010-2011, and coefficients were compared for differences that may have been caused by the amendments being applicable from 2010. The findings were that ROE, capital ratio, liquidity, and management efficiency improved in the second period compared to the first. There was no difference in ROA in the two periods. ROA and ROE are inappropriate measures of financial performance of SACCOs as the objective of the institutions is not to maximize these outcomes.

This finding is in contrast with Kamau (2013) who studied the effect of licensing requirements on the performance of cooperative societies in Kenya: A survey of deposit-taking SACCO societies in Nakuru County found that most SACCOs reported improvement in their performance both in membership, portfolio and efficiency. He attributed this to the SACCO licensing requirements. He found that most SACCOs were compliant with the regulator requirement so as not to be locked out of the business by the operator. It was also clear from the study that all the SACCOs were conversant with the new licensing law. This finding, therefore, contributed to the expansion of the Economic Regulatory Theory.

### 4.5.6 SACCOs size as a Moderating Factor Probability of Financial Distress

The study used SACCOs size as a moderating factor on the factor probability of financial distress whose objective was to assess the moderating effect of SACCOs size on the relationship between the determinants and financial distress in savings and credit cooperative organizations in Kenya. The Random Effect regression model was used to assess if the relationship was statistically significant and as a result, the following null hypothesis was tested:

$H_0$5**:** SACCOs Size has no significant effect on the determinants of financial distress in savings and credit cooperative organizations in Kenya. The study established that SACCOs size had a statistically significant relationship with DT SACCOs financial distress, p=0.0.000<0.05 as a moderating factor. Further, the introduction of SACCO Size changed the relationship between the determinants and DT SACCOs financial distress. The relationship between related party transaction cost and financial distress remained statistical significant p=0.547>0.05, and that of interest rate remained

Statistically significant at p=0.000<0.05 and that of non-performing loans remained statistically insignificant at p=0.030<0.05. This finding, therefore, made the researcher to conclude that SACCOs size had a moderating effect on the determinants of financial distress in the DT SACCOs in Kenya since the relationships between the determinants and financial distress of DT-SACCO s remained the same as it was before the introduction of the moderating variable. The hypothesis $H_0$5**:** that SACCOs Size has no significant effect on the determinants of financial distress in Savings and Credit Cooperative Organizations in Kenya was therefore accepted. This finding is supported by Dahmash (2015) who studied the effect of size on the profitability of firms listed at the Amman Security Exchange for the period 2005 – 2011 was assessed For commercial banks, size did not significantly influence profitability. The findings of these studies (Aladwan, 2015; and Dahmash, 2015) were contrary to expectations.

The finding is in contrast with Mehrjardi's (2012) findings which studied the effect of size and profitability of banks in Kenya. This study measured profitability using return on asset and had only size as the independent variable. The study found that

there was a positive relationship between bank size and profitability of banks varied with the customer base, the number of branches, deposit liabilities, and market share as there was a high positive correlation coefficient. The study further revealed that there was a greater variety of profitability of commercial banks as a result of changes in the customer base, number of branches, deposit liabilities, and market share in all tiers. The findings on the moderating effect of SACCO size on the determinants of financial distress of DT-SACCOs were therefore the basis of the expansion of Neoclassical Theory.

### 4.6 Optimal Model

Using the generalized least squares, all the variables under study were significant at 5% and the optimum model for the study is replicated below full results for the optimal model are presented in the model below with variables as per the finding of the study;

$$Yit = 3.290715\boldsymbol{X_1}it - 29.37037\boldsymbol{X_2}it + 2.932741\ \boldsymbol{X_3}it + .0118763\boldsymbol{X_4}it + \varepsilon$$

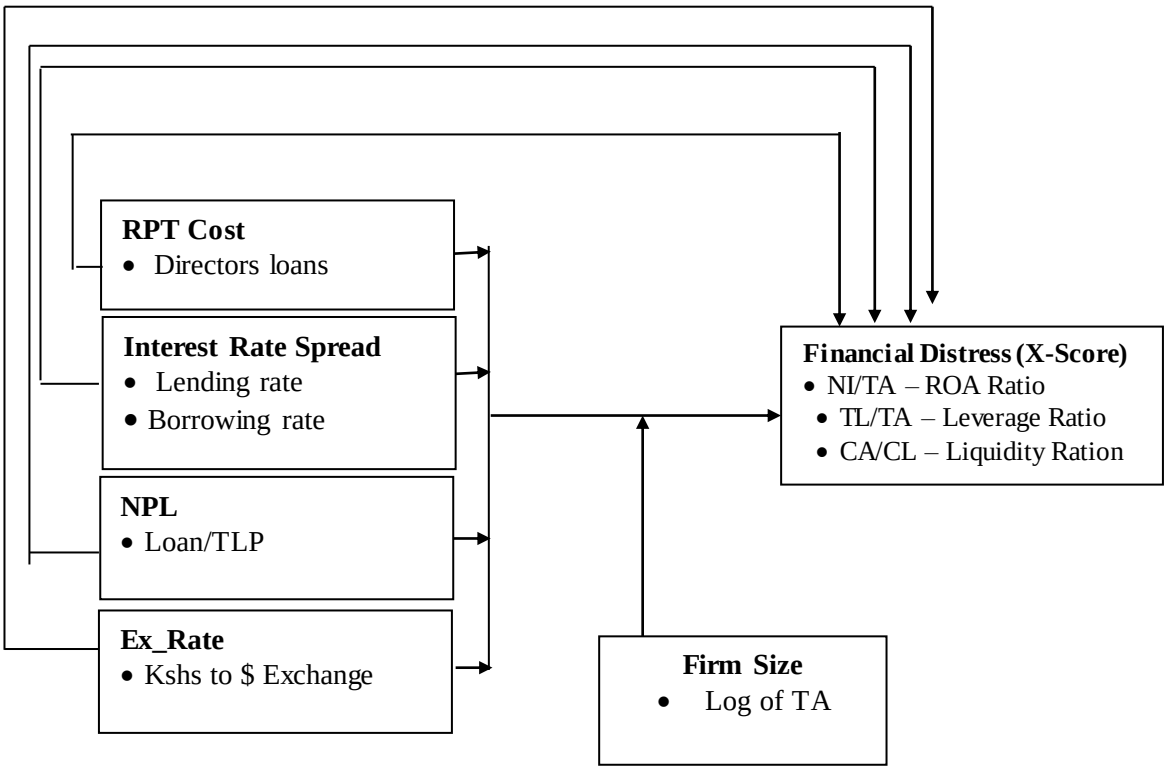


**Figure 4.1: The revised conceptual framework based on findings**

In dealing with the financial distress of DT-SACCO s in Kenya and based on all the statistical tests from the collected data, the researcher recommends the revised conceptual framework to SASRA as the DT-SACCOs policy maker and the individual DT-SACCOs to adopt the model to manage financial distress they are facing. This is because the study at bivariate variable level established that related party transaction, interest rate spread, non-performing loan, and exchange rate exposure were able to predict the financial distress among DT-SACCOs in Kenya. Further, the study established that the DT-SACCOs' size moderated the relationship of the financial distress determinants and also that SASRA amendments can not be used to control the financial distress of the DT-SACCO s in Kenya. The study, therefore, recommends the following model to be used by the DT-SACCO s in determining the financial distress that they face;

$$Yit = \beta 0 + \beta 1X_1it + \beta 3X_3it + \beta 4X_3 + \alpha i + uit \ldots\ldots\ldots (3.1)$$

Where:

Y = Financial Distress for DT-SACCO $\beta 0$ = the Y Intercept for DT-SACCO i at time t

$X_1$ = Related Party Transactional cost for DT-SACCO i at time t

$X_2$ = Interest rate spread for DT-SACCO i at time t

$X_3$ = Non-performing loans for DT-SACCO i at time t

$X_4$ = Exchange Rate Exposure for DT-SACCO i at time t

*e* = the error term

Model for the moderator variable

$$FD_{it} = \beta_0 + \beta_i Xit * Z_{it} + \alpha_{iit} + u_{it+e} \qquad (3.2)$$

Where:

$FD_{it}$ = Financial Distress of SACCO i in year t.

Xit = determinants of related party transactions, interest rate spread, non-performing loans and exchange rate exposure in DT SACCO i in year t

$\beta 0$ = intercept for each entity (n entity-specific intercepts)

Z = moderating variables of firm size of DT SACCO, DT SACCO i in year t

# CHAPTER FIVE

# SUMMARY, CONCLUSIONS AND RECCOMENDATIONS

## 5.1 Introduction

This study sought to establish the determinant of financial distress among deposit-taking savings and corporative societies in Kenya using seven years of panel data. This chapter reviews the findings of the study and presents a summary of key findings, conclusions and the necessary recommendations in line with the objectives and research hypotheses of the study. Policy recommendations based on the conclusions drawn are provided. Finally, areas for further study are given.

## 5.2 Summary of Major findings

In recognition that few factors and more specifically those that are within the control of managers come into play in the determination of the financial stability of the financial institution, three ratios namely related party transaction, interest rate spread, and non-performing loans, and one index; interest spread were selected as the close determinants and subjected to panel data regression process in this study. Except for interest rate spread, all the other two predictors were found to significantly positively predict financial distress. The specific findings on the significance of each of the variables are summarized below.

### 5.2.1 Related Party Transaction and Financial Distress of the DT SACCO Societies

First, the study established that related party transactions had a significant effect on financial distress in savings and credit cooperative organizations in Kenya as a financial distress determinant to the extent of 29.37037units. This means that a one unit increase in related party transactional cost as a financial distress determinant will decrease the probability of financial distress in savings and credit cooperative organizations in Kenya by 29.37037 units. This finding is consistent with the reality that when financial institutions increase the interest they charge on the loans, they are

also able to increase their revenues which they can use to come out of any financial distress that they may be facing.

### 5.2.2 Interest Rate Spread and Financial Distress of SACCOs Societies

Second, the study established a statistically significant positive relationship between Related Parties Transaction (RPT) and SACCOs financial distress (r=3.290715, p=.005) as per Table 4.11. This finding is also consistent with the real world, where the increase in directors taking loans from the same firms where they are executives will distress such firms because of un-declared conflicting interests which in some cases are not disclosed.

### 5.2.3 Non-Performing Loans and Financial Distress of SACCOs Societies

Third, the study established a positive statistically significant relationship between Non-Performing Loans (NPL) and SACCOs financial distress (r=2.932741, p=.001). The increase in non-performing loans in the real world is a serious problem for firms which the findings of the study have statistically proved. Non-Performing Loans (NPL) therefore could be used to predict the financial distress of DT-SACCO s in Kenya. This finding indicated that an increase in the RPT by 1 unit will lead to an increase in financial distress of DT-SACCO s in Kenya by 2.932741 multiple units.

### 5.2.4 Exchange Rate Exposure and Financial Distress of SACCOs Societies

Four, the study established a positive statistically significant relationship between exchange rate exposure and SACCOs financial distress (r= 0.0118763, p=.000) as per Table 4.14. The increase in exchange rate exposure in the real world is a serious problem to firms which the findings of the study have statistically proved. This finding indicated that an increase in the exchange rate exposure by 1 unit will lead to an increase in financial distress of DT-SACCO s in Kenya by 0.0118763 multiple units. This implies that exchange rate exposure was a predictor of the financial distress of DT-SACCO s in Kenya.

### 5.2.5 Controlling effect of SASRA Amendment on the Determinants of Financial Distress

The introduction of SASRA amendment did not change the relationship between the determinants and DT SACCOs financial distress. The relationship between related party transaction cost and financial distress remained statistically insignificant $p=0.965>0.05$, that of interest rate remained statistically significant at $p=0.000<0.05$, that of non-performing loans remained statistically insignificant at $p=0.000<0.05$ and that of exchange rate exposure also remained statistically insignificant at $p=0.000<0.05$. SASRA amendments, therefore, did not have a controlling effect on the determinants of financial distress in the DT SACCOs in Kenya since the relationships between the determinants and financial distress of DT-SACCO societies remained the same as it was before the introduction of SASRA amendment.

### 5.2.6 The Moderation Effect of Firm Size on the Relationship between the Determinants and Financial Distress

The study established a slight change in the R square of 0.0264 and F statistics of -2.65 after the introduction of Firm Size as a moderating factor in the regression. The finding indicated an increase in $R^2$ by about 3% indicating that the determinants contributed more to the relationship between the determinants and financial distress of the SACCO societies in Kenya by 3% more after the introduction of SACCO size as a moderator variable. This is an indication that Firm Size had a moderating effect in the relationship of the determinant of financial distress in the DT-SACCO s in Kenya.

## 5.3 Conclusions

The aim of this study was to bring to the fore the determinants of financial distress among SACCOs in Kenya. The predictor determinants were; Related Parties Transaction (RPT), Interest Rate Spread, Non-Performing Loan, exchange rate exposure, SASRA Amendments, and SACCO Size.

### 5.3.1 Conclusion on Effect of Related Party Transactions on Financial Distress

The first objective of the study was to examine the effect of related party transactions on financial distress in savings and credit cooperative organizations in Kenya. The study found a significant relationship between related party transactions and financial distress among SACCOs in Kenya. This was contrary to the hypothesized relations of the insignificant relationship between related party transactional cost and financial distress of DT-SACCOs in Kenya and therefore, the researcher rejected the null hypothesis $H_0$1**:** that related party transaction has no significant effect on financial distress in Savings and Credit Cooperative Organizations in Kenya. The current findings indicate that the proportion of core capital to the total assets held by a SACCOs does indicate the likelihood of financial distress. This consequently indicates that related party transaction in the SACCO sector has a direct influence on the desired stability in the SACCOs Sector. The finding, therefore, supports the expansion of Agency Theory on which related party transaction was analyzed.

### 5.3.2 Conclusion on Interest Rate Spread on Financial Distress

The second objective of the study was to establish the effect of interest rates spread on loans on financial distress in savings and credit cooperative organizations in Kenya. The study established a significant relationship between interest rate spread on loans and financial distress in savings and credit cooperative organizations in Kenya. This was contrary to the hypothesized insignificant relationship between interest rate spread on loans and financial distress and the null hypothesis $H_0$2**:** that interest rates spread on loans have no significant effect on financial distress in Savings and Credit Cooperative Organizations in Kenya was rejected. This finding, therefore, is an expansion of Agency Theory where the interest rate is what the agents manage for the owners of the firms.

### 5.3.3 Conclusion on Non-Performing Loans on Financial Distress

The third objective of the study was to determine the effect of non-performing loans on financial distress in savings and credit cooperative organizations in Kenya. The study established a significant relationship between the non-performing loan and

financial distress in savings and credit cooperative organizations in Kenya. This finding was contrary to the hypothesized insignificant relationship between the non-performing loan and financial distress in savings and credit cooperative organizations in Kenya and therefore rejected the null hypothesis $H_0$3**:** that Non-performing loans do not significantly affect financial distress in savings and credit cooperatives in Kenya was rejected. This finding therefore can be proof of the expansion of the Trade-off Theory.

### 5.3.4 Conclusion on Exchange Rate Exposure and Financial Distress

The fourth objective of the study was to establish the effect of exchange rate exposure on financial distress in savings and credit cooperative organizations in Kenya. The study established a significant relationship between exchange rate exposure on loans and financial distress in savings and credit cooperative organizations in Kenya. This was contrary to the hypothesized insignificant relationship between exchange rate exposure on loans and financial distress and the null hypothesis $H_0$4**:** that exchange rate exposure was no significant effect on financial distress in Savings and Credit Cooperative Organizations in Kenya was rejected. This finding, therefore, is also an expansion of Agency Theory where exchange rate exposure is also what the agents manage for the owners of the firms.

### 5.3.5 Conclusion on Controlling Effect on SASRA Regulations and Financial Distress

The fifth objective of the study was to determine the controlling effect of SASRA amendment on the determinants and financial distress in savings and credit cooperative organizations in Kenya. Based on no significant change in the results before and after the introduction of SASRA amendments, the researcher concluded that SASRA amendments did not have a controlling effect on the determinants of financial distress in the DT SACCOs in Kenya since the relationships between the determinants and financial distress of DT-SACCO s remained the same as it was before the introduction of SASRA amendment.

### 5.3.6 Conclusion on the Moderating Effect of Firm Size on the Relationship between the Determinants and Financial Distress

The sixth objective of the study was to assess the moderating effect of firm size on the relationship between the determinants and financial distress in savings and credit cooperative organizations in Kenya. The study established that the introduction of SACCO Size changed the relationship between the determinants and DT SACCOs financial distress. This finding, therefore, made the researcher conclude that SACCOs size did not have a moderating effect on the determinants of financial distress in the DT SACCOs in Kenya since the relationships between the determinants and financial distress of DT-SACCO s remained the same as it was before the introduction of the moderating variable. This confirms the hypothesized lack of moderating effect of firm size on the relationship between the determinants and financial distress in savings and credit cooperative organizations in Kenya. The null hypothesis $H_0$5**:** Firm size has no moderating effect on the relationship between the determinants and financial distress in savings and credit cooperative organizations in Kenya was rejected. The finding is a clear indication of further research to be done to expand on the knowledge of Institutional Theory.

## 5.4 Recommendations

### 5.4.1 Recommendations to Policy

With a substantial number of SACCOs in distress or exhibiting the potential of falling into financial distress, a call for a stronger policy framework should take precedence in securing the future of the sector. Based on the current findings and the need for the existing SACCO regulatory framework to ensure enhanced savings mobilization, wealth creation, and at the same time guarantee safety of member deposits, the following policy recommendations are worth consideration.

First, from the current evidence indicating the important related party transactional cost as a determinant of financial distress, the need for an efficient money market for SACCOs becomes a necessity rather than a choice. While the SACCOs societies Act currently in place intends that SACCOs invest more in government securities as a

means of promoting their liquidity, this has not received wider acceptance as indicated by low investment in government bonds and bills. An assessment of the reasons that have prompted the slow adoption and identification of opportunities for improving access to money markets should be considered.

Secondly, SASRA should review the parameters of loan management by the SACCO societies in Kenya should be reviewed. This is based on the findings from the study that established a significant relationship between Non-Performing Loans (NPL) and financial distress of the DT-Taking SACCOs in Kenya. The policy review should re-look at loan provision and securities including interest spread policy to make the SACCOs protect the loans as a means of reducing non-performing loans. The government through SASRA should enact strict amendments to directors borrowing from SACCOs.

### 5.4.2 Recommendation to Practice

Based on the findings, apart from SASRA amendments, interest rate spread, and exchange rate exposure where the SACCO societies in Kenya may not have direct control, DT_SACCOs in Kenya should ensure that the set policies on related party transactions and non-performing loans are implemented to safeguard members' savings and also to ensure that the DT_SACCOs are stable and the mobilized finances are protected for the members' prosperity. The SACCO societies should carry out thorough loan appraisal procedures to determine repayment before the loans are awarded to clients. The SACCO societies should also have stringent control on directors' transactions to manage related party transactions which caused financial distress among the DT-SACCO societies.

### 5.4.3 Recommendation for Further Studies

SACCOs movement has taken root in Kenya right from saving mobilized finances to deposit-taking. The current study based on panel data analysis statistically proved that party transactions and non-performing loans are key variables that are related to the SACCOs financial distress in Kenya. The study contributes to the wide body of knowledge in finance, accounting, and corporate governance. Scholars in these areas

will use the basis of the findings to carry out further research that can inform strategies within the knowledge domain to reduce the SACCOs financial distress.

The main aim of this study was to bring to the fore determinants of financial distress among SACCOs in Kenya. With the study's limiting its scope to four key areas namely related party transaction, interest rate spread, and non-performing loans that explained 37.6% of the variations in financial distress, it is important to recognize that a universe of potential determinates that were left. A broader estimation model incorporating more potential determinants including different ratios in each specific area of focus is recommended, not only in improving the model prediction but also to bring more insight into the determinants of financial distress in the SACCO sector. Additionally, the current study analyzed a period that was predominantly a transition phase for the SACCO sector into a new regulatory framework. Future studies may focus on post regulatory period and bring to the fore those likely predictors in the context of a stable operating environment.

### 5.5 Contribution of the Findings to Existing Knowledge

The previous studies have addressed financial distress in banks and SACCOS but did not focus on the determinants of financial distress in the DT-SACCOs in Kenya. This study contributes to the existing knowledge by statistically proving that. Related party transactions and Non-performing Loans are the two main determinants of financial distress in the DT-s in Kenya. The study further contributes to policy by directing that SASRA should be keen on setting policy concerning related party transactions and Non-performing loans to safeguard the DT-SACCOs members' contributions which the study established to have a significant relationship with the SACCOs financial distress. The policy review should re-look at loan provision and securities including interest spread policy to make the SACCOs protect the loans as a means of reducing non-performing loans. The study contributes to theory by pointing out that the two determinants of financial distress in the DT-SACCOs in Kenya that is related party transactions and Non-performing loans can be best explained by Wrecker's Theory of Financial Distress, Keynes Liquidity Preference Theory, Information Asymmetric Theory, Agency Theory and Economic Regulatory Theory.

The study also contributes to the practice by pointing out that related party transactions and Non-performing loans have a statistical relationship with SACCOs financial distress in Kenya. This shows that when formulating DT-SACCO policy by SASRA they should take into consideration both related party transactions and Non-performing loans as key determinants that can contribute to the DT-SACCOs financial distress. SASRA should also consider entrenching in the policy their own amendment and DT-SACCO size which the study established to have a moderating effect.

The study contributes to the body of knowledge of the determinants of financial distress in firms. Based on the empirical review, the previous studies were based on listed companies and commercial banks. This finding from the current study, therefore, abridges the knowledge gap on the determinants of financial distress among DT-SACCOS in Kenya. The application of the theories considered underpinning the variables of the current study had not been researched before and therefore the current study brought out the analysis of the financial distress variables based on these theories. Last, past empirical studies used OLS while the current study used the random effect model. In terms of the contribution of the current study to innovation, the DT-Saccos should employ Fintech innovations to manage loans to reduce the level of non-performing loans which was established to be one of the determinants of DT-Saccos distress.

Past studies like that of Kivovo and Olweny (2014) despite having panel data between the years 2008 to 2013 employed descriptive analysis techniques in data analysis yet the current study has employed panel data analysis technique and hence the methodological contribution of the current study. Osoro (2018) studied financial distress in Kenya's manufacturing companies which were different from the current study which focused on DT SACCOs which are in the service-based industry hence the contextual contribution of the current study. The Osoro (2018) study employed OLS technique while the current study employed panel data analysis hence methodological contribution. Njogo (2008) studied financial distress in Kenyan SACCOs but collected primary and analyzed data using questionnaires and OLS technique. The current study collected and analyzed secondary data using the panel

data analysis technique and hence contributed to new knowledge in terms of methods. The Njogo (2008) study had a study period of 1 year yet the current study had a study period of 6 years and hence contextual contribution was made by the current study. The conceptual contribution of the current study involved the interplay among the theories employed in the current study i.e agency theory, Wrecker's financial distress theory, Keynes liquidity theory, and neoclassical theory all of which were employed in the service-based industry in a rare fashion compared to being employed in other industries in past studies.

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# APPENDICES

## Appendix I: Introduction Letter

Dear Respondent,

**Re: Research Study**

I am a Doctor of Philosophy student at Jomo-Kenyatta University of Agriculture and Technology presently carrying out a study on the topic **"Determinants of Financial Distress in Savings and Credit Cooperative Organizations in Kenya"**

It is my humble request that you assist me in this research by providing secondary data on the study variable. Please be assured that the response from this survey will be treated with utmost confidentiality and will be used for academic purposes only.

Thanking you in advance for taking your time to participate in this study.

Yours Sincerely,

**SUSAN JEPKORIR**

**Researcher**

**Appendix II: Data Collection Sheet**

Name of the SACCO: ……..

Kindly provide the following information for the period 2013 to 2022

| | Variable | 2013<br>KSh. | 2014<br>KSh. | 2015<br>Ksh. | 2016<br>Ksh. | 2017<br>Ksh. | 2018<br>Ksh. | 2019<br>Ksh. | 2020<br>Ksh. | 2021<br>Ksh. | 2022<br>Ksh. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Related party Transactions** | | | | | | | | | | | |
| 1 | Total amount of loans to related parties | | | | | | | | | | |
| **Interest rates spread** | | | | | | | | | | | |
| 1 | Charged Interest by SACCOs | | | | | | | | | | |
| 2 | Paid Interest by SACCOs | | | | | | | | | | |
| **Nonperforming loans** | | | | | | | | | | | |
| 1 | Non Performing Loans | | | | | | | | | | |
| 2 | Total Outstanding Loan Portfolio | | | | | | | | | | |
| **Exchange Rate Exposure** | | | | | | | | | | | |
| 1 | Annual Average Exchange Rate, Kshs to $ | | | | | | | | | | |
| **SASRA amendment** | | | | | | | | | | | |
| 1 | 1 with SASRA Amendments | | | | | | | | | | |
| 2 | 0 without SASRA Amendments | | | | | | | | | | |
| **Firm Size** | | | | | | | | | | | |
| 1 | Total Asset of the SACCOs | | | | | | | | | | |

## Appendix III: List of Registered SACCOs

## Schedule I: Licensed SACCO Societies for Period Ending December 2016

| No. | Name Of Society | Postal Address |
|---|---|---|
| 1. | 2nk SACCO Society Ltd | P.O Box 12196-10100 Nyeri |
| 2. | Afya SACCO Society Ltd | P.O.Box 11607 – 00400, Nairobi. |
| 3. | Agro-Chem SACCO Society Ltd | P.O Box 94-40107, Muhoroni. |
| 4. | All Churches SACCO Society Ltd | P.O Box 2036-01000, Thika. |
| 5. | Ardhi SACCO Society Ltd | P.O. Box 28782-00200, Nairobi. |
| 6. | Asili SACCO Society Ltd | P.O.Box 49064 – 00100, Nairobi. |
| 7. | Bandari SACCO Society Ltd | P.O.Box95011 –80104, Mombasa. |
| 8. | Baraka SACCO Society Ltd | P.O.Box 1548 – 10101, Karatina. |
| 9. | Baraton University SACCO Society Ltd | P.O Box 2500-68100, Eldoret. |
| 10. | Biashara SACCO Society Ltd | P.O.Box 1895 – 10100, Nyeri. |
| 11. | Bingwa SACCO Society Ltd | P.O.Box 434 – 10680, Kerugoya. |
| 12. | Boresha SACCO Society Ltd | P.O.Box80–20103, Eldama Ravine. |
| 13. | Capital SACCO Society Ltd | P.O Box 1479-60200, Meru. |
| 14. | Centenary SACCO Society Ltd | P.O.Box 1207 – 60200, Meru. |
| 15. | Chai SACCO Society Ltd | P.O.Box 47815 – 00100, Nairobi. |
| 16. | Chuna SACCO Society Ltd | P.O.Box 68197 – 00100, Nairobi. |
| 17. | Cosmopolitan SACCO Society Ltd | P.O.Box 1931 – 20100, Nakuru. |
| 18. | County SACCO Society Ltd | P.O.Box 21 – 60103, Runyenjes. |
| 19. | Daima SACCO Society Ltd | P.O.Box 2032 – 60100, Embu. |
| 20. | Dhabiti SACCO Society Ltd | P.O.Box 353 – 60600, Maua. |
| 21. | Dimkes SACCO Society Ltd | P.O.Box 886 – 00900, Kiambu. |
| 22. | Dumisha SACCO Society Ltd | P.O Box 84-20600, Mararal. |
| 23. | Egerton SACCO Society Ltd | P.O.Box 178 – 20115, Egerton. |
| 24. | Elgon Teachers SACCO Society Ltd | P.O Box 27-50203, Kapsokwony. |
| 25. | Elimu SACCO Society Ltd | P.O Box 10073-00100, Nairobi. |
| 26. | Enea SACCO Society Ltd | P.O.Box 1836 – 10101, Karatina. |
| 27. | Faridi SACCO Society Ltd | P.O. Box 448-50400, Busia. |
| 28. | Fariji SACCO Society Ltd | P.O.Box 589 –00216, Githunguri. |
| 29. | Fortune SACCO Society Ltd | P.O.Box 559 – 10680, Kerugoya. |
| 68. | Fundilima SACCO Society Ltd | P.O.Box 62000 – 00200, Nairobi. |
| 31. | Gastameco SACCO Society Ltd | P.O Box 189-60101, Manyatta. |
| 32. | Githunguri Dairy & Community SACCO Society Ltd | P.O.Box896–00216, Guthunguri. |
| 33. | Goodway SACCO Society Ltd | P.O Box 626-10680, Kerugoya. |
| 34. | Gusii Mwalimu SACCO Society Ltd | P.O.Box 1335 – 40200, Kisii. |
| 35. | Harambee SACCO Society Ltd | P.O.Box 47815 – 00100, Nairobi. |
| 36. | Hazina SACCO Society Ltd | P.O.Box 59877 – 00200, Nairobi. |
| 37. | Ig SACCO Society Ltd | P.O.Box 1150 –50100, Kakamega. |
| 38. | Ilkisonko SACCO Society Ltd | P.O Box 91-00209, Loitokitok. |
| 39. | Imarika SACCO Society Ltd | P.O.Box 712 – 80108, Kilifi. |
| 40. | Imarisha SACCO Society Ltd | P.O.Box 682 – 20200, Kericho. |
| 41. | Imenti SACCO Society Ltd | P.O.Box 3192 – 60200, Meru. |
| 42. | Jacaranda SACCO Society Ltd | P.O. Box 176744-00232, Ruiru |
| 43. | Jamii SACCO Society Ltd | P.O.Box 57929 – 00200, Nairobi. |

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| 44. | Jitegemee SACCO Society Ltd | P.O. Box 86937-80100, Mombasa. |
| 45. | Jumuika SACCO Society Ltd | P.O. Box 14-40112, Awasi. |
| 46. | Kaimosi SACCO Society Ltd | P.O Box 153-50685, Sirwa. |
| 47. | Kathera Rural SACCO Society Ltd | P.O Box 251-60202, Nkubu. |
| 48. | Kenpipe SACCO Society Ltd | P.O.Box 314 – 00507, Nairobi. |
| 49. | Kenversity SACCO Society Ltd | P.O.Box 10263 – 00100, Nairobi. |
| 50. | Kenya Achievas SACCO Society Ltd | P.O. Box 6880-40200, Kisii. |
| 51. | Kenya Bankers SACCO Society Ltd | P.O.Box 73236 – 00200, Nairobi. |
| 52. | Kenya Canners SACCO Society Ltd | P.O.Box 1124 – 01000, Thika. |
| 53. | Kenya Highlands SACCO Society Ltd | P.O.Box 2085 – 002000, Kericho. |
| 54. | Kenya Midland SACCO Society Ltd | P.O Box 287-20400, Bomet. |
| 55. | Kenya Police SACCO Society Ltd | P.O.Box 51042 – 00200, Nairobi. |
| 56. | Joinas SACCO Society Ltd | P.O.Box 669 – 00219, Karuri. |
| 57. | Kimbilio Daima SACCO Society Ltd | P.O. Box 81-20225, Kimulot. |
| 58. | Kingdom SACCO Society Ltd | P.O.Box 8017 – 00680, Nairobi. |
| 59. | Kipsigis Edis SACCO Society Ltd | P.O Box 228-20400, Bomet. |
| 60. | Kite SACCO Society Ltd | P.O.Box 2073 – 40100, Kisumu. |
| 61. | Kitui Teachers SACCO Society Ltd | P.O.Box 254 – 90200, Kitui. |
| 62. | Kmfri SACCO Society Ltd | P.O.Box 80862, 80100 Mombasa. |
| 63. | Kolenge Tea SACCO Society Ltd | P.O Box 291-68681, Nandi Hills. |
| 64. | Konoin SACCO Society Ltd | P.O.Box 83 –20403, Mogogosiek. |
| 65. | Koru SACCO Society Ltd | P.O. Box Private Bag-40100, Koru |
| 66. | Kwale Teachers SACCO Society Ltd | P.O. Box 123-80403, Kwale. |
| 67. | Kwetu SACCO Society Ltd | P.O Box 818-90100, Machakos. |
| 68. | K-Unity SACCO Society Ltd | P.O.Box 268 – 00900, Kiambu. |
| 69. | Lamu Teachers SACCO Society Ltd | P.O. Box 110-80500, Lamu. |
| 70. | Lainisha SACCO Society Ltd | P.O. Box 272-10683, Wang'uru. |
| 71. | Lengo SACCO Society Ltd | P.O.Box 1005 – 80200, Malindi. |
| 72. | Mafanikio SACCO Society Ltd | P.O Box 86515-80100, Mombasa. |
| 73. | Magadi SACCO Society Ltd | P.O.Box 13 – 00205, Magadi. |
| 74. | Magereza SACCO Society Ltd | P.O.Box 53131 – 00200, Nairobi. |
| 75. | Maisha Bora SACCO Society Ltd | P.O.Box 68062 – 00100, Nairobi. |

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| 76. | Marsabit Teachers SACCO Society Ltd | P.O.Box 90 – 60500, Marsabit. |
| 77. | Mentor SACCO Society Ltd | P.O.Box 789 – 10200, Murang'a. |
| 78. | Metropolitan National SACCO Kiambu. | P.O.Box 871 – 00900, |
| | Society Ltd | |
| 79. | Miliki SACCO Society Ltd | P.O.Box 43582 – 10100 Nairobi |
| 80. | Mmh SACCO Society Ltd | P.O.Box 469 – 60600, Maua. |
| 81. | Mombasa Port SACCO Society Ltd | P.O.Box 95372–80104, Mombasa. |
| 82. | Mudete Tea Growers SACCO Society Ltd | P.O.Box 221 – 41053, Khayega. |
| 83. | Ollin SACCO Society Ltd | P.O Box 83-10680, Kerugoya. |
| 84. | Murata SACCO Society Ltd | P.O.Box 816 – 10200, Murang'a. |
| 85. | Mwalimu National SACCO Society Ltd | P.O.Box 62641 – 00200, Nairobi. |
| 86. | Mwietheri SACCO Society Ltd | P.O. Box 2445-060100, Embu. |
| 87. | Mwingi Mwalimu SACCO Society Ltd | P.O Box 489-90400, Mwingi. |
| 88. | Muki SACCO Society Ltd | P.O Box 398-20318,North Kinangop |
| 89. | Mwito SACCO Society Ltd | P.O.Box 56763 – 00200, Nairobi. |
| 90. | Nacico SACCO Society Ltd | P.O.Box 34525 – 00100, Nairobi. |
| 91. | Nafaka SACCO Society Ltd | P.O.Box 68586 – 00100, Nairobi. |

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| 92. | Nandi Farmers SACCO Society Ltd | P.O Box 333-68681, Nandi Hills |
| 93. | Nanyuki Equator SACCO Society Ltd | P.O Box 1098-Cx10400, Nanyuki |
| 94. | Narok Teachers SACCO Society Ltd | P.O.Box 158 – 20500, Narok. |
| 95. | Nassefu SACCO Society Ltd | P.O.Box 43338 – 00100, Narobi. |
| 96. | Nation SACCO Society Ltd | P.O.Box 22022 – 00400, Nairobi. |
| 97. | Nawiri SACCO Society Ltd | P.O Box 400-16100, Embu. |
| 98. | Ndege Chai SACCO Society Ltd | P.O.Box 857 – 20200, Kericho. |
| 99. | Ndosha SACCO Society Ltd | P.O.Box 532– 60401, Chogoria – Maara. |
| 100. | Ng'arisha SACCO Society Ltd | P.O.Box 1199 – 50200, Bungoma. |
| 101. | Noble SACCO Society Ltd | P.O.Box 3466 – 68100, Eldoret. |
| 102. | Nrs SACCO Society Ltd | P. O Box 575-00902, Kikuyu. |
| 103. | Nufaika SACCO Society Ltd | P.O Box 735-10680, Kerugoya. |
| 104 | Nyahururu Umoja SACCO Society Ltd | P.O Box 2183-20680, Nyahururu. |
| 105 | Nyala Vision SACCO Society Ltd | P.O Box 27-20686, Ndaragwa. |
| 106 | Nyambene Arimi SACCO Society Ltd | P.O.Box 493 – 60600, Maua. |
| 107 | Nyati SACCO Society Ltd | P.O. Box 7601 – 00200, Nairobi |
| 108 | New Forties SACCO Society Ltd | P.O.Box 1939 – 10100, Nyeri. |
| 109 | Orient SACCO Society Ltd | P.O.Box 1842 – 01000, Thika. |
| 110 | Patnas SACCO Society Ltd | P.O Box 601-20210, Litein. |
| 111 | Prime Time SACCO | P.O. Box 512 – 68700, Iten |
| 112 | Puan SACCO Society Ltd | P.O Box 404-20500, Narok. |
| 113 | Qwetu SACCO Society Ltd | P.O Box 1186-80684, Wundanyi |
| 114 | Rachuonyo Teachers SACCO Society Ltd | P.O. Box 147-40332, Kosele. |
| 115 | Safaricom SACCO Society Ltd | P.O.Box 66827 – 00800, Nairobi. |
| 116 | Sheria SACCO Society Ltd | P.O.Box 34390 – 00100, Nairobi. |
| 117 | Shirika SACCO Society Ltd | P.O Box 43429-00100, Nairobi. |
| 118 | Simba Chai SACCO Society Ltd | P.O.Box 977 – 20200, Kericho. |
| 119 | Siraji SACCO Society Ltd | P.O.Box Private Bag, Timau. |
| 120 | Skyline SACCO Society Ltd | P.O.Box 660 – 20103, Eldama Ravine. |
| 121 | Smart Champions SACCO Society Ltd | P.O Box 64-60205, Githingo |
| 122 | Smart Life SACCO Society Ltd | P.O Box 118-68705, Kapsowar. |
| 123 | Solution SACCO Society Ltd | P.O.Box 1694 – 60200, Meru. |
| 124 | Sotico SACCO Society Ltd | P.O.Box 959 – 20406, Sotik. |
| 125 | Southern Star SACCO Society Ltd | P.O Box 514-60400, Chuka |
| 126 | Shoppers SACCO Society Ltd | P.O. Box 16 – 00507, Nairobi |
| 127 | Stake Kenya SACCO Society Ltd | P.O.Box 208 – 40413, Kehancha. |
| 128 | Stima SACCO Society Ltd | P.O.Box 75629 – 00100, Nairobi. |
| 129 | Sukari SACCO Society Ltd | P.O Box 841-50102, Mumias |
| 168 | Suba Teachers SACCO Society Ltd | P.O. Box 237-40685, Mbita. |
| 131 | Supa SACCO Society Ltd | P.O.Box 271 – 20600, Maralal. |
| 132 | Tai SACCO Society Ltd | P.O.Box 718 –00216, Githunguri. |
| 133 | Taifa SACCO Society Ltd | P.O.Box 1649 – 10100, Nyeri. |
| 134 | Taraji SACCO Society Ltd | P.O.Box 605 – 40600, Siaya. |
| 135 | Tembo SACCO Society Ltd | P.O.Box 91 – 00618, Ruaraka |
| 136 | Tenhos SACCO Society Ltd | P.O.Box 391 – 20400, Bomet. |
| 137 | Thamani SACCO Society Ltd | P.O.Box 467 – 60400, Chuka. |
| 138 | Transcounties SACCO Society Ltd | P.O. Box 2965-68200, Kitale. |
| 139 | Trans Nation SACCO Society Ltd | P.O.Box 15 – 60400, Chuka. |
| 140 | Times U SACCO Society Ltd | P.O.Box 310 – 60202, Nkubu. |
| 141 | Tower SACCO Society Ltd | P.O.Box 259 – 20683, Ol'kalou. |
| 142 | Trans- Elite County SACCO Society Ltd | P.O Box 547-68680, Kapsabet. |

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| 143 | Ufanisi SACCO Society Ltd | P.O Box 2973-00200, Nairobi. |
| 144 | Uchongaji SACCO Society Ltd | P.O. Box 92503-80102, Mombasa. |
| 145 | Ukristo Na Ufanisi Wa Angalicana SACCO Society Ltd | P.O Box 872-00605, Nairobi. |
| 146 | Ukulima Saco Society Ltd | P.O.Box 44071 – 00100, Nairobi. |
| 147 | Unaitas SACCO Society Ltd | P.O.Box 38791– 00100, Nairobi. |
| 148 | Uni-County SACCO Society Ltd | P.O Box 10132-20100, Nakuru |
| 149 | United Nations SACCO Society Ltd | P.O.Box 68552 – 00100, Nairobi. |
| 150 | Unison SACCO Society Ltd | P.O Box 414-10400, Nanyuki. |
| 151 | Universal Traders SACCO Society Ltd | P.O.Box 2119– 90100, Machakos. |
| 152 | Vihiga County Farmers Society Ltd | P.O Box 689-50317, Chavakali |
| 153 | Vision Point SACCO Society Ltd | P.O.Box 42 – 40502, Nyansiongo. |
| 154 | Vision Africa SACCO Society Ltd | P.O Box 18263-20100, Nakuru. |
| 155 | Wakenya Pamoja SACCO Society Ltd | P.O.Box 829 – 40200, Kisii. |
| 156 | Wakulima Commercial Society Ltd | P.O.Box 232 – 10103, Mukurweni. |
| 157 | Wanaanga SACCO Society Ltd | P.O.Box 34680 – 00501, Nairobi. |
| 158. | Wananchi SACCO Society Ltd | P.O.Box 910 – 10106, Othaya. |
| 159 | Wanandege SACCO Society Ltd | P.O.Box 19074 -00501, Nairobi. |
| 160 | Washa SACCO Society Ltd | P.O.Box 83256–80100, Mombasa. |
| 161 | Waumini SACCO Society Ltd | P.O.Box 66121 – 00800, Nairobi. |
| 162 | Wevarsity SACCO Society Ltd | P.O Box 873-50100, Kakamega |
| 163 | Winas SACCO Society Ltd | P.O.Box 696 – 60100, Embu. |
| 164 | Yetu SACCO Society Ltd | P.O.Box 511 – 60202, Nkubu. |

**Schedule II: Restricted Licenses for the Period Ending 68th June 2016**

| No. | Name of Society | Postal Address |
|---|---|---|
| 1. | Airports SACCO Society Ltd | P.O. Box 19001-00501, Nairobi |
| 2. | Ainabkoi SACCO Society Ltd | P.O. Box 120, Ainabkoi |
| 3. | Eco-Pillar SACCO Society Ltd | P.O. Box 48 – 68600, Kapenguria |
| 4. | Good Faith SACCO Society Ltd | P.O. Box 224 – 00222, Uplands |
| 5. | Comoco SACCO Society Ltd | P.O. Box 68135 – 00100, Nairobi |
| 6. | Telepost SACCO Society Ltd | P.O. Box 49557 – 00100, Nairobi |
| 7. | Nandi Hekima SACCO Society Ltd | P.O. Box 211-68680, Kapsabet |
| 8. | Nitunze SACCO Society Ltd | P.O. Box 295– 50102, Mumias |
| 9. | Transnational Times SACCO Society Ltd | P.O. Box 2274 – 68200, Kitale |
| 10. | Moi University SACCO Society Ltd | P.O. Box 23 – 68107, Moi University |
| 11. | Nyamira SACCO Society Ltd | P.O. Box 633– 40500, Nyamira |
| 12. | Banana Hill SACCO Society Ltd | P.O. Box 333– 00219, Karuri |

Source: Sacco Societies Regulatory Authority (2020)

## Appendix IV: University Authorization Letter

JOMO KENYATTA UNIVERSITY
OF
AGRICULTURE AND TECHNOLOGY
DIRECTOR, BOARD OF POSTGRADUATE STUDIES

P.O. BOX 62000
NAIROBI - 00200
KENYA
Email: director@bps.jkuat.ac.ke TEL: 254-067-5870000/1-5

**REF: JKU/2/11/HD433-C007-0959/2014** **14TH JUNE, 2019**

**JEPKORIR SUSAN**
**C/o NAKURU CBD CAMPUS**
**JKUAT**

**Dear Ms. Jepkorir,**

**RE: APPROVAL OF YOUR INTENT TO SUBMIT PhD. THESIS FOR EXAMINATION**

We are in receipt of your letter of intent to submit your PhD. thesis for examination.

This is to inform you that your request **has been approved**. It is a requirement that you clear with all the relevant departments/sections of the University and forward the duly completed Clearance Form to the BPS office to enable us processes your thesis for examination.

The Clearance Form is obtainable from the Office of the Director, Board of Postgraduate Studies.

Yours sincerely

**PROF. MATHEW KINYANJUI**
**DIRECTOR, BOARD OF POSTGRAUDATE STUDIES**
Copy to: Dean, SOB
/cm

Setting Trends in Higher Education, Research and Innovation

## Appendix V: NACOSTI Research Authorization Letter

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

Telephone: 020 400 7000,
0713 788787,0735404245
Fax: +254-20-318245,318249
Email: dg@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No. **NACOSTI/P/18/82887/20677** Date: **4th January, 2018**

Susan Jepkorir Mursoi
Jomo Kenyatta University of Agriculture & Technology
P.O. Box 62000-00200
**NAIROBI.**

**RE: RESEARCH AUTHORIZATION**

Following your application for authority to carry out research on ***"Determinants of financial distressing savings and cooperative organizations in Kenya"*** I am pleased to inform you that you have been authorized to undertake research in **all Counties** for the period ending **4th January, 2019.**

You are advised to report to **the County Commissioners and the County Directors of Education, all Counties** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

**BONIFACE WANYAMA.**
**FOR: DIRECTOR-GENERAL/CEO**

Copy to:

The County Commissioners
all Counties.

The County Directors of Education
all Counties.

## Appendix VI: NACOSTI Research Permit

THIS IS TO CERTIFY THAT:
*MS. SUSAN JEPKORIR MURSOI*
of JKUAT, 1063-20100 Nakuru,has been permitted to conduct research in *All Counties*

on the topic: *DETERMINANTS OF FINANCIAL DISTRESSIN SAVINGS AND COOPERATIVE ORGANIZATIONS IN KENYA*

for the period ending:
*4th January,2019*

Permit No : NACOSTI/P/18/82887/20677
Date Of Issue : 4th January,2018
Fee Recieved :Ksh 2000

.....
*Applicant's Signature*

.....
*Director General*
*National Commission for Science, Technology & Innovation*

### CONDITIONS

1. The License is valid for the proposed research, research site specified period.
2. Both the Licence and any rights thereunder are non-transferable.
3. Upon request of the Commission, the Licensee shall submit a progress report.
4. The Licensee shall report to the County Director of Education and County Governor in the area of research before commencement of the research.
5. Excavation, filming and collection of specimens are subject to further permissions from relevant Government agencies.
6. This Licence does not give authority to transfer research materials.
7. The Licensee shall submit two (2) hard copies and upload a soft copy of their final report.
8. The Commission reserves the right to modify the conditions of this Licence including its cancellation without prior notice.

REPUBLIC OF KENYA

NACOSTI

National Commission for Science, Technology and Innovation

RESEARCH CLEARANCE PERMIT

Serial No.A 17028

CONDITIONS: see back page