RELATIONSHIP BETWEEN FIRM CHARACTERISTICS AND PROFITABILITY OF DEPOSIT TAKING SACCO'S IN KENYA

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DECLARATION

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

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This project has been submitted for examination with my approval as university supervisor.

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DEDICATION

I would like to dedicate this research project to my parents, my brother and sisters. They have been the source of my strength throughout this program. I also dedicate this work to my friends who have encouraged me all the way to pursue my education to great levels.

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I would like to take this opportunity to express my deepest appreciation to all those who made it possible for me to complete this research project.

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ABSTRACT

Firm characteristics are very crucial for the performance of firms in general and Deposit taking savings and credit cooperative societies. The current study therefore sought to examine the effect of firm characteristics on profitability of deposit Taking Savings and Credit Cooperative Societies in Kenya. The study was based on three theories including Resource Based View theory, Efficient Market Hypothesis and Liquidity Preference Model. The current research adopted a descriptive survey design to establish the effect of firm characteristics on profitability of DT-SACCOs in Kenya. Specifically the study targeted 135 DT-SACCOs that are fully licensed by SASRA before the study period and have financial data for the five year period of the study from 2013-2017. The sample size was 56 DT-SACCOs**.** The study employed simple random sampling to select the number of DT-SACCOs that formed part of the study. Study relied on Secondary data on the financial performance of DT-SACCOs retrieved from the SASRA SACCOs supervision annual reports for the five years 2013,2014,2015,2016 and 2017. Individual SACCOs also provided audited financial statements for the last five years. The retrieved data was recorded on data collection sheets. The data recorded on data collection sheets were keyed in Microsoft excel and the excel file exported to STATA version 14. The data were analysed with aid of STATA where descriptive and inferential statistics were generated. The descriptive analysis involved mean, standards deviation, Minimum and maximum. The Inferential statistics involved diagnostic test and panel data regression analysis. The overall significance of the model was examined at 5% level of significance using F-test while the significance of individual independent variables were examined at 5% level of significance using student t-test.If the value of significance is less than the thresh hold of 5%, then the variable or the model is said to be statistically significant. The data was subjected to diagnostic tests to evaluate conformity with multiple regression model assumptions. This ensured validity of the results. The study employed normality, heteroscedasticity, multicollinearity, serial correlation and unit root diagnostic tests. The findings established that Leverage had a statistically insignificant effect on profitability of DT-Saccos in Kenya, Operational efficiency had a statistically significant effect on profitability of DT-Saccos in Kenya, asset quality had a statistically significant effect on profitability performance of DT-Sacco in Kenya. Finally, the study established that capital adequacy had statistically insignificant effect on profitability of DT-Saccos in Kenya. The study concludes that Firm size, asset quality and operational efficiency had statistically significant effect on profitability while leverage and capital adequacy did not show significant effect on profitability of DT saccos. "Based on the conclusions, a "Management of DT-Saccos has to continue working on the operational efficiency as improved efficiency translates to improved profitability. Additionally, the management of DT-Saccos should put more emphasis in offering loans to clients who are in a position to pay back on time as agreed this will help in lowering the level of nonperforming loans within the DT-Saccos sub sector. Finally, study further suggest to SASRA to inform the investing public of any DT-Sacco carrying out major restructuring such that they are aware before making any decision since the value of the firm may change greatly during and after major restructuring.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

World over, Deposit- taking Sacco's are crucial for social undertakings. The deposit Taking Saccos (DT-Sacco's) assume vital role in the socioeconomic advancement of countries as they largely use authority they have over the movement of cash from surplus sources to those who need the funds through financial intermediation. DT- Sacco's are also very important in stimulating economic growth by making investment a possibility (Kaguri, 2013). The performance of DT-Sacco's might be characterized as the impression of the manner by which the assets of the Sacco's are utilized in a way that empowers it to accomplish its targets. Moreover, the term performance of DT-Sacco implies DT-Saccos degree and capacity to accomplishment of their coveted goals (Kamande, 2017). Literature has shown how pecuniary firm characteristics, such as assets, age, diversification, capital, leverage, board composition, institutional shareholding, profitability, liquidity, growth and economic environmental variables make an influence on a business's financial monetary performance and progress (Kaguri, 2013).

The concept of firm characteristics has a base in theories that theorises on conditions under which a firm may slide into financial problems that in turn affects their profitability. The current study was based on three theories including: Resource Based View theory, Efficient Market Hypothesis and Liquidity Preference Model. The first theory supporting the study is Resource Based View Theory proposed by Penrose (1950) relevant for the current research on effect of firm characteristics on profitability of DT-Sacco's in Kenya since firm characteristics like firm size, measured using firm assets is a

kind of resource that must be managed efficiently and effectively to contribute to DT-Sacco profitability. The second Theory is the Efficient Market Hypothesis proposed Eugene Fama (1970) that stated that asset prices in the capital market usually reveals all information available such that it is not possible to realise abnormal profits notwithstanding the investment strategies utilized. Finally, the study was based on Liquidity Preference Model proposed by Kene given its emphasis on Liquidity, and the other variables under study; leverage, efficiency and capital adequacy.

1.1.1 Firm Characteristics

Firm characteristics are the DT-Sacco's individual variables, which influence performance of DT-Sacco's. These firm characteristics are impacted by the choices made by administration and board. These variables are likewise inside the extent of the DT-Sacco to control them and they contrast starting with one DT-Sacco then onto the next DT-Sacco. These variables may include but not limited to capital structure, size, financing cost strategy, deposits, diversification of organizations credit portfolio and financing cost strategy (Dang, 2011). To estimate and quantify DT-Sacco firm specific qualities, researchers regularly utilize CAMEL system. CAMEL is an acronym of capital adequacy, Asset quality, Management efficiency, earning capacity and liquidity (Kaguri, 2013).

Capital Adequacy or adequacy describes capital level needed in a DT-Sacco to permit them survive through the risks, for example, credit risk, Risk inherent in the market and finally operational oriented risks they are inclined to with the end goal to retain the potential losses and secure the interest of the firms creditors.

Capital is a crucial major characteristic of DT- that directly affects the profitability level of the DT-Sacco. Capital describes the sum total of financial resources needed to eliminate the possibilities of the firm landing into financial problems. Great levels of capital limit the odds of misery inside a managing an account organization. Capital adequacy is estimated as the ratio of capital to total assets. (Nyanga, 2012).

Quality of capital for DT-Sacco's describes a proportion of the total advances made by DT-Sacco that has a probability of default. In this manner, resource quality is the proportion of the cost at which DT-Sacco would pitch a credit to an outsider as dictated by the borrower (Mwangi and Birundu, 2015). Income capacity speaks to the potential for a DT-Sacco to generate profits that empower the firm to support extension, stay aggressive and improve its capital base. From the Regulator's perspective, profitability capacity's is very fundamental to enable a Sacco to assimilate losses made and improve the DT-Sacco's capital. Earning capacity can be assessed utilizing various bookkeeping ratios in particular Return on Assets (ROA) and Return on Equity (ROE) (Ongore and Kusa, 2013).

Management efficiency is the capacity of the top managerial staff and administration to identify, quantify, control the possible risks of DT-Sacco and provide assurance of successful in carrying out the tasks of a DT-Sacco of credit creation and financial intermediation. The management efficiency of a DT-Sacco can be estimated utilizing diverse financial ratios, for example, growth in total Assets, Growth in advancement and credit and income development rate. The management performance could be measured using subjective proxies using subjective measures such as quality of staff, internal

controls and organizational discipline (Ongore and Kusa, 2013). Management efficiency fundamentally explains the amount of expenses for the operation of DT-Sacco as well as their profitability (Ongore and Kusa, 2013). Capacity to earning of a DT-Sacco t generate enough profits for survival, competitiveness and future expansion (Ongore and Kusa, 2013).

Liquidity describes the DT-Sacco's capacity to honour its commitments, particularly the one for those who have deposited their money with the Sacco's. Satisfactory levels of liquidity are straightforwardly corresponding to the profitability of DT-Sacco's. To gauge liquidity, the executive should use measurement means like cash and cash equivalents of the DT-Sacco to total assets of the DT-Sacco (Ongore and Kusa, 2013). DT-Sacco that have low levels of liquidity may have a problem of settling daily obligations when they fall due. Liquidity of DT-Sacco is often estimated while normal financial rations including total loans to customer deposits, cash to deposit ratio and deposits to total assets (Nyanga, 2012).

1.1.2 Profitability of Deposit Taking Savings and Credit Cooperatives

Profits maximisation has remained one of the oldest and still relevant objectives of a firm. Commonly referred to as the bottom line determinant of performance for firm. Profit refers to the excess of revenue over expenses incurred in generating the same income. In accounting, Profit is the excess of revenue over expenses (Cassar and Holmes, 2013). The income statement gives the profit for a given firm. On annual basis, all registered companies in Kenya are required to file this alongside other financials with the Kenya Revenue Authority, (KRA).

However, this is increasingly being prepared over shorter periods such as monthly, quarterly to measure the performance and take corrective measures in advance. Even though a vast population may not understand other measures of a firm's performance, a majority understand and value profits hence its significance. In the world of increasing competition, it has become paramount for firms to develop and maintain a competitive edge in their respective industries. There are different approaches to measuring a firm's profitability; the most popular approach is the Traditional approach. Under this approach, there are two ways of measuring profitability the absolute profitability measure and the relative profitability measure (Ali, Nas & Ramay, 2013). The absolute terms is measured on the level of profit calculated as total income less total expenses.

The relative approach focuses on the traditional ratios as proxies of firm profitability. These ratios include Net profit margin, gross margin , Return on equity (ROE) and return on assets (ROA).The ROA measures the pre-tax returns to the entire business (Doehring, 2012). It compares the income recurring to a business to its assets base. ROE is a measure of pre-tax returns to the equity base. It compares the income occurring to a business to the total equity base of a firm. The gross margin and the net margin ratios measure the efficiency of a firm in terms of how much of the sales are turned into profits. The profitability of a given firm rises with increasing level of consumer concentration. Firms in markets characterised by high customer concentration are considered more profitable and vice versa (Tregenna, 2009).

1.1.3 Firm Characteristics and Profitability

The causative associations between firm characteristics and profitability have been studied widely but have yielded varied results. According to Oigo (2015), high performance of DT-Sacco correlated with their level of credit risk management, diversity of revenue channels and control of operational expenses. The study further concluded that capital and liquidity directly influences financially based performance. Profitability of banking institutions is determined by the quality of their loan book. Liquidity has a direct causality on the financial performance of banking institutions. Delinquency of loans contributes to the highest risks and consequential losses to the financial institutions (Ongore & Kusa, 2013).

In reference to Dang (2011), the suitability of capital remains evaluated from the foundation of capital adequacy ratio (CAR). CAR depicts the core resilience on a banking firm ability to survive catastrophic circumstances. It takes an automatic consequence on the profitability of financial institutions through influencing its growth and development to alternative but risky revenue channels (Nazir, 2010). Capital fosters liquidity due to fragility of customer deposits prone to bank runs. Capital adequacy also has bearing on banking institutions ability to survive crunch and other distressing situations (Diamond, 2013). It is therefore posited that firm characteristics (firm size and leverage, composition and institutional shareholding have a sway on the Profitability of DT- SACCOs in Kenya.

1.1.4 Deposit Taking Savings and Credit Societies in Kenya

During the year ended 2017, a sum of 177 DT Savings and Credit Cooperatives were registered to carry out the activity of banking in Kenya in congruence with relevant legislation that guides the banking services provided by DT-Sacco's. The year 2017 saw two Deposit Taking Sacco's being deregistered hence leaving a balance of one hundred and seventy five DT- Sacco's still operating by the year end of 2017. Total number of deposits taking Sacco's Licensed by SASRA in 2017 was one hundred and seventy six after only one new deposit taking Sacco was licensed to operate during the year that ended in 2017 bringing the total number of deposit taking Sacco's to a total number of one hundred and seventy six Deposit taking Sacco's operating in line with jurisdiction and supervision of Sacco Societies Regulatory Authority (SASRA). The aggregate members of registered DT-SACCOs that are using the financial services of DTSACCOs were 3.6 Million members in 2017, of which approximately 500,000 were reported to have been inactively engaged in operation of DT-SACCOs (SASRA, 2017).

Study by Wambua (2011) noted that DT- SACCOs are a precondition for mobilization of savings among the low-income households in Kenya who have limited access to mainstream commercial banks that are rigid in their operation. The DT-SACCOs represent a key component of the financial system and make services available to a majority of low-income households in Kenya especially those living in the rural areas. DT-SACCOs have an extraordinary legitimacy in that their customers are additionally their investors. Their owners therefore should along these lines embrace genuine deposit mobilization, protection policies to cover part depositors and investor's funds, advances, and formation of inside motivations to appealing reserve funds.

1.2 Research Problem

Understanding the DT-Sacco characteristics and their influence on profitability of DT-Saccos is very critical to DT-Sacco's management and other groups having a stake in DT-Sacco operations including the regulatory authority and the government. Finance theory on relationship between firm characteristics and profitability of DT-Sacco's has revealed several DT-Sacco characteristics that determine profitability in the financial intermediation institutions. A review of literature review shows that there are several firm characteristics that can impact on firm profitability (Nazir, 2010). The DT-Sacco qualities and their impact in profitability is extra important to the administration of DT-Sacco's, partners and other stakeholders for example, the SASRA and the legislature. Empirical literature has shown that firm characteristics for the Sacco's have an important influence on the profitability of individual Sacco's. Studies by Nazir (2010) showed that the firm specific factors such as size, liquidity, leverage, capital structure and firm size have an impact on Sacco's performance.

There are a number of DT-SACCOs in Kenya that have been deregistered by SASRA while others place under statutory management due to poor performance. In the 2017 financial year, it was reported in business daily (Friday, September 29, 2017) that more than 100 deposit-taking savings and credit co-operatives (Saccos) did not meet the mandatory capital ratio requirement in 2016, raising questions over their fitness in the key credit market. The market regulator, the Sacco Societies Regulatory Authority (Sasra) says in its report for the period ending December 31, 2016 that only 69 of the 175 deposit-taking Saccos met and maintained the prescribed minimum institutional capital adequacy (ICA) ratio of eight per cent, meaning more than half the lenders are in breach

of the law. The poor performance has been partly been blamed on firm specific risks like credit risk that emanates from DT-Sacco characteristics have not been done to prove this assertions.

A number of studies exist both internationally on firm specific characteristics and profitability of firms. Anjum and Malik (2013) concluded that the leverage is directly associated to financial performance of firms in Pakistan's stock exchange. Klingenberg, Timberlake, Geurts and Brown (2013) noted that operational efficiency is a factor of performance. Abdirashid (2017) established that quality of management affect financial performance and the bank has managerial restructuring policy with which the majority of the respondents agreed with. Umoru and Osemwegie (2016) also revealed a positive link between financial performance and capital adequacy. Agbeja, Adelakun and Olufemi (2015) revealed a positive association between bank profitability and capital adequacy. The results revealed that the higher the equity levels the better the prospects for superior performance.

Locally, empirical studies on firm characteristics and performance also exist. Barus, Muturi and Kibati (2017) revealed a direct link between firm performance and capital adequacy. Kahuthu, Muturi and Kiweu (2015) also established a positive association between firm performance and capital adequacy. Kariuki, Muturi and Ngugi (2016) the findings concluded that there is need for continued monitoring of loan portfolio to improve Sacco efficiency. Kariuki and Wafula (2016) noted that the relationship between firm performance and assets quality was inverse. Wanjiru and Muturi (2016) revealed an inverse link between Sacco performance and loan default.

Hesborn, Onditi and Nyagol (2016) revealed a positive and significant relationship between credit policy, credit appraisal, credit substitutes, credit monitoring and financial performance. There is scarcity of pragmatic enquiries on the effects of firm characteristics on financial performance of DT- SACCOs in the financial subsector in Kenya (Kiaritha, 2015). Additionally, most studies on firm characteristics tends to be based on Commercial banking Institutions. The research therefore considers the effect of firm characteristics on the profitability of DT- SACCOs in Kenya. The study therefore seeks to answer the question: What is the effect of firm characteristics on the profitability of DT- Sacco is in Kenya?

1.3 Research Objective

The objective of the study was to examine the effect of firm characteristics on profitability of DT-SACCOs in Kenya.

1.4 Value of the Study

The findings of this study will be of particular importance and benefit to various stakeholders; regulators, DT-Saccos, investors, scholars and stakeholders across the world. Various regulators in different jurisdictions to improve on their financial performance approaches and create additional prudential guidelines and policies will use the findings from the study. These measures will help to avoid unnecessary declines, bursts in financial performance of DT-Saccos and unnecessary receivership of DT-Sacco. Sacco Society Regulatory Authority (SASRA) as a regulatory body for DT-SACCOs will understand the importance of adjusting their regulations in a pre-emptive and active manner to prepare for expected inflationary and deflationary pressures.

The regulations will help to encourage stronger financial performance of the deposit taking Sacco's. Effect to manageable levels and this can help to avoid unnecessary bank runs by investors in the Sacco sub sector of the financial industry.

The findings of this study will assist the management of DT-SACCOs to monitor the key firm characteristics and extent to which firm characteristics can affect financial performance of DT-Saccos. DT-SACCOs will easily determine the necessity of seriously taking into account the various market trends as far as firm specific factors are concerned in order to remain competitive in the world. To also help DT-SACCOs in understanding better the firm characteristics in relationship with financial performance and the courses towards the same. Further, to identify measures that can be put in place to avoid unnecessary financial performance fluctuations that may be brought about by firm characteristics.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The chapter expounds on literature already existing on firm characteristics and profitability. The chapter specifically examined the relevant theories for the study, the empirical findings on study topic, the determinants of profitability and finally the conceptual framework and summary of the study.

2.2 Theoretical Review

The concept of firm characteristics has a base in theories that theorises on conditions under which a firm may slide into financial problems that in term affects their profitability. The current study was based on resource based view theory, Efficient Market Hypothesis and Liquidity Preference Model.

2.2.1 Resource Based View Theory

The theory of Resource Based View goes back to the year 1950 when Penrose's observed organizations as a collection of resources (Prenrose,1955). The RBV views resources of a firm as being crucial indicator of a firm's avenue for competitive advantage creation and improvement in performance. The RBV theory classifies resources in two major groups, for example intangible and tangible resources. The Intangible resources are the ones that may result into competiveness improvement by enabling the firm to fuse their unique and valuable practices while tangible resources encourage execution of business process (Ray, Barney and Muhanna, 2004; Barney, 1991).

As substantiated by Barney (1991), RBV depends on two prepositions of resources as being heterogeneously circulated crosswise over firms and the non-transferability of beneficial resources from one firm to the next without bringing about expense.

Given the two presumptions, RBV argues that that just intangible resources that is valuable, uncommon, difficult to emulate and without a strategic substitutes is important in maintaining an organization's competitive advantage (Barney, 1991). RBV is basic in that venture administration practises depend on substantial intangible and tangible resources (Fernie, et al., 2003). For example, resources that are tangible incorporate the utilization of systematized procedures, instruments and strategies that are promptly accessible over the control of organizations (Crawford, Jugdev and Mathur, 2006). Then again, intangible resources incorporate leadership, information and so on that may contribute towards competitiveness of the organization (Killen, et al., 2012). Consequently, given information, collaboration and leadership are valuable, uncommon, and incompletely imitable assets, these assets are required to affect technological advancement and performance of an organization. As far as relevance in concerned, RBV is criticised because of absence of agreement in the use of different definitional terms. Moreover, RBV is reprimanded in light of whether it very well may be tried because of absence of procedure to quantify intangible resources (Barney, et al., 2011).

Resource based theory view is relevant for the current research on effect of firm characteristics on profitability of DT-Sacco's in Kenya since firm characteristics like firm size measured using firm assets is a kind of resource that must be managed efficiently and effectively to contribute to DT-Sacco profitability.

The firm characteristics like operational efficiency brought about by efficient managers and informational processing system as identified by the resource based view theory should be organized and managed efficiently and effectively to ensure achievement of DT-Sacco performance in general and profitability in particular of the DT-Saccos in Kenya. The theory is thus appropriate for this study as it helps in identifying the key DT-Sacco resources both tangible and intangible whose use can be well planned to achieve organizational profitability goal.

2.2.2 Theory of Efficient Market Hypothesis

Operational efficiency in the context of financial institutions involves management of the expenses involved of financial intermediation. In the hypothetical universe of perfectly efficient capital markets, costs involved in transactions are held to be zero and capital markets are liquid, suggesting an operational efficiency. Fama (1973), presented three levels of efficiencies in a firm including allocative, pricing and operational efficiency. The essential thought about EMH created by Eugene Fama in 1970 is that asset prices quickly mirror all accessible data such that abnormal profits cannot be earned irrespective of investment strategies employed by investors in the capital market. Fama (1973) recognized three types of market/valuing proficiency dependent on the level of data utilized by the market: powerless frame, semi-solid, and solid shape advertise productivity. Consequently, there may be three levels of efficiency from weak, semi-strong and strong market efficiency.

The weak type of the EMH emphasises that asset prices at the current period consolidate all significant past data. The weak form of efficiency is followed by semi-strong form of efficiency in the EMH posits that present assets prices in the capital market completely mirror all accessible open and public data (Fama,1973). Publicly available data incorporates data around an assets past price, as well as incorporates all data identified with the organization's performance, Future expected changes in macroeconomic and financial variables and any other open source data. The strong type of the EMH holds that asset prices completely fuse more than past and open source data. The strong form of efficiency of EMH proclaims that asset prices reflect private data, i.e. insider data identified with the assets of a particular organization. The ramifications of the EMH are expansive. From the perspective of the investor, members of stock exchange ought not have the capacity to produce an abnormal profits irrespective to the level of data they may have in their possession (Fama, 1973). In the academic literature in finance, the three types of the EMH are normally utilized as mare guidelines as opposed to strict rules (Fama, 1998).

The current theory of efficient market hypothesis is relevant for the current study on the effect of firm characteristics on profitability of DT-Saccos in Kenya in that one of the firm characteristic is Operational efficiency which can be used as a proxy for competitive advantage, which further affects the DT-Saccos firm's current profitability and its future potential performance. This theory reflects efficiency as a key factor in financial performance of DT-Sacco organization, making investment choices by using all the available information reflected in the security prices.

Further EMH indicates that poor operational efficiency may be costly to the firm, as a result, lead to reduced financial performance due to high cash outflows for operational costs and this means that operational efficiency are necessary for DT-Saccos in order to reduce the cost of operation and improve profitability.

2.2.3 Liquidity Preference Model

Keynes (1935) proposed three intentions to holding money including Precautionary, speculative and transactive. Under the speculative motive of holding money by economic units, the demand of money is held to be inversely related to cost of capital otherwise referred to as interest rate and thus leverage. Holding cash was one method for economic units to guard themselves against vulnerability to unexpected future occurrences. Thus, liquidity preference theory decides the state of balance in the money market leading to setting of interest rate by the interaction of the market forces of demand and supply of money in a free market system. Keynes (1936) produced the model in light of a few presumptions. To begin with, cash pays no interest premium. Second, that there were just two sorts of assets for preserving wealth that is bonds and money.

The theory through its concept of holding money as a precautionary motive explains the importance of capital adequacy and liquidity requirement of ensuring that is in a strong financial position and is properly managed. In addition Modigiliani (2011) characterized liquidity as an asset to a firm regarding the flawlessness of the market in which it is exchanged. An asset is said to be is liquid if a market is flawless such that individual economic units choice to purchase or offer the asset does not influence the price limitedly since it is illiquid in the contrary case, it becomes perfectly riskless if the price at which

an asset is offered at the capital market or money market is steady or for all intents and purposes so and its risks if the price varies generally (Modigiliani, 2011). This theory therefore indicates that liquidity, capital adequacy, leverage and efficiency of the firm's liquidity are key to financial performance.

The current study on the effect of firm characteristics on profitability of DT-Sacco was anchored on liquidity theory, given its emphasis on Liquidity, and the other variables under study; leverage, efficiency and capital adequacy. The theory notes clearly that liquidity alone does not guarantee success. However, a DT-Sacco that has efficient liquidity management is able to settle debts obligations as they fall due hence such DT-Sacco would be in good books with suppliers and providers of funds like depositors hence improved profitability.

2.3 Determinants of Profitability of Firms

There are a number of factors affecting firm profitability; however, this section of the chapter discussed the firm specific factors otherwise referred to as firm characteristics that have an impact on firm profitability.

2.3.1 Capital Structure

Capital structure includes equity capital and debt capital. Generally, equity capital includes shareholder's fund and reserve of the firm. On the other hand, debt capital interest or other compensation for their debt capital whether the firm has earned profit or not but in the case of equity capital the firm may pay the dividend to the equity shareholders only if the firm has earned profit. Capital structure generally long-term decision and the liquidity position are related with every day operation.

Deciding the capital structure is related with board of director and top finance people decision of the firm however, liquidity position is dependent on the management of the firm (Goyal, 2013).

2.3.2 Capital Adequacy

Capital adequacy refers capital level needed by a DT-Sacco to permit them bear the risks, for example, market, credit and operational risks they are exposed to with the end goal to be able to absorb possible losses and secure the association's indebted individuals. Capital adequacy is a critical DT-Sacco firm quality that directly affect the firm level of profitability. Capital stands for measure of possessed and own funds accessible to help a DT-Sacco perform its daily business. A DT-Sacco capital goes about as a buffer in situations of adverse markets and circumstances that may happen inside the organization.

Moreover, capital builds up liquidity for a DT-Sacco because the deposits are more delicate and inclined to DT-Sacco runs. Great levels of capital limit the odds of a firm winding up into monetary problems. Capital sufficiency is estimated as a ratio of capital to total assets (CAR) (Nyanga, 2012). A few empirical investigations have been done in the region of capital sufficiency on profitability of different firms, Ikpefan (2013) analysed the effect of bank capital ratios and profitability in Nigerian business banks between 1986 to 2006.

2.3.3 Asset Quality

Asset quality quantifies probability of default on an advance to a customer as well as marketability of the same loan given to third party who would intern have the responsibility of collecting the loan from the customer.

In this way, asset quality is the proportion of the price at which DT-Sacco would offer outstanding loans to an outsider third party as controlled by the lender. The DT-Sacco assets comprise of current assets, noncurrent assets, credit portfolio among other different investment held by the Sacco. Advances by DT-Sacco constitute the biggest segment of a DT-Sacco assets and establish the best measure of risks to their capital (Nyanga, 2012). other assets, ,off-balance sheet items, real estate ,cash due from accounts and premises constitute other equally important items of DT-Sacco that can possibly affect asset quality. The Kenyan DT-Sacco regulator measures asset quality by the proportion of net non-performing advances to gross loans.

2.3.4 Operational Efficiency

Operational efficiency is the capacity of the top managerial staff and administration to identify, quantify, control the possible risks of DT-Sacco and provide assurance of successful carrying out the tasks of a DT-Sacco of credit creation and financial intermediation. The operational efficiency of a DT-Sacco can be estimated utilizing diverse financial ratios, for example, growth in total Assets, Growth in advancement and credit and income development rate. The management performance could be measured using subjective proxies using subjective measures such as quality of staff, internal controls and organizational discipline (Ongore and Kusa, 2013). Operational efficiency fundamentally explains the amount of expenses for the operation of DT-Sacco as well as their profitability (Ongore and Kusa, 2013). Capacity to earning of a DT-Sacco to generate enough profits for survival, competitiveness and future expansion (Ongore and Kusa, 2013). Operational efficiency significantly determines the level of operating expenses and in turn has an impact on the DT-Sacco profitability (Ongore & Kusa, 2013).

2.3.5 Leverage

Leverage describes the extent to which a firm is employing borrowed funds to support its operations. Firm that has taken on borrowed funds is referred to as a levered firm and their profits are exempted from taxation up to the amount of interest paid on borrowed funds. Leverage literature from MM theory states that capital structure affects firm's value and profitability. Chen (2001) found out a negative association between leverage and profitability. Additionally, a levered firm is able to source additional funds apart from funds provided by the owners of a firm to expand its operations hence levered firm usually tends to have a higher value. Conversely, Kim (2005), Khiari et al. (2005) examined the positive tie amid leverage and business financial objective delivery.

2.4 Empirical Studies

Various investigations exist both globally and locally. Study by Nzoka (2015) investigated on the relationship between bank performance and bank asset quality in Nigeria and with the utilization of the Pearson correlation and regression finding that asset quality affected bank performance. Notwithstanding, he likewise demonstrates that there exists no connection between bank advances and its profitability. Barus, Muturi and Kibati (2017) did an empirical investigation to examine the link between quality of bank assets and financial performance of Saccos in Kenya. The results showed that the relationship between bank asset quality and financial performance of Sacco in Kenya was statistically significant. This was clarified by the results of regression analysis that demonstrated that the impact was direct and demonstrated the magnitude by which quality of asset affected the financial performance of Saccos in Kenya.

The results of regression analysis demonstrated that quality of assets affected the financial performance of Saccos in Kenya. Mazlan, Ahmad & Jaafar (2016) examined factors affecting of quality of bank assets and profitability for Indian banks. The study employed panel data method of analysis between 1997-2009 and the research findings revealed an inference contrary to the established and expected outcome. It was found established that non-performing assets had no significant influence on commercial banks profitability and further, the research asserted that asset size of the bank has no significant effect on the level of profitability of commercial banks. Kombo, Obonyo & Oloko (2014) noted that firm characteristics had significant positive effects of the profitability of Micro Financial Institutions in Nakuru, Kenya.

The regression analysis results into the influence of firm based characteristics on Microfinance performance showed that firm based specific factors had the best positive correlation while capital had the minimal effect on financial performance of microfinance institutions of the area. Olweny and Shipho (2011) targeted to assess and estimate the effect of bank business particular factors of capital sufficiency, quality of asset, operational cost proficiency and earnings diversification on the financial performance of banks in Kenya. The study additionally, evaluated the impact of international tenure and market application on the Kenyan commercial banks financial performance adopting an explanatory methodology by employing panel data. The study observed banks' annual report from 2002 to 2008 obtainable from the CBK and analysed the data through multiple regression method. The findings returned that all the individual bank variables had a measurably critical effect on benefit, while not any of the business sector elements had a considerable effect.

An empirical examination by Njeru (2016) analysed the impact of liquidity administration on financial related performance of DT-Sacco in Kenya. Study utilized descriptive design and a stratified random sampling method of sample selection to pick respondents for the study. The investigation inferred that successful liquidity administration required an all-around controlled segment and liquidity choices were factually critical in explaining financial related performance of DT-Saccos in Kenya. Ongore and Kusa (2013) analysed the factors affecting financial performance of business banks in Kenya in the time periods between 2001 to 2010. A regression analysis on panel data was adopted to estimate the parameters for the regression model. The results demonstrated that bank particular factors altogether influence the performance of Kenyan business banks, aside from liquidity variable. Liquidity had the least impact on financial related performance of Kenyan commercial banks. Klingenberg, Timberlake, Geurts and Brown (2013) noted that, profitability of a firm is affected by at least two factors: results from its operations, and how these are financed. The study further suggested that the impact of an individual operations strategy is difficult to isolate from other firm activities, such as its financial management.

Anjum and Malik (2013) analysed factors affecting profitability, the determinants profitability included firm size, liquidity, cash conversion cycle, net working capital and sales growth. The empirical investigation assessed the financial related challenges of firms in Pakistani that had floated their stock on Karachi Stock Exchange (KSE). The non-finance firms from period beginning 2003 to year 2010 were utilized as the sample and the examination adopted Z-score model of firm riskiness level. The results presumed that the leverage is directly associated with financial related performance in Pakistan's

stock trade market and it proposes that the utilization of abnormal level of leverage adds to the insolvency of firms. Klingenberg, Timberlake, Geurts and Brown (2013) showed that, the level of profitability of a business organization is influenced by no less than two variables: results from its tasks, and how these are financed. The empirical examination additionally proposed that the effect of an individual tasks system is hard to separate from other firm exercises, for example, its financial management.

Ikpefan (2013) analysed the relationship between performance and commercial bank capital sufficiency and in Nigerian business banks between the periods starting 1986 to the year 2006. The empirical examination used performance proxies and utilized bank panel data obtained from annual reports of central bank of Nigeria, the investigation presumed that capital adequacy had inverse effect on Return on Assets. Adeyemi (2012) analysed Nigerian banks failures as an outcome of capital deficiency, absence of straightforwardness and toxic bank loans. The point of the examination was to identify primary variables causing Nigerian bank dismal performance and to evaluate the degree to which these recognized variables are responsible for this disappointment and to find out other variables that might be in charge of the Nigerian banks dismal performance. The examination recognized lack of transparency, capital insufficiency and enormous toxic loans as a noteworthy reason for poor performance in Nigerian banks.

Kosikoh (2014) argued that firms that are highly leveraged in most cases are more inclined to respond to financial crisis through debt restructuring, dividend cuts and bankruptcy hence there is strong association between profitability based financial performance and leverage.

Kosikoh (2014) further showed that highly levered firms respond faster to minimize implication of poor performance. This study considered leverage as one of the factor influencing financial performance of financial institutions. According to Nyamboga, Ongesa, Omwario, Nyamweya, Muriuki and Murimi (2014) a higher leverage ratio by a firm implies that a firm is highly financed through borrowing compared to equity. Even higher leverage in a firm would improve ROI for a firm operating in a favorable business environment, higher leverage would, on the other hand, negatively impact on ROI during periods of unfavorable economic conditions (Nyamboga et al., 2014).

2.5 Summary of the Literature Review

The chapter has expounded on literature review considering the theoretical review, determinants of profitability, empirical review and conceptual framework. The concept of firm characteristics has a base in theories that theorises on conditions under which a firm may slide into financial problems that in turn affects their profitability. The current study was based on three theories: resource based view theory, Efficient Market Hypothesis and Liquidity Preference Model. The first theory supporting the study is Resource Based View Theory proposed by Penrose (1950) relevant for the current research on effect of firm characteristics on profitability of DT-Sacco's in Kenya since firm characteristics like firm size measured using firm assets is a kind of resource that must be managed efficiently and effectively to contribute to DT-Sacco profitability. The second Theory is the Efficient Market Hypothesis proposed Eugene Fama (1970) that stated that asset prices in the capital market usually reveals all information available such that it is not possible to realise abnormal profits notwithstanding the investment strategies utilized.

Finally, the study would be based on Liquidity Preference Model given its emphasis on Liquidity, and the other variables under study; leverage, efficiency and capital adequacy. The chapter examined the determinants of profitability of firms. Finally, the chapter considered a number of empirical studies chiefly of them being Study by Nzoka (2015) demonstrates that there exists no connection between bank advances and its profitability. Barus, Muturi and Kibati (2017) results demonstrated that quality of assets affected the financial performance of Saccos in Kenya. Mazlan, Ahmad & Jaafar (2016) established that non-performing assets had no significant influence on commercial banks profitability and further, the research asserted that asset size of the bank has no significant effect on the level of profitability of commercial banks. Kombo, Obonyo & Oloko (2014) noted that firm characteristics had significant positive effects of the profitability of Micro Financial Institutions in Nakuru, Kenya. Olweny and Shipho (2011) findings returned that all the individual bank variables had a measurably critical effect on benefit, while not any of the business sector elements had a considerable effect.

Njeru (2016) investigation inferred that successful liquidity administration required an all-around controlled segment and liquidity choices were factually critical in explaining financial related performance of DT-Saccos in Kenya. Ongore and Kusa (2013) demonstrated that bank particular factors altogether influence the performance of Kenyan business banks, aside from liquidity variable. From the empirical literature, a number of gaps have been identified. First, there is scarcity of pragmatic enquiries on the effects of firm characteristics on financial performance of DT- SACCOs in the financial subsector in Kenya (Kiaritha, 2015). Additionally, most studies on firm characteristics tends to be

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based on Commercial banking Institutions. The research therefore considers the effect of firm characteristics on the profitability of DT- SACCOs in Kenya.

2.6 Conceptual Framework

```
┌─────────────────────────────┐
│ Leverage                    │
│   • Debt to asset ratio     │─────────┐
└─────────────────────────────┘         │
┌─────────────────────────────┐         │
│ Operational Efficiency      │         │    ┌──────────────────────────┐
│   • Income to operating     │─────────┤    │ Profitability            │
│     expenses                │         │    │   • ROA                  │
└─────────────────────────────┘         ├───▶│ Net income to Total assets│
┌─────────────────────────────┐         │    └──────────────────────────┘
│ Asset quality               │         │
│   • Total NPL to Total      │─────────┤
│     Loans ratio             │         │
└─────────────────────────────┘         │
┌─────────────────────────────┐         │
│ Firm size                   │         │
│   • Ln of total assets      │─────────┤
└─────────────────────────────┘         │
┌─────────────────────────────┐         │
│ Capital Adequacy            │         │
│   • Total capital/Total     │─────────┘
│     Assets                  │
└─────────────────────────────┘
```
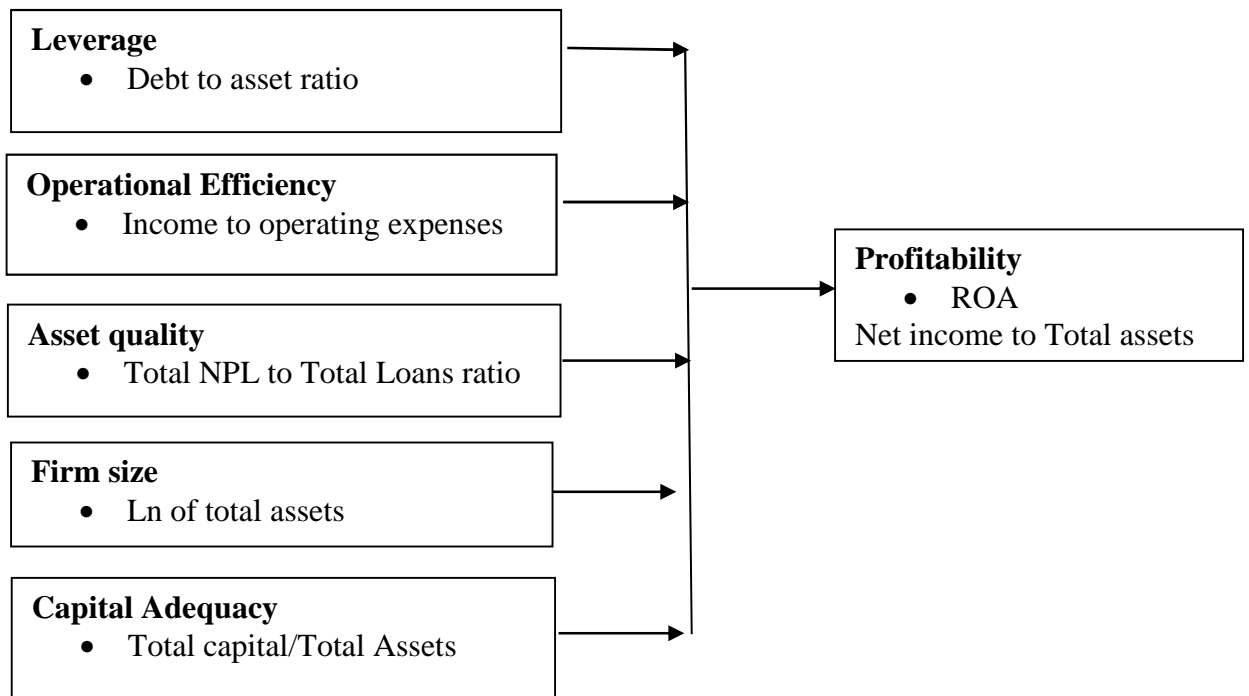
Independent Variable   **Dependent Variable**

Figure 2.1: Conceptual Framework

The figure 2.1 shows the diagrammatical relationship between study variables. The dependent variable is profitability measured using ROA while the independent variable were firm characteristics including Leverage, operational efficiency, Asset quality, firm size and capital adequacy.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1. Introduction

This chapter provides details of the methodology that was employed in the study. It discusses the Research design, population, Sample size, data collection methods and data analysis.

3.2 Research Design

The current research adopted a descriptive survey design to establish the effect of firm characteristics on profitability of DT-SACCOs in Kenya. The design is critical in describing the characteristics of a large population. The design would be adopted since the study would merely report on facts as they are without manipulating the data given (Mugenda & Mugenda, 2009).

3.3 Population

This study was a survey of all DT SACCOs licensed by SASRA that operate in Kenya. Specifically the study targets 135 DT-SACCOs that are fully licensed by SASRA before the study period and have financial data for the five year period of the study from 2013-2017. The list of all DT-SACCOs was retrieved from SASRA website as shown in appendix II.

3.4 Sample

In arriving at the sample size, the researcher adopted Kothari and Garg (2014) formulae. In this case, for the given population of 135 DT-SACCOs, sample size was determined by Kothari (2004) formulae as:

$$n = \frac{z2pqN}{e2(N-1)+z2Pq}$$

Where **e** is the error for this study, taken as 10 %; p is the population reliability, taken as p=0.8; q= (1-p), **z** is the normal distribution at 0.05 level of significance such that **z** =1.96. The sample size is therefore calculated as shown below using Kothari and Garg (2014) formulae

$$n = \frac{1.96*1.96*0.8*0.2*135}{0.1*0.1(135-1)+1.96*1.96*0.8*0.2}$$

n= 42.46

n= 42

This generated a sample size of 42 DT-SACCOs

The study employed simple random sampling to select the number of DT-SACCOs that formed part of the study. From the sampling frame, DT-SACCO 56 DT-SACCOs was selected randomly from the list of 135 DT-SACCOs.

3.5 Data Collection

Study relied on Secondary data on the financial performance of DT-SACCOs retrieved from the SASRA SACCOs supervision annual reports for the five years 2013,2014,2015,2016 and 2017. Individual SACCOs also provided audited financial statements for the last five years. The retrieved data was recorded on data collection sheets in appendix I. For the dependent variable (ROA) the study extracted data about DT-Sacco Total assets and Earnings before interest and tax. For the independent

variables, the data concerning firm leverage involved total debts and total assets. For operational efficiency, Data on firm operating expenses and net profit before tax and income was extracted. Concerning Asset quality, data to be extracted was non-performing loans and total loans and advances. For, capital structure, data on total debts and total equity was extracted. Finally, concerning Capital Adequacy data to be extracted was total assets and total equity.

3.6 Data Analysis

The data recorded on data collection sheets were keyed in Microsoft excel and the excel file exported to STATA version 14.The data was analysed with aid of STATA where descriptive and inferential statistics was generated. The descriptive analysis involved mean, standards deviation, Minimum and maximum. The Inferential statistics involved diagnostic test and panel data regression analysis.

3.6.1 Statistical Model

The regression model that was used in the study was self-formulated based on empirical review as is shown in equation (1)

$$Y = {}_0 + {}_1X_1 + {}_2X_2 + {}_3X_3 + {}_4X_4 + {}_5X_5 + e \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(1)$$

Where Y is dependent variable profitability (ROA)

X_1- X_5: are independent variables

X_1: Leverage: Measured by ratio of debts to total assets

X_2: Operational Efficiency: measured by Income to operating expenses Ratio

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X_3: Asset quality: measured by ratio of NPLs to total loans

X_4: Firm size: measured by Natural logarithm of total assets

X_5: Capital adequacy: Measured by total capital to total assets ratio

β_1, β_2, β_3, β_4 and β_5: are the coefficients of independent variables

β_0: intercept term

e: stochastic error term

3.6.2 Test for Significance

The overall significance of the model was examined at 5% level of significance using F-test while the significance of individual independent variables were examined at 5% level of significance using student t-test. If the value of significance is less than the thresh hold of 5%, then the variable or the model is said to be statistically significant.

3.7 Diagnostic Tests

The data was subjected to diagnostic tests to evaluate conformity with multiple regression model assumptions. This would ensure validity of the results. The study employed normality, heteroscedasticity, multicollinearity, serial correlation and unit root diagnostic tests.

3.7.1 Normality Test

The study employed Shapiro-Wilk test to test normality. The choice of this test is informed by the small number of samples to be studied. Normal data have p-value greater than the Shapiro Wilk significance value in the statistical test (0.05). On the other hand, data with significance value less than 0.05 are not normally distributed.

3.7.2 Heteroscedasticity Test

The study used Breusch-Pagan / Cook-Weisberg test by using the regression residual value of the independent variables. There is no heteroscedasticity if the significance values are greater than the P-value statistics test of 0.05.

3.7.3 Multicollinearity

The study employed Variance Inflation Factor (VIF) to test the existence of multicollinearity. If VIF is less than 5, then there is no existence of multicollinearity (Gujarati, 2003).

3.7.4 Serial Correlation

The study used Wooldridge Drukker test to test existence of autocorrelation. Data has no serial correlation if P value is greater than the 5% level of significance.

3.7.5 Unit Root Test

The study employed Augmented Dickey Fuller (ADF) unit root test to evaluate the availability of unit roots in the data. If P-Value is greater than 5% level of significance, it implies the data is not stationary i.e. availability of unit roots.

CHAPTER FOUR: FINDINGS AND DISCUSSION

4.1 Introduction

This chapter presented the results from analysis and the findings with regard to the study objectives. The study employed a panel data approach and analyzed the effect of firm characteristics on profitability of DT-Sacco's during the study period 2013 to 2017. The data analysis was for 40 DT-Sacco's in Kenya that had all needed data for the study covering a period of five years hence there were 200 observations for each variable.

4.2 Descriptive Results

Results in table 4.1 below indicate the summary descriptive statistics of firm characteristics and financial performance of DT-Sacco's in Kenya. The result is presented in table 4.1

Table 4. 1: Summary of Descriptive analysis

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	200	.0285183	.0688021	-.17	.48
FirmSize	200	9.209457	.7058143	7.57	11.98833
OperationE~y	200	.3045521	.2680131	-.08	1.57
CapitalAde~y	200	.1527919	.1138386	-.06	.9
AssetQuality	200	.4407472	.2604619	0	1.65233
Leverage	200	.843736	.1118275	.1	1

Independent variables: Firm size, Operational Efficiency, Capital adequacy, Asset quality and Leverage. **Dependent Variable**: Profitability (ROA)

4.2.1 Firm Size

Firm size was measured as natural logarithm of total assets of the firm. From the analysis in table 4.1, the mean firm size was 9.209 meaning that on average the size of the firm was about 9.7 which is relatively large. The standard deviation for firm size was 0.7058 implying that firm size was spread around the mean with about 0.7 units which shows a very high spread in firm size among the DT-Saccos in Kenya. Additionally, firm size had a minimum of 7.57 implying that the firm with the lowest firm size had firm size of was 7.57. Finally, the firm with the highest firm size had maximum of 11.98833 implying that the DT-Sacco with highest firm size in terms of assets had a firm size of about 12 units.

4.2.2 Operational Efficiency

Operational efficiency was measured as ratio of EBIT to operating expenses. From analysis in table 4.1, operational efficiency posted a mean of .3045521 meaning that on average, operational efficiency of DT-Saccos had an operational efficiency of about 0.30 hence the income before interest and tax was about 30% of the operating expenses of the DT-Saccos in Kenya. Operating efficiency had a standard deviation of .2680131 meaning that there was a relatively large variation of operating efficiency around the mean with about 0.26 units. In addition, operational efficiency had a minimum of -.08 implying that the firm with the lowest level of operational efficiency had had an efficiency of about -.08 hence, the firm had negative EBIT during the study period. Finally, operational efficiency posted a maximum of 1.57 meaning the DT-Sacco with the highest level of operational efficiency had an efficiency of about 1.57 hence EBIT was almost twice the operational expenses if the firm in the study period.

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4.2.3 Capital Adequacy

Capital Adequacy was measured as a ratio of equity to total assets of the DT-Sacco. From table 4.1, capital adequacy had a mean of .1527919 implying that on average the DT-Saccos had capital adequacy of about .15 over the period under the study hence the capital invested by shareholders of the DT-Saccos was about 15 of the total assets of the DT-Saccos. Standard deviation for capital adequacy was .1138386 implying that the firms' level of capital adequacy had spread around the mean by about .11 over the study period. Capital Adequacy had a minimum of -.06 hence the DT-Sacco with the lowest level of capital adequacy had a capital adequacy of -.06 units implying negative capital since the DT-Sacco was highly indebted and had eaten into the capital of the DT-Sacco. Results also indicated that the DT-Sacco with the maximum capital adequacy had a capital adequacy of about   .9 units implying that the specific that the specific DT-Sacco had a capital of about 90% of the total assets of the DT-Sacco.

4.2.4 Asset Quality

Additionally, Asset quality was measured as a ratio of NPLs total loans of the DT-Saccos in Kenya. Table 4.1 shows that mean asset quality was .4407472 implying that the average firm assets quality was about .44 hence the NPLs were about 44% of the total loans of the DT-Sacco. The standard deviation for asset quality was .2604619 meaning the asset quality was spread around the mean by about .26 units which is a relatively high variation from the mean. Additionally, asset quality had a minimum of 0 implying that the firm with the best asset quality had asset quality 0 units hence their non performing loans were zero while the DT-Sacco with the poorest asset quality in terms NPLs to total loans had asset quality of 1.65233.

4.2.5 Leverage

Leverage was measured as ratio of debts to total assets. Table 4.1 shows that mean leverage was .8508805 implying that on average, the level of leverage was about 0.85 hence the DT-Sacco had accumulated more debts as a ratio of total assets by about 85% hence they were highly indebted and were financing assets majorly using borrowed funds like deposits. Standard deviation for leverage was .1160709 meaning that leverage level of the DT-Saccos were spread around the mean with about .11 units which is relatively small variation around the mean. The minimum leverage was 0.1 meaning the DT-Sacco with lowest level of leverage had been levered to the tune of 10% of the total assets of the DT-Sacco while maximum for leverage was 1. Implying that the DT-Sacco with the highest liquidity level of leverage had marched debts with assets hence they were almost fully reliant on debts.

4.2.6 Profitability

Financial performance was measured by ROA and is presented in table 4.1. The mean for profitability was .0285183 implying that the average level of profitability over the study period was about 2.8 %. The Std. Dev. for profitability was .0688021 implying that profitability was spread around the mean with about .0688 units, which is relatively small variation from the mean. profitability posted minimum of -.17, implying that the DT-Sacco with lowest level of profitability posted ROE of -.17 which is negative hence it was running at a loss of about 17% of the total assets of the DT-Sacco. The maximum for profitability was .48 meaning the DT-Sacco with the highest level of profitability had achieved a profitability of about 5% of the total asset invested in the firm during the study period.

4.3 Diagnostic Test

The study performed tests on statistical assumptions of the suitability of choice of regression model and assumptions regression model of choice i.e. test of ordinary regression assumption and statistic used. These tests included test of normality, linearity, multicollinearity, homoscedasticity, Unit Root test and autocorrelation.

4.3.1 Testing for Random Effects

The data being panel in nature, the researcher wanted to establish the suitable model between Simple Ordinary Least Squares (OLS) model and the Panel Model. Breusch and Pagan Langrangian Multiplier test for random effect was performed and results shown in table 4.2

Table 4. 2: Breusch and Pagan Langrangian Multiplier test

```
Breusch and Pagan Lagrangian multiplier test for random effects

      ROA[id,t] = Xb + u[id] + e[id,t]

      Estimated results:
                            Var       sd = sqrt(Var)
                  ─────────────────────────────────────
              ROA  |     .0047337          .0688021
                e  |     .0012192          .0349174
                u  |     .0029756          .0545492

      Test:    Var(u) = 0
                        chibar2(01) =    169.91
                    Prob > chibar2 =    0.0000
```

4.3.2 The Hausman Test for Model Effect Estimation

"The Hausman test was employed to determine the most suitable model for this study. The null hypothesis is that the fixed effect model is appropriate and the alternative hypothesis is that Random effect estimation models is suitable tested at 5% significance

level. The Chi-square test statistic is 27.97 with a probability of 0.000 which means that the null hypothesis is not rejected in favor of the Random effects model. Therefore, fixed effects model is suitable for this study. The Hausman test result was presented in Table 4.3

Table 4. 3: Hausaman Test

```
                 ───── Coefficients ─────
                  (b)           (B)            (b-B)      sqrt(diag(V_b-V_B))
                  FEM           REM          Difference           S.E.

OperationE~y    -.0327688    -.0230126       -.0097561          .0028378
CapitalAde~y     .1017053     .0985575        .0031478          .0103866
AssetQuality    -.0596823    -.0457153       -.013967           .0108354
    Leverage     .0102267     .0087211        .0015056          .0131064
    firmSize     .0244025     .0198262        .0045762          .0029512

                       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(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                      =         27.97
            Prob>chi2 =       0.0000
```

Independent variables: Firm size, Operational Efficiency, Capital adequacy, Asset quality and Leverage. **Dependent Variable**: Profitability (ROA)

4.3.3 Normality Test

The study employed Shapiro-Wilk test to test normality. Fifty or less sample size are not suitable for the test. The choice of this test is informed by the small number of sample to be studied. The hypothesis for the test is that **Ho**: No significant variance of population, sample, and **Ha**: significant variance of population and sample. Normal data have p-value

greater than the Shapiro Wilk significance value in the statistical test (0.05). On the other hand, data with significance value less than 0.05 are not normally distributed. The results are as presented in table 4.4.

Table 4. 4: Shapiro- Wilk W Test For Normal Data

```
               Shapiro-Wilk W test for normal data

    Variable  |     Obs        W        V        z      Prob>z
  ------------+------------------------------------------------
    OperationE~y |    200   0.82085   26.726   7.560   0.00000
    CapitalAde~y |    200   0.79400   30.732   7.881   0.00000
    AssetQuality |    200   0.96264    5.573   3.953   0.00004
        Leverage |    200   0.80280   29.420   7.781   0.00000
        firmSize |    200   0.97621    3.549   2.915   0.00178
             ROA |    200   0.51098   72.955   9.870   0.00000
```

Independent variables: Firm size, Operational Efficiency, Capital adequacy, Asset quality and Leverage. **Dependent Variable**: Profitability (ROA)

The null hypothesis under this test is that the disturbances are not normally distributed. If the p-value is less than 0.05. Given that all p-value were less than 5% for the residual, the null hypothesis is rejected and alternative hypothesis accepted thus the conclusion that the residuals are not normally distributed. However since the study used a population and not a sample even if the normality condition is not met the estimated coefficients were still be useful.

4.3.4 Heteroscedasticity Test

Gujarati (2003) described heteroscedasticity as lack constant error variance. The study used Cook-Weisberg test to test for heteroscedasticity by using the regression residual value of the independent variables. There is no heteroscedasticity if the significance values are greater than the P-value statistics test of 0.05. The null hypothesis in the test is that error terms have a constant variance (i.e. should be Homoscedastic). The results in the Table 4.5 below indicate that the error terms are homoscedastic, given that the p-value for all except one variable were greater than the 5% (0.000), hence the null hypothesis of constant variance was not rejected."

Table 4. 5: Cook-Weisberg Heteroscedasticity Test

```
================================================================================
*** Panel Data Heteroscedasticity Cook-Weisberg Test
================================================================================
   Ho: Panel Homoscedasticity - Ha: Panel Heteroscedasticity

- Cook-Weisberg LM Test: E2/S2n = Yh     =   0.9196   P-Value > Chi2(1)  0.3376
- Cook-Weisberg LM Test: E2/S2n = X      =  19.6429   P-Value > Chi2(5)  0.0015
--------------------------------------------------------------------------------
*** Single Variable Tests (E2/Sig2):
- Cook-Weisberg LM Test: CapitalAdequacy  =   1.1258 P-Value > Chi2(1) 0.2887
- Cook-Weisberg LM Test: AssetQuality     =   1.0022 P-Value > Chi2(1) 0.3168
- Cook-Weisberg LM Test: Leverage         =   0.8256 P-Value > Chi2(1) 0.3636
- Cook-Weisberg LM Test: firmSize         =  17.3151 P-Value > Chi2(1) 0.0000
- Cook-Weisberg LM Test: ROA              =   0.2658 P-Value > Chi2(1) 0.6061
```

4.3.5 Autocorrelation

"Gujarati (2003) posit that serial correlation exists if an error term of one period is correlated with that of subsequent periods. The study used Wooldridge Drukker test to test existence of autocorrelation. Data has no serial correlation if P value is greater than the 5% level of significance. The null hypothesis is that no first order serial /auto

correlation exists. The results are presented in Table 4.6 and that the study reject null hypothesis of no autocorrelation and therefore residuals are auto correlated (p-value=0.000)."

Table 4. 6: Autocorrelation Tests

```
. xtserial OperationEfficiency CapitalAdequacy AssetQuality Leverage firmSize ROA

Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
    F(  1,     39) =    44.748
           Prob > F =     0.0000
```

4.3.6 Multicolliniarity Test

According to Field (2009) VIF values in excess of 10 is an indication of the presence of Multicollinearity. The results about multicollinearity test are presented in table 4.7.

Table 4. 7: Variance Inflation Factor

Variable	VIF	1/VIF
CapitalAde~y	12.63	0.079185
Leverage	12.30	0.081298
AssetQuality	1.19	0.842953
firmSize	1.12	0.890110
OperationE~y	1.01	0.987690
Mean VIF	5.65	

The results in Table 4.7 shows that all the variables except two had a VIF less than 10 and average VIF established to be 5.65 which is less than 10 and thus according to Field (2009) indicates that there is no Multicollinearity problem with the variables under the study.

4.3.7 Unit Root test

Unit root test is conducted to ensure that the variables are stationary. Gujarati (2003) posit that a data has no unit roots if the variance, autocorrelation and mean of the data structure do not vary with different periods. Wooldridge (2012) asserted that stationarity ensures that the regression results are not spurious thereby guaranteeing robust regression results. The study employed Augmented Dickey Fuller (ADF) unit root test to evaluate the availability of unit roots in the data. If P-Value is greater than 5% level of significance, it implies the data is not stationary i.e. availability of unit roots. Significance." Results in Table 4.8 indicated that all variables with exception of operational restructuring were non stationary at 5% level of significance meaning that variance, autocorrelation and mean of the data structure do not vary with different periods.

Table 4. 8: Unit Root Test

Variable Name	Statistic(Adjusted)	P-Value	Comment
Firm Size	1.2499	0.8943	Not Stationary
Capital Adequacy	4.8900	1.0000	Not Stationary
Leverage	-13.1789	0.000	Stationary
Operational Efficiency	1.7743	0.9620	Not Stationary
Asset Quality	2.9138	0.9982	Not Stationary
Profitability	-1.5074	0.0659	Not Stationarity

4.4 Panel Regression

The regression model helps to explain the magnitude and direction of relationship between the variables of the study through the use of coefficients like the beta coefficient and the level of significance. Based on the diagnostic tests carried out the study adopted a Fixed effect model and the result presented was to show the fitness of model used of the regression model in explaining the study phenomena." The results are presented in table 4.9

Table 4. 9: Fixed effect Model

```
. xtreg ROA OperationEfficiency CapitalAdequacy AssetQuality Leverage firmSize, fe

Fixed-effects (within) regression              Number of obs      =         200
Group variable: id                             Number of groups   =          40

R-sq:                                          Obs per group:
    within  = 0.1387                                        min =           5
    between = 0.0204                                        avg =         5.0
    overall = 0.0016                                        max =           5

                                               F(5,155)           =        4.99
corr(u_i, Xb)  = -0.3101                        Prob > F           =      0.0003
```

ROA	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
OperationEfficiency	-.0327688	.0139294	-2.35	0.020	-.0602847	-.0052528
CapitalAdequacy	.1017053	.1023714	0.99	0.322	-.1005178	.3039284
AssetQuality	-.0596823	.0237514	-2.51	0.013	-.1066004	-.0127642
Leverage	.0102267	.1031504	0.10	0.921	-.1935353	.2139886
firmSize	.0244025	.0082101	2.97	0.003	.0081844	.0406205
_cons	-.1824671	.1300547	-1.40	0.163	-.4393755	.0744413
sigma_u	.06280058					
sigma_e	.03979244					
rho	.71352674	(fraction of variance due to u_i)				

```
F test that all u_i=0: F(39, 155) = 10.85                 Prob > F = 0.0000
```

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4.4.1 Model Summary and ANOVA

Tables 4.9 indicate that the model explains 2.04 % of the total variations in Profitability of DT-Saccos in Kenya as shown by the coefficient of determination (R^2) value of 0.0204 The remaining 97.96% Variations profitability is explained by other factors not included in the model. The overall significance of the model was 0.0003 with an F value of 4.99. The level of significance was less than 0.05 and this means that firm characteristics have statistically significant effect on profitability of DT-Saccos in Kenya."

4.5.2 Coefficients of the Independent and Control Variables

From Table 4.9, Leverage had a statistically insignificant effect on profitability of DT-Saccos in Kenya (β_1 = .0102267, p = 0.921 and α = 0.05). Operational efficiency had a statistically significant effect on profitability of DT-Saccos in Kenya (β_2 = -.0327 , p = 0.020 and α = 0.05). Study established that asset quality had a statistically significant effect on profitability performance (β_3 = -.0596823, p = 0.013 and α = 0.05), Firm size had a statistically significant effect on profitability (β_4= .0244025, p = 0.003 and α = 0.05). Finally, capital adequacy had statistically insignificant effect on profitability of DT-Saccos in Kenya (β_5 = .1017053, p = 0.322 and α = 0.05). The model was thus estimated in equation (2)

y = -.1824671+ .0102267 X_1 + -.0327 X_2 -.0596823 X_3 -. 0244025 X_4 + .1017053 X_5.......... (2)

4.6 Discussion of Findings

The study findings are elaborated in this sub section. The findings are discussed based on panel data regression results and are organized according to the study independent.

4.6.1 Leverage and Profitability

"Using Fixed effect model, it was established that Leverage had a statistically insignificant effect on profitability of DT-Saccos in Kenya (1 = .0102267, p = 0.921 and = 0.05). The value of 1 measures the elasticity of profitability to changes in leverage and that for every one-unit change in leverage, financial profitability of DT-Saccos changes by .0102267 units in the same direction. The positive effect of leverage on profitability could be explained by the fact that when debt to total assets ratio improves the profitability also improves since the DT-Sacco tax shield enjoyed a by a firm when they rely on more debts since cost of debts are exempted from corporate tax hence DT-Saccos which are highly leveraged also gets high tax shield hence high profitability compared to counter parts that are less leveraged.

"The findings is in agreement with study by Anjum and Malik (2013) analyzed factors affecting profitability, the determinates profitability included firm size, liquidity, cash conversion cycle, net working capital and sales growth. The results presumed that the leverage is directly associated with financial related performance in Pakistan's stock trade market and it proposes that the utilization of abnormal level of leverage adds to the insolvency of firms. Kosikoh (2014) argued that forms that are highly leveraged in most cases are more inclined to respond to financial crisis through debt restructuring, dividend cuts and bankruptcy hence there is strong association between profitability based

financial performance and leverage. Kosikoh (2014) further showed that highly levered firms respond faster to minimize implication of poor performance. According to Nyamboga, Ongesa, Omwario, Nyamweya, Muriuki and Murimi (2014) a higher leverage ratio by a firm implies that a firm is highly financed through borrowing compared to equity.

4.6.2 Operational Efficiency and profitability

"Results show that Operational efficiency had a statistically significant effect on profitability of DT-Saccos in Kenya ($2 = -.0327$, p = 0.020 and = 0.05). The value of 2 measures the elasticity of profitability to changes in operational efficiency and that for every one-unit change in operational efficiency, profitability changes by -.0327 units in the opposite direction. The negative effect could be attributed to that fact that when a firm has improved operational efficiency, it means the firm is either getting more income with a determined level of resources or incurring less expenses at a given determined income level. The operational efficiency leads either to more income or less expenses that in turn leads to improved profitability of the DT-Saccos in Kenya.

The finding is in congruence with empirical literature." For instance Olweny and Shipho (2011) targeted to assess and estimate the effect of bank business particular factors of capital sufficiency, quality of asset, operational cost proficiency and earnings diversification on the financial performance of banks in Kenya. The study additionally, evaluated the impact of international tenure and market application on the Kenyan commercial banks financial performance adopting an explanatory methodology by employing panel data.

The study observed banks' annual report from 2002 to 2008 obtainable from the CBK and analyzed the data through multiple regression method. The findings returned that all the individual bank variables had a measurably critical effect on benefit, while not any of the business sector elements had a considerable effect.

4.6.3 Asset Quality and Profitability

The findings also show that asset quality had a statistically significant effect on profitability performance of DT-Sacco in Kenya (3 = -.0596823, p = 0.013 and = 0.05), The value of 3 measures the elasticity of profitability to changes in asset quality and that for every one-unit change in asset quality, profitability changes by -.0596823 units in the opposite direction. The possible explanation for this significant negative effect is that increasing non-performing loans to total loans ratio signifies weakening quality of DT-Saccos assets hence profitability falls. Falling quality of assets which are majorly loans means that the magnitude of non-performing loans is rising steadily hence eroding the profitability level of a firm as toxic assets increases in the DT-Sacco.

"Previous studies on operational restructuring have supported the findings on the relationship between asset quality and profitability of DT-Sacco in Kenya. Study by Muturi and Kibati (2017) that examined the link between quality of bank assets and financial performance of Saccos in Kenya. The results showed that the relationship between bank asset quality and financial performance of Sacco in Kenya was statistically significant. The results of regression analysis demonstrated that quality of assets affected the financial performance of Saccos in Kenya. Mazlan, Ahmad & Jaafar (2016) examined factors affecting of quality of bank assets and profitability for Indian banks revealing that

non-performing assets had no significant influence on commercial banks profitability and further, the research asserted that asset size of the bank has no significant effect on the level of profitability of commercial banks.

4.6.4 Firm Size and Profitability

"Using panel regression analysis, Firm size had a statistically significant effect on profitability (4= .0244025, p = 0.003 and   = 0.05). The value of 4 measures the elasticity of profitability to changes in firm size and that for every one-unit change in DT-Sacco firm size, profitability changes by .0244025 units in the same direction. The positive effect can be attributed to the fact that when the firms firm size increases, the firm's resources in terms of assets also improves. The resources can be invested to lead to increased profitability."The finding is in agreement with study by Chandrapala & Knápková, 2013) who established that bigger firms generate more profits from a given set of resources. The size of the firm determines the availability of cash flows available for investment purposes (Salman & Yazdanfar, 2012).

4.6.5 Capital Adequacy and Profitability

Finally, the study established that capital adequacy had statistically insignificant effect on profitability of DT-Saccos in Kenya (5 =   .1017053, p = 0.322 and   = 0.05). The effect was positive meaning that for increases in capital adequacy leads to increases in Profitability of DT-Saccos in Kenya. The value of 5 measures the elasticity of profitability to changes in firm capital adequacy and that for every one-unit change in capital adequacy, profitability changes by .1017053 units in the opposite direction.

The study finding implies that strengthening capital outlay in DT-Sacco could result to increasing profitability especially since the firm with adequate capital is protected from solvency risk and can use the adequate equity generated by members to finance its operation rather than relying on the more risky debt finance.

The finding is supported by empirical literature for instance study by Ikpefan (2013) on the relationship between performance and commercial bank capital sufficiency and in Nigerian business banks reported that capital adequacy had inverse effect on Return on Assets. Adeyemi (2012) analysed Nigerian banks failures as an outcome of capital deficiency, absence of straightforwardness and toxic bank loans. The point of the examination was to identify primary variables causing Nigerian bank dismal performance and to evaluate the degree to which these recognized variables are responsible for this disappointment and to find out other variables that might be in charge of the Nigerian banks dismal performance. The examination recognized lack of transparency, capital insufficiency and enormous toxic loans as a noteworthy reason for poor performance in Nigerian banks.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter deals with the summary of the findings, the conclusion and recommendations. This was done in line with the objectives of the study. Areas of further research were suggested and limitations of the study were taken into account.

5.2 Summary of Findings

The findings established that Leverage had a statistically insignificant effect on profitability of DT-Saccos in Kenya. The value of 1 measures the elasticity of profitability to changes in leverage and that for every one-unit change in leverage, financial profitability of DT-Saccos changes by less than proportionate units in the same direction. Secondly, results show that Operational efficiency had a statistically significant effect on profitability of DT-Saccos in Kenya and that 2 that measures the elasticity of profitability to changes in operational efficiency showed that one-unit change in operational efficiency, profitability changes by less than proportionate units in the same direction.

Thirdly, the findings also show that asset quality had a statistically significant effect on profitability performance of DT-Sacco in Kenya. The value of 3 that measures the elasticity of profitability to changes in asset quality showed that for every one-unit change in asset quality, profitability changes by less than proportionate units in the opposite direction. The next finding was that size had a statistically significant effect on profitability.

The value of 4 that measures the elasticity of profitability to changes in firm size showed that every one-unit change in DT-Sacco firm size, profitability changes by less than proportionate units in the same direction.

Finally, the study established that capital adequacy had statistically insignificant effect on profitability of DT-Saccos in Kenya. The effect was positive meaning that for increases in capital adequacy leads to increases in Profitability of DT-Saccos in Kenya. The value of 5 that measures the elasticity of profitability to changes in firm capital adequacy showed that for every one-unit change in capital adequacy, profitability changes by less than proportionate units in the opposite direction.

5.3 Conclusion of the Study

Based on findings, a number of conclusions are made "Leverage had a statistically insignificant effect on profitability of DT-Saccos in Kenya .The positive effect of leverage on profitability could be explained by the fact that when debt to total assets ratio improves the profitability also improves since the DT-Sacco tax shield enjoyed a by a firm when they rely on more debts since cost of debts are exempted from corporate tax hence DT-Saccos which are highly leveraged also gets high tax shield hence high profitability compared to counter parts that are less leveraged.

Secondly, Operational efficiency had a statistically significant effect on profitability of DT-Saccos in Kenya The positive effect could be attributed to that fact that when a firm has improved operational efficiency, it means the firm is either getting more income with a determined level of resources or incurring less expenses at a given determined income level.

The operational efficiency leads either to more income or less expenses that in turn leads to improved profitability of the DT-Saccos in Kenya. Next, the findings also show that asset quality had a statistically significant negative effect on profitability performance of DT-Sacco in Kenya. The possible explanation for this significant negative effect is that increasing non performing loans to total loans ratio signifies weakening quality of DT-Saccos assets hence profitability falls. Falling quality of assets which are majorly loans means that the magnitude of non-performing loans is rising steadily hence eroding the profitability level of a firm as toxic assets increases in the DT-Sacco.

Fourthly, Firm size had a statistically significant positive effect on profitability of DT-Saccos in Kenya. The positive effect can be attributed to the fact that when the firms firm size increases, the firm's resources in terms of assets also improves. The resources can be invested to lead to increased profitability. Finally, the study established that capital adequacy had statistically insignificant effect on profitability of DT-Saccos in Kenya. The study finding implies that strengthening capital outlay in DT-Sacco could result to increasing profitability especially since the firm with adequate capital is protected from solvency risk and can use the adequate equity generated by members to finance its operation rather than relying on the more risky debt finance.

5.4 Recommendations

"Based on the conclusions, a number of recommendations are made. This study shows that firm characteristics has a major effect on the profitability of DT-Saccos in Kenya. Key stakeholders in this industry should endeavor in research into other variables in order to identify any major factors significantly affecting the financial performance of this

industry. Such studies and findings will enable the stakeholders to maximize profitability and achieve sustainability in the industry."

"Management of DT-Saccos should consider firm characteristics and ensure they are at the best possible level to avoid reduced profitability. The study suggest to management of deposit taking Sacco's to continue working on the operational efficiency as improved efficiency translates to improved profitability. The firm can improve efficiency by adopting latest technology and improving performance of the staff. Additionally, the management of DT-Saccos should put more emphasis in offering loans to clients who are in apposition to pay back on time as agreed this will help in lowering the level of nonperforming loans within the DT-Saccos sub sector. Finally, the study recommends to management of DT-Saccos to find ways of improving their firm size through means like acquiring more assets that can be invested to generate more profits.

The study also suggest that the policy makers especially SASRA should come up with additional policy that ensures that the deposit taking Sacco's are within expected ranges concerning firm characteristics. The study further suggest to SASRA to inform the investing public of any DT-Sacco carrying out major restructuring such that they are aware before making any decision since the value of the firm may change greatly during and after major restructuring. Additionaly, The study suggest that SASRA should specifically keep a keen watch over firm characteristics like asset quality, firm size and operational efficiency to ensure the DT-Saccos remain profitable such that the investing public and the members are protected from loss of funds.

The study also makes useful recommendation for theory purposes. The study suggest to future researchers to expand the scope of firms considered in their studies by incorporating more firms in their studies so as to enable cross sector comparison. Additionally, the study recommends that model for estimating the effect of firm characteristics should include lagged value of dependent and independent variables to extinguish the problem of autocorrelation and non-stationarity of variables used in the study .The study further recommends that in-depth studies ought to be carried out by utilizing both primary and secondary data in the analysis to improve the measurements of the firm characteristics.

5.5 Areas of Further Research

"The current study sought to establish the effect of firm characteristics on profitability of DT-Saccos in Kenya. The study was successfully carried out, however a number of gaps were identified that should form gap for future studies. First, a similar kind of study should be done with improved model covering all aspects of firm characteristics. Additionally, another study should be carried that considers all deposit taking Sacco's. The same study could also be carried out in the other firms for comparison purposes.

" The study also suggest to future researchers to expand the scope of firms considered in their studies by incorporating non-finance firms in their studies so as to enable cross sector comparison. Additionally, the study recommends that model for estimating the effect of corporate restructuring should include lagged value of dependent and independent variables to extinguish the problem of autocorrelation and non-stationarity of variables used the study.

The study further recommends that in-depth studies be carried out by utilizing both primary and secondary data in the analysis to improve the measurements of the firm characteristics variables. There are aspects of firm characteristics than cannot be captured well if study relies on secondary or primary data alone hence; hybrid data would be very useful in future studies such that the findings have wide application across different entities.

5.6 Limitations of the Study

A number of limitations were recognised in the process of carrying out this study. First, most deposit taking Sacco's just as other Sacco's have constantly been changing their names. This makes it a little complicated in extracting data. At the same time, a number of DT-Sacco's have split while others have merged operations.

The research was limited to the period of the study. The research was based on five year period from 2013 to 2017. Most of the DT-Sacco's have undergone transformation and reorganization many years before and given the nature of competition in the various industries and the growth that has been evident in the industry in Kenya over the years, it is possible that a research focused on a longer period would yield different findings compared to the current study that only covered a period of five years.

The study also found out that DT-Sacco's firms do not apply similar accounting policies hence the corporate restructuring figures may be exposed to variances across entities is expected based on the accounting policy including accrual policy of a firm. The study only relied on published data and made use of notes to the accountant to get additional information not presented exclusively in the financial statements.

REFERENCES

Abdirashid, Y. A. (2017). *Factors Causing Corporate Financial Distress in CommercialBanking Sector in Kenya: A Case of Chase Bank* (Doctoral dissertation, United States   International University-Africa).

Agbeja, O., Adelakun, O. J., & Olufemi, F. I. (2015). Capital Adequacy Ratio and BankProfitability in Nigeria: A Linear Approach. *International Journal of Novel Research in   Marketing Management and Economics*, *2*(3), 91-99.

Adeyemi, A. A., Pramanik, A. H., Meera, M., & Kameel, A. (2012). A measurement model of the determinants of financial exclusion among micro-entrepreneurs in Ilorin, Nigeria. *Journal of Islamic Finance*, *1*(1), 30-43.

Afrifa, G. A., & Padachi, K. (2016). Working capital level influence on SMEprofitability. *Journal of Small Business and Enterprise Development*, *23*(1), 44-63.

Ahmed, E. R., Islam, M. A., & Alabdullah, T. T. Y. (2014). Islamic sukuk: Pricing mechanism   and rating. *Journal of Asian Scientific Research*, *4*(11), 640.

Ali, L., Nas, Z., & Ramay, M. I. (2013). Higher Productivity of Workers Leads to Higher Profit for the Firms: Evidence from Large Scale Manufacturing Industries inPakistan. *Contemporary Business Studies*, *4*(6), 6.

Anjum, S., & Malik, Q. A. (2013). Determinants of corporate liquidity-An analysis of cash   holdings. *Journal of Business and Management*, *7*(2), 94-100.

Argyrou, A. (2006). Predicting financial distress using Neural Networks: Another episode to the serial. *Unpublished Master's Thesis). The Sweedish School of Economicsand Business   Administration, Helsinki*.

Baimwera, B., & Muriuki, A. M. (2014). Analysis of corporate financial distress determinants: A   survey   of   non-financial   firms   listed   in   the NSE. *International Journal of Current   Business   and   Social Sciences*, *1*(2), 58-80.

Balcaen, S., & Ooghe, H. (2004). 35 years of studies on business failure: an overview of the   classical statistical methodologies and their related problems. *Journal of Vlerick Leuven   Gent Working Paper*, *15*, 6.

Barus, J. J., Muturi, W., Kibati, P., & Koima, J. (2017). Effect of Management Efficiency on   Financial Performance of Savings and Credit Societies in Kenya. *Journal of Strategic   Management*, *2*(1), 92-104.

Beck, T., Demirgüç-Kunt, A., & Merrouche, O. (2010). *Islamic vs. conventional banking: Business model, efficiency and stability*. The World Bank.

Campbell, J. Y., Hilscher, J. D., & Szilagyi, J. (2011). Predicting financial distress and the   performance of distressed stocks.

Cassar, G., & Holmes, S. (2013). Capital structure and financing of SMEs: Australianevidence. *Accounting & Finance*, *43*(2), 123-147.

Christiano, L., Ilut, C. L., Motto, R., & Rostagno, M. (2010). *Monetary policy and stock market booms* (No. w16402). National Bureau of Economic Research.

Delmar, F., & Wiklund, J. (2008). The effect of small business managers' growth motivation on firm growth: A longitudinal study. *Entrepreneurship Theory and Practice*, *32*(3), 437   457.

Doehring, T. A. (2012). Analyzing the profitability of your operation. *Centrec Consulting Group, LLC*.

Geng, R., Bose, I., & Chen, X. (2015). Prediction of financial distress: An empirical study of   listed Chinese companies using data mining. *European Journal of Operational   Research*, *241*(1), 236-247.

Goyal, P., Rahman, Z., & Kazmi, A. A. (2013). Corporate sustainability performance and firm   performance   research: Literature   review   and   future   research agenda. *Management Decision*, *51*(2), 361-379.

Goyal, A. M. (2013). Impact of capital structure on performance of listed public sector banks in   India. *International Journal of Business and Management Invention*, *2*(10), 35-43.

Hesborn, M. A., Onditi, A., & Nyagol, M. (2016). Effect of Credit Risk Management Practices   on   the   Financial   Performance   of   Saccos   in   Kisii County. *International Journal of   Economics,   Commerce   and Management*, *4*(11), 612-632.

Ikpefan, O. A. (2013). Capital adequacy, management and performance in the Nigeriancommercial   bank   (1986-2006). *African   Journal   of   Business Management*, *7*(30), 2938   2950.

Johnsen, T., & Melicher, R. W. (1994). Predicting corporate bankruptcy and financial distress: Information   value added by multinomial logit models. *Journal of Economics and   Business*, *46*(4), 269-286.

Kaguri, A. W. (2012). Relationship between firm characteristics and financial performance of life insurance companies in Kenya (Unpublished MBA Project, University of Nairobi)

Kahuthu, D. G., Muturi, W., & Kiweu, M. (2015). The Impact of Core Capital and membership   growth on financial performance of Deposit Taking Savings and Credit Cooperatives in Kenya. European Journal of Business Management, 7(21), 146-161.

Kamande, E. G. (2017). *The effect of bank specific factors on financial performance ofcommercial banks in Kenya* (Doctoral dissertation).

Kariuki, H. N. (2013). The effect of financial distress on financial performance of commercial   banks in Kenya. *Unpublished MBA Project, University of Nairobi*.

Kariuki, P. W., & Wafula, F. O. (2016). Capital Adequacy and Financial Performance of Deposit Taking Saving and Credit Cooperative Societies in Kenya. *The international journal of   business & management*, *4*(9), 20-25.

Keasey, K., Pindado, J., & Rodrigues, L. (2015). The determinants of the costs of financial   distress in SMEs. *International Small Business Journal*, *33*(8), 862-881.

Keynes, J. M. (1935). The Future of the Foreign Exchange. *Lloyds Bank Limited MonthlyReview*, *6*(68).

Klingenberg, B., Timberlake, R., Geurts, T. G., & Brown, R. J. (2013). The relationship of operational innovation   and   financial   performance—A criticalperspective. *International Journal of Production   Economics*, *142*(2), 317-323.

Kalckreuth, U. (2005). *A " wreckers theory " of financial distress Ulf von Kalckreuth Discussion   Paper Series 1 : Economic Studies*.

Kombo, B. W., Obonyo, G. O., & Oloko, M. (2014). Effects of delegation on employeeperformance in Savings and Credit Cooperative Societies in Kisii County, Kenya. *The International Journal of Business & Management*, *2*(7), 203.

Kor, Y. Y., & Mahoney, J. T. (2000). Penrose's resource-based approach: the process and productof research creativity. *Journal of Management Studies*, *37*(1), no-no.

Kosikoh, J. C. (2014). Determinants of Financial Distress in Insurance Companies inKenya. *Jomo   Kenyatta University of Agriculture and Technology*.

Kothari, C. G. Garg (2014). Research Methodology and Techniques.. New Delhi. *New Age International (P), Limited*.

MacMillan, I. C., & Day, D. L. (1987). Corporate ventures into industrial markets: Dynamics of aggressive entry. *Journal of business venturing*, *2*(1), 29-39.

Malkiel, B. G., & Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *The journal of Finance*, *25*(2), 383-417.

Mazlan, N. F., Ahmad, N., & Jaafar, N. (2016). Bank Fragility and Its Determinants: Evidence from Malaysian Commercial Banks. In *Proceedings of the 1st AAGBS International Conference on Business Management 2014 (AiCoBM 2014)*(pp. 547-555). Springer, Singapore.

Modigiliani, F. (2011). Liquidity Preference and the Theory of Interest And Money. The JournalOf Econometric Society, 12(1), 45–88.

Modigliani, F., & Miller, M. H. (1963). American Economic Association Corporate IncomeTaxes and the Cost of Capital. The American Economic Review, 53(3), 433–443.

Mochabo, I. M., Benedict, K. B. M. O. D., & Ondiek, A. (2017). Effect of Bank Diversificationon the Financial Distress of Commercial Banks Listed at the Nairobi Securities Exchange, Kenya. *International Journal of Scientific Research and Management*, *5*(11), 7329-7343.

Mugenda,O. M., & Mugenda, A. (2009). *Research methods: Quantitative and Qualitative Approaches* .Nairobi: Act Press.

Muigai, G. (2016). *Effect of Capital Structure on Financial Distress of Non-FinancialCompanies Listed in Nairobi security Exchange*. Jomo Kenyatta University of Agriculture and Technology.

Nazir, T. (2010). Analyzing Financial Performance of Commercial Banks in India: Application of CAMEL Model. *Pakistan Journal of Commerce & Social Sciences*, *4*(1).

Njeru, D. M. (2016). Effect of Liquidity Management on Financial Performance of DepositTaking Saving and Credit co-operative Society In Kenya. Jomo Kenyatta University of Agriculture and Technology.

Nyamboga, T. O., Omwario, B. N., & Muriuki, A. M. (2014). Determinants of CorporateFinancial Distress : Case of Non- Financial Firms Listed in the Nairobi Securities Exchange. Research Journal Of Finance and Acoounting, 5(12), 193–207.

Nyanga, O. (2012). Determinants of financial performance of commercial Banks inKenya. Unpublished MBA Project, University of Nairobi.

Nzoka, F. K. (2015). *The effect of assets quality on the financial performance of commercial banks in Kenya* (Doctoral dissertation, Doctoral dissertation, University of Nairobi).

Ogilo, F. (2012). The Impact of Credit Risk Management on Financial Performance of Commercial Banks in Kenya. *DBA Africa Management Review*, *3*(1), 22–37.

Olweny, T., & Shipho, T. M. (2011). Effects of banking sectoral factors on the profitability of commercial banks in Kenya. *Economics and Finance Review*, *1*(5), 1-30.

Ongore, V. O., & Kusa, G. B. (2013). Determinants of financial performance of commercial banks in Kenya. *International Journal of Economics and Financial Issues*, *3*(1), 237-252.

Senbet, L. W., & Wang, T. Y. (2012). Corporate financial distress and bankruptcy: Asurvey. *Foundations and Trends® in Finance*, *5*(4), 243-335.

Skinner, D. J., & Soltes, E. (2011). What do dividends tell us about earnings quality?. *Review of Accounting Studies*, *16*(1), 1-28.

Shaukat, A. A. Hina (2015),"Impact of Financial Distress on Financial Performance to Pakistani Corporate Sector". *International Journal of Current Research*, *7*(2), 12991-12996.

Sporta, F. O. (2018). *Effect of Financial Distress Factors on Performance of Commercial Banks in Kenya* (Doctoral dissertation, JKUAT).

Stoneham, G., Ha, A., Harris, J., Fisher, B., & Strappazzon, L. (2004). Incentives, information & drought policy. *Economics and Policy Research Branch Working Papers*, *67*.

Thorley, N., Perry, S., & Andes, S. (2012). Evaluating firms in FD. *Journal of Applied Business Research*, *12*(3), 60–72.

Tregenna, F. (2009). The fat years: the structure and profitability of the US banking sector in the pre-crisis period. *Cambridge Journal of Economics*, *33*(4), 609-632.

Umoru, D., & Osemwegie, J. O. (2016). Capital Adequacy and Financial Performance of Banks in Nigeria: Empirical Evidence Based on the Fgls Estimator. *European Scientific Journal, ESJ*, *12*(25).

Vernet, J., Dekker, H., D'Odorico, S., Kaper, L., Kjaergaard, P., Hammer, F., ... & Guinouard, I. (2011). X-shooter, the new wide band intermediate resolution spectrograph at the ESO Very Large Telescope. *Astronomy & Astrophysics*, *536*, A105.

Appendix I: Data Collection Sheet

Total assets	NPLs	Operating expenses	Total loans	Total deposits	Equity	EBIT	Total debts

"Appendix II: Licensed Dt-Saccos That Operated Between 2012-2017

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.	AINABKOI SACCO SOCIETY LTD	P.O.BOX 120 – 30101, AINABKOI.
5.	AIPORTS SACCO SOCIETY LTD	P.O BOX 19001-00501 NAIROBI.
6.	ALL CHURCHES SACCO SOCIETY LTD	P.O BOX 6957-01000, THIKA.
7.	AMICA SACCO SOCIETY LTD	P.O.BOX 816 – 10200, MURANG'A.
8.	ARDHI SACCO SOCIETY LTD	P.O. BOX 28782-00200, NAIROBI.
9.	ASILI SACCO SOCIETY LTD	P.O.BOX 49064 – 00100, NAIROBI.
10.	BANDARI SACCO SOCIETY LTD	P.O.BOX95011 –80104, MOMBASA.
11.	BARAKA SACCO SOCIETY LTD	P.O.BOX 1548 – 10101, KARATINA.
12.	BARATON UNIVERSITY SACCO SOCIETY LTD	P.O BOX 2500-30100, ELDORET.
13.	BI- HIGH SACCO SOCIETY LTD	P.O.BOX 90 – 60500, MARSABIT.
14.	BIASHARA SACCO SOCIETY LTD	P.O.BOX 1895 – 10100, NYERI.
15.	BIASHARA TOSHA SACCO SOCIETY LTD	P.O BOX 189-60101, MANYATTA.
16.	BINGWA SACCO SOCIETY LTD	P.O.BOX 434 – 10300, KERUGOYA.

NO	NAME OF SOCIETY	POSTAL ADDRESS
17.	BORESHA SACCO SOCIETY LTD	P.O.BOX 80–20103, ELDAMA RAVINE.
18.	CAPITAL SACCO SOCIETY LTD	P.O BOX 1479-60200, MERU.
19.	CENTENARY SACCO SOCIETY LTD	P.O.BOX 1207 – 60200, MERU.
20.	CHAI SACCO SOCIETY LTD	P.O.BOX 278-00200, NAIROBI.
21.	CHUNA SACCO SOCIETY LTD	P.O.BOX 30197 – 00100, NAIROBI.
22.	COSMOPOLITAN SACCO SOCIETY LTD	P.O.BOX 1931 – 20100, NAKURU.
23.	COUNTY SACCO SOCIETY LTD	P.O.BOX 21 – 60103, RUNYENJES.
24.	DAIMA SACCO SOCIETY LTD	P.O BOX 2032-60100 EMBU.
25.	DHABITI SACCO SOCIETY LTD	P.O.BOX 353 – 60600, MAUA.
26.	DIMKES SACCO SOCIETY LTD	P.O.BOX 886 – 00900, KIAMBU.
27.	DUMISHA SACCO SOCIETY LTD	P.O BOX 84-20600, MARARAL.
28.	ECO-PILLAR SACCO SOCIETY LTD	P.O. BOX 48 – 30600, KAPENGURIA.
29.	EGERTON SACCO SOCIETY LTD	P.O.BOX 178 – 20115, EGERTON.
30.	ELGON TEACHERS SACCO SOCIETY LTD	P.O BOX 27-50203, KAPSOKWONY.
31.	ELIMU SACCO SOCIETY LTD	P.O BOX 10073-00100, NAIROBI.
32.	ENEA SACCO SOCIETY LTD	P.O.BOX 1836 – 10101, KARATINA.
33.	FARIDI SACCO SOCIETY LTD	P.O. BOX 448-50400, BUSIA.
34.	FARIJI SACCO SOCIETY LTD	P.O.BOX 589 –00216, GITHUNGURI.
35.	FORTUNE SACCO SOCIETY LTD	P.O.BOX 559 – 10300, KERUGOYA.
36.	FUNDILIMA SACCO SOCIETY LTD	P.O.BOX 62000 – 00200, NAIROBI.

37.	GITHUNGURI DAIRY & COMMUNITY SACCO SOCIETY LTD	P.O.BOX896–00216, GUTHUNGURI.
38.	GOOD FAITH SACCO SOCIETY LTD	P.O. BOX 224 – 00222, UPLANDS.
39.	GOOD HOPE SACCO SOCIETY LTD	P.O. BOX 158–20500, NAROK.
40.	GOODWAY SACCO SOCIETY LTD	P.O BOX 626-10300, KERUGOYA.
41.	GUSII MWALIMU SACCO SOCIETY LTD	P.O.BOX 1335 – 40200, KISII.
42.	HARAMBEE SACCO SOCIETY LTD	P.O.BOX 47815 – 00100, NAIROBI.
43.	HAZINA SACCO SOCIETY LTD	P.O.BOX 59877 – 00200, NAIROBI.
44.	IG SACCO SOCIETY LTD	P.O.BOX 1150 –50100, KAKAMEGA.
45.	ILKISONKO SACCO SOCIETY LTD	P.O BOX 91-00209, LOITOKITOK.
46.	IMARIKA SACCO SOCIETY LTD	P.O.BOX 712 – 80108, KILIFI.
47.	IMARISHA SACCO SOCIETY LTD	P.O.BOX 682 – 20200, KERICHO.
48.	IMENTI SACCO SOCIETY LTD	P.O.BOX 3192 – 60200, MERU.
49.	JACARANDA SACCO SOCIETY LTD	P.O. BOX 1767-00232, RUIRU
50.	JAMII SACCO SOCIETY LTD	P.O.BOX 57929 – 00200, NAIROBI.
51.	JOINAS SACCO SOCIETY LTD	P.O.BOX 669 – 00219, KARURI.
52.	JUMUIKA SACCO SOCIETY LTD	P.O. BOX 14-40112, AWASI.
53.	KAIMOSI SACCO SOCIETY LTD	P.O BOX 153-50305, SIRWA.
54.	KATHERA RURAL SACCO SOCIETY LTD	P.O BOX 251-60202, NKUBU.
55.	KENPIPE SACCO SOCIETY LTD	P.O.BOX 314 – 00507, NAIROBI.
56.	KENVERSITY SACCO SOCIETY LTD	P.O.BOX 10263 – 00100, NAIROBI.
57.	KENYA ACHIEVAS SACCO SOCIETY LTD	P.O. BOX 3080-40200, KISII.
58.	KENYA BANKERS SACCO SOCIETY LTD	P.O.BOX 73236 – 00200, NAIROBI.
59.	KENYA CANNERS SACCO SOCIETY LTD	P.O.BOX 1124 – 01000, THIKA.
60.	KENYA HIGHLANDS SACCO SOCIETY LTD	P.O.BOX 2085 – 002000, KERICHO.
61.	KENYA POLICE SACCO SOCIETY LTD	P.O.BOX 51042 – 00200, NAIROBI.
62.	KIMBILIO DAIMA SACCO SOCIETY LTD	P.O. BOX 81-20225, KIMULOT.
63.	KINGDOM SACCO SOCIETY LTD	P.O.BOX 8017 – 00300, NAIROBI.
64.	KIPSIGIS EDIS SACCO SOCIETY LTD	P.O BOX 228-20400, BOMET.
65.	KITE SACCO SOCIETY LTD	P.O.BOX 2073 – 40100, KISUMU.
66.	KITUI TEACHERS SACCO SOCIETY LTD	P.O.BOX 254 – 90200, KITUI.
67.	KMFRI SACCO SOCIETY LTD	P.O.BOX 80862-80100 MOMBASA.
68.	KOLENGE TEA SACCO SOCIETY LTD	P.O BOX 291-30301, NANDI HILLS.
69.	KONOIN SACCO SOCIETY LTD	P.O.BOX 83 –20403, MOGOGOSIEK.

NO	NAME OF SOCIETY	POSTAL ADDRESS
70.	KORU SACCO SOCIETY LTD	P.O. BOX PRIVATE BAG-40100, KORU.
71.	K-UNITY SACCO SOCIETY LTD	P.O.BOX 268 – 00900, KIAMBU.
72.	KWETU SACCO SOCIETY LTD	P.O BOX 818-90100, MACHAKOS.
73.	LAINISHA SACCO SOCIETY LTD	P.O. BOX 272-10303, WANG'URU.
74.	LAMU TEACHERS SACCO SOCIETY LTD	P.O. BOX 110-80500, LAMU.
75.	LENGO SACCO SOCIETY LTD	P.O.BOX 1005 – 80200, MALINDI.
76.	MAFANIKIO SACCO SOCIETY LTD	P.O BOX 86515-80100, MOMBASA.
77.	MAGADI SACCO SOCIETY LTD	P.O.BOX 13 – 00205, MAGADI.
78.	MAGEREZA SACCO SOCIETY LTD	P.O.BOX 53131 – 00200, NAIROBI.
79.	MAISHA BORA SACCO SOCIETY LTD	P.O.BOX 72713 – 00200, NAIROBI.
80.	MENTOR SACCO SOCIETY LTD	P.O.BOX 789 – 10200, MURANG'A.
81.	METROPOLITAN NATIONAL SACCO SOCIETY LTD	P.O.BOX 5684 – 00100, NAIROBI.
82.	MMH SACCO SOCIETY LTD	P.O. BOX 469–60600, MAUA.
83.	MOMBASA PORTS SACCO SOCIETY LTD	P.O. BOX 95372–80104, MOMBASA.
84.	MUDETE TEA GROWERS SACCO SOCIETY LTD	P.O.BOX 221 – 50104, KHAYEGA.
85.	MUKI SACCO SOCIETY LTD	P.O.BOX 398-20318, NORTH KINANGOP.
86.	MWALIMU NATIONAL SACCO SOCIETY LTD	P.O.BOX 62641 – 00200, NAIROBI.
87.	MWIETHERI SACCO SOCIETY LTD	P.O. BOX 2445-060100, EMBU.
88.	MWINGI MWALIMU SACCO SOCIETY LTD	P.O BOX 489-90400, MWINGI.
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 30586 – 00100, NAIROBI.
92.	NANDI FARMERS SACCO SOCIETY LTD	P.O BOX 333-30301, NANDI HILLS.
93.	NASSEFU SACCO SOCIETY LTD	P.O.BOX 43338 – 00100, NAROBI.
94.	NATION SACCO SOCIETY LTD	P.O.BOX 22022 – 00400, NAIROBI.
95.	NAWIRI SACCO SOCIETY LTD	P.O BOX 400-16100, EMBU.
96.	NDEGE CHAI SACCO SOCIETY LTD	P.O.BOX 857 – 20200, KERICHO.
97.	NDOSHA SACCO SOCIETY LTD	P.O.BOX 532– 60401, CHOGORIA MAARA.
98.	NEW FORTIS SACCO SOCIETY LTD	P.O.BOX 1939 – 10100, NYERI.
99.	NG'ARISHA SACCO SOCIETY LTD	P.O.BOX 1199 – 50200, BUNGOMA.
101.	NRS SACCO SOCIETY LTD	P. O BOX 575-00902, KIKUYU.
102.	NUFAIKA SACCO SOCIETY LTD	P.O BOX 735-10300, KERUGOYA.
103.	NYALA VISION SACCO SOCIETY LTD	P.O BOX 27-20306, NDARAGWA.
104.	NYAMBENE ARIMI SACCO SOCIETY LTD	P.O.BOX 493 – 60600, MAUA.

105.	NYAMIRA TEA SACCO SOCIETY LTD	P.O. BOX 633 – 40500, NYAMIRA.
106.	NYATI SACCO SOCIETY LTD	P.O. BOX 7601 – 00200, NAIROBI.
107.	OLLIN SACCO SOCIETY LTD	P.O BOX 83-10300, KERUGOYA.
108.	PATNAS SACCO SOCIETY LTD	P.O BOX 601-20210, LITEIN.
109.	PRIME TIME SACCO	P.O. BOX 512 – 30700, ITEN.
110.	PUAN SACCO SOCIETY LTD	P.O BOX 404-20500, NAROK.
111.	QWETU SACCO SOCIETY LTD	P.O BOX 1186-80304, WUNDANYI.
112.	SAFARICOM SACCO SOCIETY LTD	P.O.BOX 66827 – 00800, NAIROBI.
113.	SHERIA SACCO SOCIETY LTD	P.O.BOX 34390 – 00100, NAIROBI.
114.	SHIRIKA SACCO SOCIETY LTD	P.O BOX 43429-00100, NAIROBI.
115.	SHOPPERS SACCO SOCIETY LTD	P.O. BOX 16 – 00507, NAIROBI
116.	SIMBA CHAI SACCO SOCIETY LTD	P.O BOX 977-20200, KERICHO
117.	SIRAJI SACCO SOCIETY LTD	P.O.BOX PRIVATE BAG, TIMAU.
118.	SKYLINE SACCO SOCIETY LTD	P.O.BOX 660 – 20103, ELDAMA RAVINE.
119.	SMART CHAMPIONS SACCO SOCIETY LTD	P.O BOX 64-60205, GITHINGO
120.	SMARTLIFE SACCO SOCIETY LTD	P.O BOX 118-30705, KAPSOWAR.
121.	SOLUTION SACCO SOCIETY LTD	P.O.BOX 1694 – 60200, MERU.
122.	SOTICO SACCO SOCIETY LTD	P.O.BOX 959 – 20406, SOTIK.
123.	SOUTHERN STAR SACCO SOCIETY LTD	P.O BOX 514-60400, CHUKA
124.	STAKE KENYA SACCO SOCIETY LTD	P.O.BOX 208 – 40413, KEHANCHA.

NO	NAME OF SOCIETY	POSTAL ADDRESS
125.	STIMA SACCO SOCIETY LTD	P.O.BOX 75629 – 00100, NAIROBI.
126.	SUBA TEACHERS SACCO SOCIETY LTD	P.O. BOX 237-40305, MBITA.
127.	SUKARI SACCO SOCIETY LTD	P.O BOX 841-50102, MUMIAS
128.	SUPA SACCO SOCIETY LTD	P.O.BOX 271 – 20600, MARALAL.
129.	TABASAMU SACCO SOCIETY LTD	P.O. BOX 123-80403, KWALE.
130.	TAI SACCO SOCIETY LTD	P.O.BOX 718 –00216, GITHUNGURI.
131.	TAIFA SACCO SOCIETY LTD	P.O.BOX 1649 – 10100, NYERI.
132.	TAQWA SACCO SOCIETY LTD	P.O. BOX 10180–00200, NAIROBI.
133.	TARAJI SACCO SOCIETY LTD	P.O.BOX 605 – 40600, SIAYA.
134.	TEMBO SACCO SOCIETY LTD	P.O.BOX 91 – 00618, RUARAKA NAIROBI.
135.	TENHOS SACCO SOCIETY LTD	P.O.BOX 391 – 20400, BOMET.

Source: SASRA (2018)"

APPENDIX III: RAW DATA

id	Year	y(ROA)	SIZE(Ln TA)	Effciency	Capital Adequacy	Asset Qlty	Leverage(D/T)
1	2012	0.03	10.34	0.7	0.08	0.27	0.92
1	2013	0.02	10.39	0.15	0.15	0.47	0.85
1	2014	0.02	10.45	0.23	0.19	0.45	0.81
1	2015	0	10.52	0.2	0.16	0.48	0.84
1	2016	0.01	10.57	0.23	0.14	0.45	0.86
2	2012	0.01	9.96	0.7	0.09	0.29	0.91
2	2013	0.01	10.06	0.36	0.14	0.29	0.86
2	2014	0.02	10.2	0.36	0.19	0.36	0.81
2	2015	0.02	10.24	0.36	0.19	0.31	0.81
2	2016	0.04	10.3	0.32	0.21	0.3	0.79
3	2012	0	10.04	0.71	0.32	0.56	0.68
3	2013	0	10.07	0.64	0.08	0.59	0.92
3	2014	0	10.1	0.42	0.01	0.57	0.99
3	2015	0	10.13	0.43	0.02	0.59	0.98
3	2016	0	10.17	0.22	0.08	0.56	0.92
4	2012	0.01	9.82	0.12	0.06	0	0.94
4	2013	0.01	9.88	0.17	0.06	0	0.94
4	2014	0.04	9.95	0.24	0.11	0	0.89
4	2015	0.04	10	0.37	0.14	0	0.86
4	2016	0.02	10.04	0.31	0.15	0	0.85
5	2012	0.01	9.81	0.02	0.07	0.77	0.93
5	2013	0	9.87	0.05	0.06	0.85	0.94
5	2014	0.01	9.92	0.05	0.07	0.69	0.93
5	2015	0.03	9.96	0.09	0.11	0.62	0.89
5	2016	0.02	10	0.08	0.12	0.25	0.88
6	2012	0.03	9.38	0.24	0.08	0.275389	0.92
6	2013	0.03	9.47	0.11	0.17	0.170527	0.83
6	2014	0.04	9.57	0.16	0.2	0.08721	0.8
6	2015	0.02	9.64	0.17	0.19	0.031935	0.81
6	2016	0.05	9.76	0.15	0.2	0.009332	0.8
7	2012	0.01	9.49	0.19	0.84	0.703163	0.16
7	2013	0.01	9.53	0.13	0.09	0.410992	0.91
7	2014	0.02	9.58	0.09	0.11	0.119734	0.89
7	2015	0.02	9.64	0.09	0.11	0.327947	0.89
7	2016	0.02	9.69	0.13	0.17	0.193027	0.83
8	2012	0.01	9.57	0.14	-0.02	0.26	1.02
8	2013	0.01	9.64	0.08	-0.06	0	1.06
8	2014	0.01	9.65	0.11	0.06	0.32	0.94
8	2015	0.01	9.62	0.12	0.9	0.47	0.1
8	2016	0.02	9.62	0.1	0.09	0.33	0.91

9	2012	0.02	9.24	0.14	0.11	0.27286	0.89
9	2013	0.022	10.164	0.154	0.121	0.300146	0.979
9	2014	0.03	9.36	0.37	0.11	0.700783	0.89
9	2015	0.02	9.41	0.38	0.23	0.535174	0.77
9	2016	0.02	9.46	0.33	0.22	0.5365	0.78
10	2012	0.01	9.18	0.41	0.17	0.535519	0.83
10	2013	0.01	9.19	0.31	0.17	0.918987	0.83
10	2014	0.01	9.27	0.35	0.15	1.09677	0.85
10	2015	0.01	9.33	0.19	0.18	1.65233	0.82
10	2016	0.02	9.39	0.16	0.2	0.768571	0.8
11	2012	0	9.12	0.93	0.05	0.307018	0.95
11	2013	0	9.15	0.72	0.09	0.556948	0.91
11	2014	0	9.25	0.18	0.09	0.87214	0.91
11	2015	0	9.33	0.2	0.15	0.988893	0.85
11	2016	-0.01	9.38	0.23	0.06	0.984853	0.94
12	2012	0.02	9.2	0.7	0.02	0.21	0.98
12	2013	0.01	9.23	0.27	0.11	0.26	0.89
12	2014	-0.02	9.29	0.08	0.1	0.18	0.9
12	2015	0	9.32	0.11	0.11	0.18	0.89
12	2016	0.01	9.41	0.3	0.11	0.04	0.89
13	2012	0.05	9.11	0.1	0.21	0.14	0.79
13	2013	0.04	9.18	1.23	0.23	0.15	0.77
13	2014	0.04	9.19	1.28	0.26	0.18	0.74
13	2015	0.01	9.23	0.67	0.24	0.05	0.76
13	2016	0.02	9.33	0.67	0.24	0.19	0.76
14	2012	0.02	8.87	0.11	0.06	0.31	0.94
14	2013	0.04	8.97	0.19	0.1	0.32	0.9
14	2014	0.03	9.04	0.12	0.12	0.23	0.88
14	2015	0.03	9.1	0.13	0.13	0.18	0.87
14	2016	0.03	9.15	0.72	0.13	0.21	0.87
15	2012	0.01	8.96	0.17	0.04	0	0.96
15	2013	0.01	8.99	0.2	0.04	0.04	0.96
15	2014	0.01	9.03	0.22	0.06	0.05	0.94
15	2015	0.02	9.06	0.61	0.1	0.04	0.9
15	2016	0.01	9.05	0.17	0.11	0.04	0.89
16	2012	0	8.8	0.6	-0.01	0.02	1.01
16	2013	0.04	8.89	0.17	0.08	0	0.92
16	2014	0.03	8.96	0.05	0.19	0	0.81
16	2015	0.01	9.01	0.22	0.16	0.01	0.84
16	2016	0	9.02	0.29	0.16	0	0.84
17	2012	0.01	9.35	1.23	0.07	0.48	0.93
17	2013	0.03	9.43	0.18	0.17	0.46	0.83

17	2014	0.03	9.52	0.16	0.16	0.49	0.84
17	2015	0.01	9.59	0.21	0.1	0.48	0.9
17	2016	0.01	9.69	0.18	0.11	0.49	0.89
18	2012	0.01	9.03	0.2	0.05	0.52	0.95
18	2013	0.02	9.19	0.25	0.05	0.13	0.95
18	2014	0.02	9.34	0.05	0.07	0.13	0.93
18	2015	0.01	9.51	0.24	0.11	0.13	0.89
18	2016	0.02	9.62	0.4	0.13	0.12	0.87
19	2012	0	9.24	0.13	0.04	0.29	0.96
19	2013	0	9.3	0.19	0.04	0.81	0.96
19	2014	0.01	9.36	0.27	0.07	0.82	0.93
19	2015	0.01	9.43	0.17	0.1	0.57	0.9
19	2016	0.01	9.49	0.12	0.1	0.56	0.9
20	2012	0.03	9.07	0.76	0.3	0.71	0.7
20	2013	0.07	9.12	0.65	0.36	0.67	0.64
20	2014	0.06	9.21	0.38	0.34	0.66	0.66
20	2015	0.06	9.26	0.51	0.37	1.02	0.63
20	2016	0.08	9.38	0.7	0.36	0.46	0.64
21	2012	0.03	8.83	0.22	0.08	0.47	0.92
21	2013	0.04	8.97	0.22	0.08	0.68	0.92
21	2014	0.05	9.04	0.15	0.12	0.48	0.88
21	2015	0.05	9.15	0.07	0.13	0.5	0.87
21	2016	0.04	9.28	0.34	0.19	0.47	0.81
22	2012	0	8.8	0.08	0.06	0.18	0.94
22	2013	0.01	8.86	0.05	0.06	0.13	0.94
22	2014	0.02	9	-0.02	0.07	0.12	0.93
22	2015	0.02	9.05	0.11	0.13	0.18	0.87
22	2016	0.03	9.11	0.96	0.15	0.23	0.85
23	2012	-0.03	8.34	0.19	0.05	0.36	0.95
23	2013	0.03	8.66	0.09	0.04	0.5	0.96
23	2014	0.01	8.84	0.09	0.09	0.38	0.91
23	2015	0.02	8.99	0.11	0.1	0.69	0.9
23	2016	0.03	9.13	0.08	0.13	0.71	0.87
24	2012	0.01	9.01	0.13	0.08	0.62	0.92
24	2013	0.01	9.03	0.17	0.08	0.61	0.92
24	2014	0	8.95	0.03	0.15	0.71	0.85
24	2015	-0.04	8.96	0.48	0.1	0.68	0.9
24	2016	0.02	8.98	0.3	0.12	0.63	0.88
25	2012	0.06	8.55	0.21	0.15	0.63	0.85
25	2013	0.05	8.71	0.17	0.2	0.75	0.8
25	2014	0.1	8.8	0.16	0.24	0.64	0.76
25	2015	0.1	8.8	0.16	0.24	0.8	0.76

25	2016	0.1	8.8	0.16	0.24	0.8	0.76
26	2012	0.03	7.75	0.17	0.17	0.51	0.83
26	2013	0.03	7.82	0.22	0.16	0.5	0.84
26	2014	0.03	7.93	0.22	0.15	0.51	0.85
26	2015	0.03	8.04	0.12	0.15	0.51	0.85
26	2016	0.05	8.06	0.19	0.21	0.67	0.79
27	2012	-0.17	7.96	0.36	0.13	0.54	0.87
27	2013	-0.16	8.04	0.31	0.04	0.55	0.96
27	2014	-0.17	8.01	-0.08	0.11	0.57	0.89
27	2015	0.06	8.03	-0.05	0.16	0.52	0.84
27	2016	0.08	8.13	0.35	0.32	0.5	0.68
28	2012	0.01	8.63	0.48	0.19	0.56	0.81
28	2013	0	8.71	0.57	0.19	0.56	0.81
28	2014	0	8.7	0.49	0.22	0.58	0.78
28	2015	0.01	8.79	0.46	0.2	0.56	0.8
28	2016	0.01	8.88	0.63	0.17	0.56	0.83
29	2012	0.01	8.56	0.29	0.08	0.49	0.92
29	2013	0.01	8.61	0.21	0.07	0.51	0.93
29	2014	0.02	8.59	0.26	0.09	0.52	0.91
29	2015	0.03	8.63	0.24	0.12	0.53	0.88
29	2016	0.02	8.67	0.24	0.14	0.5	0.86
30	2012	-0.1	7.57	1.16	0.18	0.48	0.82
30	2013	0	7.59	0.71	0.19	0.46	0.81
30	2014	0.04	7.7	0.58	0.25	0.49	0.75
30	2015	0.04	7.82	0.39	0.23	0.48	0.77
30	2016	0.01	7.84	0.24	0.25	0.49	0.75
31	2012	0.04	7.86	1.57	0.04	0.61	0.96
31	2013	0.48	8.11	0.31	0.26	0.35	0.74
31	2014	0.4	8.19	0.31	0.16	0.63	0.84
31	2015	0.4	8.19	0.61	0.13	0.63	0.87
31	2016	0.4	8.19	0.61	0.13	0.61	0.87
32	2012	0.02	8.59	0.19	0.22	0.76	0.78
32	2013	0.03	8.67	0.19	0.21	0.75	0.79
32	2014	0	8.75	0.14	0.17	0.71	0.83
32	2015	0.01	8.82	0.06	0.15	0.67	0.85
32	2016	0.01	8.92	0.27	0.13	0.66	0.87
33	2012	0.01	9.18	0.88	0.08	0.46	0.92
33	2013	0.04	9.23	0.02	0.11	0.47	0.89
33	2014	0.01	8.97	0.11	0.11	0.68	0.89
33	2015	0	9	0.17	0.1	0.48	0.9
33	2016	0.01	9.05	0.2	0.12	0.5	0.88
34	2012	0.01	9.05	0.2	0.12	0.41	0.88

34	2013	0	7.88	0.28	0.19	0.36	0.81
34	2014	0.04	7.96	0.28	0.2	0.5	0.8
34	2015	0.04	8.01	0.23	0.25	0.38	0.75
34	2016	0.05	8.1	0.28	0.21	0.69	0.79
35	2012	0.04	9.59	0.46	0.2	0.62	0.8
35	2013	0.04	9.74	0.26	0.26	0.61	0.74
35	2014	0.04	9.84	0.28	0.35	0.71	0.65
35	2015	0.05	9.97	0.3	0.39	0.68	0.61
35	2016	0.02	10.03	0.33	0.38	0.63	0.62
36	2012	0.0222	11.1333	0.3663	0.4218	0.6993	0.6882
36	2013	0.02	9.36	0.7	0.11	0.54	0.89
36	2014	0.01	9.5	0.69	0.13	0.63	0.87
36	2015	0.01	9.6	0.9	0.11	0.75	0.89
36	2016	0.01	9.73	0.61	0.13	0.64	0.87
37	2012	0.0111	10.8003	0.6771	0.1443	0.8	1
37	2013	0.01232	11.988333	0.751581	0.160173	0.888	1.11
37	2014	0.05	8.92	0.15	0.13	0.28	0.87
37	2015	0.05	8.98	0.05	0.16	0.32	0.84
37	2016	0.04	9.08	0.12	0.18	0.31	0.82
38	2012	0.07996	18.15092	0.23988	0.07	0.31	0.93
38	2013	0.15984	36.283689	0.4795201	0.15	0.18	0.85
38	2014	0.31952	72.531094	0.9585607	0.1	0.05	0.9
38	2015	0.03	9.05	0.08	0.05	0.19	0.95
38	2016	0.03	9.05	0.18	0.01	0.14	0.99
39	2012	0.0333	10.0455	0.1998	0.0111	0.1554	1.0989
39	2013	0	9.28	0.08	0.02	0.29	0.98
39	2014	0.01	9.46	0.08	0.02	0.28	0.98
39	2015	0.01	9.47	0.1	0.3	0.32	0.7
39	2016	0.01	9.5	0.04	0.07	0.31	0.93
40	2012	0.0111	10.545	0.0444	0.31	0.31	0.69
40	2013	0.01232	11.70495	0.049284	0.28	0.29	0.72
40	2014	0.03	9.33	0.16	0.36	0.42	0.64
40	2015	0.04	9.41	0.12	0.33	0.44	0.67
40	2016	0.01	9.49	0.12	0.45	0.46	0.55