EFFECT OF MOBILE BANKING SERVICES ON FINANCIAL PERFORMANCE OF DEPOSIT-TAKING SACCOS IN KENYA

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ABSTRACT

The Sacco industry in Kenya has experienced growth in recent times through a tremendous rise of the quantity of licensed Deposit-Taking SACCOs (DTS) in Kenya as from when laws authorizing their establishment came into being in 1931. Over the years, these SACCOs have faced stiff competition for its customers from banks and other similar institutions offering financial services. Hence with the increased information technology innovations such as mobile phones, these SACCOs have had to adopt mobile banking as a mechanism of not only enhancing their operational efficiency but eventually improving their performance in terms of finances. The study required to find out effect of mobile banking services on the financial output of DTS in Kenya. It used descriptive research design such as mean, standard deviation and inferential statistics. Population of the study was the 166 DTS registered with SASRA by 31st December 2018 and a sample of 117SACCOs were chosen through simple random sampling for inclusion into final sample. Secondary data comprising of the audited financial statements and reports for the sampled SACCOs ranging from the year 2015 to the year ending December 2018 obtained from SASRA were used in the study. Descriptive and inferential analysis methods were used. Multiple regression analysis was done to identify how phone banking adoption financially impacts the performance of Kenya's licensed DTS. It was established that MBS, asset protection, asset quality, capital adequacy, liquidity, costs and Sacco size positively influence financial performance in DTS and explained 69.4 percent of variations in financial performance while 30.6 percent is due to other factors not in the model. Capital Adequacy and Liquidity were found to know the financial performance of DTS to a greater extent. It was found that DTS growth in assets, deposits and loans is gradual. It concluded that mobile banking has enhanced the level that DTS reach members especially in the provision of deposit and withdrawal services as well

as limited digital credit by a few deposit taking SACCOs and recommends that the SACCOs that are yet to adopt the innovation should do so.

Keywords: SACCO, Mobile banking, Financial performance, Kenya

ABBREVIATIONS:

DIT	Disruptive Innovations Theory
DOI	Diffusion of Innovation Theory
DTS	Deposit Taking SACCOs
EPS	Earnings Per Share
EVA	Economic Value Added
IMF	International Monetary Fund
KUSCCO	Kenya Union of Savings and Credit Cooperative Ltd
MBS	Mobile Banking Services
NDTS	Non-Deposit Taking SACCOs
NIM	Net Interest Margin
PEARLS	Protection, Effective financial structure, Asset quality, Rates of return and costs, Liquidity and Signs of growth
ROA	Return on Assets
ROE	Return on Equity
ROI	Return on Investment
SACCO	Savings and Credit Co-operative
SASRA	Sacco Societies Regulatory Authority
TAM	Technology Acceptance Model
WOCCU	World Council of Credit Unions

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Most financial organizations have had to come with competitive strategies involving their products, innovations used, costs and differentiation to enhance their financial position (Aduda & King'oo, 2012). One of the innovation strategies adopted by these institutions is to provide banking services through mobile banking. It basically refers to the use of innovations to perform financial transactions (Kingoo, 2011). Mobile banking is increasingly relevant due to competition on the international front, fragmented markets and diverse technologies. It has been linked to financial performance of these financial institutions as indicated by profit growth, revenue and the return on capital employed. Financial performance evaluates a firm's financial position as derived from its operations (Whittington & Kurt, 2001).

Three main theories form the study's basis: Diffusion of Innovation Theory (DOI), Technology Acceptance Model (TAM) and Disruptive Innovations Theory (DIT). Diffusion of Innovation Theory explains how an innovation is adopted at different rates in a social system depending on the competitive advantage it has, the ease of use, ability to meet the user's needs among other variables. The Technology Acceptance Model - TAM argues that there has to be something unique about the people's perceptions, behavior and psychological predispositions that make them accept some technologies more readily than others (Tchouassi, 2012). The Disruptive Innovations Theory explains how the levels of acceptance of new innovations disrupt the market, affect and lead to differential monetary performance in DTS (Christensen, 2006).

The Savings and Credit Cooperative Societies (SACCOs) were formed as an innovative approach to address financial exclusion that negatively affected social and economic empowerment (Rogers, 1962; Wambari, 2009). SACCOs, which form part of the informal financial sector, aim to offer cheaper financial services (such as credit), flexible saving plans, and flexible repayment terms to the members that were previously ignored by the conventional financial institutions like banks (Kigen, 2010). Over years, SACCOs have had to diversify their activities and adopt competitive strategies to survive the dynamic market (Anyasi & Otubu, 2009).

1.1.1 Mobile Banking Services

Ensor, Wannemacher and Montez (2012) defined phone banking to be the use of mobile devices for providing customers with communication, information in finance and dealings including transferring funds, account balance checking, and access of additional bank services and products anytime from any location. It utilizes the Wireless Application Protocol (WAP) and a user installed SIM card application for M-banking for facilitation of deposit for funds, withdrawals including transfer of value among parties such as bill payments, salaries and purchases (Hernandez, 2011). Financial institutions have had to partner with telecommunication companies to provide branchless banking methods such as mobile banking.

Over the years, banking activities have undergone radical changes precipitated by advances in information technology. The increased innovations in the digital cellular networks have led to powerful and widely distributed cellular networks that enable users to sufficiently transmit videos and huge documents and reduced cost of mobile phones (Laudon & Laudon, 2007). This has largely contributed towards financial inclusiveness, provided a better substitute to other conventional digital bank channels like Automated Teller Machines and built branches, lowered the cost of delivering bank services through reduced paperwork and increased the convenience to customers by connecting the institutions to their customers through telecommunication networks (Ivatury & Mas, 2008; O'Brien, 1993; Mwania, 2017).

Mobile banking services was assessed using the amount of mobile banking transactions in the period of study.

1.1.2 Financial Performance

This is how efficiently an entity utilizes its assets and manages its work over a specific duration of time (Ross, Westerfield & Jordan, 2010). It is an evaluation of the financial health of an organization as a result of its operations, that is, it seeks to establish if the financial objectives of an organization have been achieved (Al-Hussein & Johnson, 2009).

Efficient financial performance aims to maximize shareholders' wealth, thus rewarding them for investing and encouraging more investments that promote a country's economic growth (Nuhiu, Hoti & Bektashi, 2017). Kivuvo, and Olweny (2014) note that, performance of a firm comprises of 4 elements within a multi-dimensional unit. Performance that is focused on the customer, comprising of market and financial performance; including profits, revenue, position in the market, share earnings, cash-to-cash cycle time; satisfaction of customers and service or product performance; performance of human resources, comprising satisfaction of employees; and effectiveness of the organization, including innovation level, time taken to market, and flexibility in the supply chain and production.

Generally, financial ratios for instance Earnings Per Share (EPS), Dividend Yield, Returnon Investment (ROI), profitability, Return on Assets (ROA) among others are for measuring the effectiveness and efficiency of an organization's operations (Jatmiko & Hidayat, 2016). These indicators guide the management in picking thepolicies and strategies for adoption in improvement of the organization's sustainability (Almazari, 2011).

1.1.3 Mobile Banking Services and Financial Performance

As a form of electronic banking, mobile banking is a key part in reducing operation cost by saving on investment in physical infrastructure, improving products and services, and the general financial performance of banks (Beck, Dermigurc-Kunt & Martinez, 2007; Dabholkhar & Bagozzi, 2002). The availability of many outlets countrywide and flexible hours of work by mobile banking agents offer wider opportunities to meet the banking needs of clients throughout the day (Kariuki, 2009). According to the Global System for Mobile Communications (GSMA), over years figures of subscribers for mobile banking has been rising.

The studies aimed at the link between services in phone banking and financial performance of microfinance institutions are at their infancy (Al-Jabir, 2012). One of the reasons is that not many countries have adopted SIM-based MBS in the world (Kariuki, 2009; Njeri, 2013). As at 2011, there were just about 95 mobile banking ventures globally with M-PESA being one of the successfully launched mobile money services in Kenya (Klein & Mayer, 2011)

Some analysts have linked the relative success of banking services using mobile phones in Kenya and other countries to people's mental or psychological faculties (Davis, 1989; Aboelmaged & Gebba, 2013). Other analysts have related it to the fact that there were immense gaps in financial inclusion in those countries at the time when mobile banking services were introduced (Muteke, 2015; Kingoo, 2011; Kigen, 2010).

1.1.4 Deposit-Taking SACCOs in Kenya

Kenya's Savings and Credit Cooperatives (SACCOs) undergo registration as per the Co-operative Societies Act, 1997 and are supervised as per the Sacco Societies Act, 2008. They are defined by the Co-operative Societies Act, 1997Act as primary cooperatives comprising of voluntary associations formed to purposely promote the welfare and economic interests of their members.

SACCOs are divided into two types namely Non-Deposit Taking SACCOs (NDTS) and Deposit Taking SACCOs (DTS). Deposit-taking SACCOs receive demand deposits and therefore offer withdrawable savings accounts services like banks while the Non- Deposit Taking SACCOS take deposits which are only refundable to the member upon ceasing to be a member of a SACCO.

SASRA, constituted under the Sacco Societies Act, 2008, is responsible for the regulation, licensing and supervision of deposit-taking SACCOs. By December 2018, Kenya had 166 licensed DTS.

Over the years, SACCOs have gradually automated their services moving from the traditional savings and loaning issues to an additional competitive and effective approach such as mobile banking that has positively affected their financial performance (Kiugi, 2018; Wanjiru, 2012; Oyugi, 2014).

1.2 Research Problem

MBS have greatly impacted the macro-economies of countries where the technologies have been extensively adopted (Lee, Lee & Kim, 2007; Alkhatib, 2012; Tsuma et al, 2015). It has led to better quality products and services, increased customer base, reduced administrative and transaction cost and an increased financial performance of the banking institutions (Dabholkhar & Bagozzi, 2002; Ombado, 2009; Mwania, 2017).

SACCOs were majorly formed to solve financial exclusion of the majority rural and urban populace who had been ignored by the mainstream financial institutions (Wambari, 2009). They have greatly improved the advancement of their members by providing tailor-made products and services. Most SACCO membership comprises people that were financially excluded by commercial banks Over time, SACCOs have had to adopt competitive strategies to face the dynamics of the market and counter the challenges faced. Mobile banking is one competitive strategy used by most SACCOs to outdo competitors in the market and make profits while enhancing their customers' convenience.

Different studies have been conducted regarding impact of innovations such as mobile services on various indicators in SACCOs' performance (Kiugu, 2018; Muteke, 2015; Tsuma et al. 2015; Wanjiru 2015). The studies established that such innovations positively affected the SACCOs' financial performance, cut down the operation costs, increased efficiency, and improved delivery of service. However, these studies focused on SACCOs in specific geographical locations and smaller sample size. Hence, these conclusions cannot be stated to be representative of all the SACCOs in the country. This reveals a gap in research particularly the association of banking innovation using mobiles in SACCOs and financial performance. Therefore, this study pursued to give an answer to the research question: What is the effect of mobile banking services in Kenya on monetary output of SACCOs?

1.3 Research Objective

The study sought to formulate the effect of MBS on financial performance of Kenya's Deposit Taking SACCOs.

1.4 Value of the Study

This study had hoped to assist the licensed SACCOs that are yet to adopt such an innovation or are doing so at a low rate, to see the importance of such a technology in improving their operations. It may also guide SACCOs' strategic planning and inform their decisions for investment in better programs for training and infrastructure that boost their MBS.

In addition, the government through regulatory bodies like SASRA may develop improved policies aimed at improving financial performance of SACCOs, curbing fraud related to mobile banking and providing incentives that reduce the cost of investing in such an innovation thus encouraging its wide use by even the small SACCOs.

Researchers and scholars could also benefit from the study to increase the pool of knowledge on adoption of banking using mobiles and its impact on SACCOs' performance in terms of financials.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter summarizes literary work that exists on the connection between MBS and financial outcome in diverse financial related institutions. It is divided into theoretical review, causes of financial performance, summary of the literature and empirical review.

2.2 Theoretical Review

The section reviews some theories which have been postulated to illustrate adoption of technology related innovations including banking using mobiles by most of the financial institutions across the world.

2.2.1 The Diffusion of Innovations Theory

Being a Rogers (1962) suggestion, the theory describes what happens as a new idea, object or philosophy is adopted by society (Kaminsky, 2011). Innovations refer to ideas, practice or an object being perceived to be new according to a particular social system's members while diffusion alludes to a process whereby an innovation gets transferred by particular channels/avenues for a time interval throughout a social system's membership. (Mahajan &

Peterson, 1985; Rogers, 1962). This theory comprises of three elements namely the innovation decision process, the adopter's characteristics and characteristics of an innovation characteristics.

The innovation decision process entails identifying the characteristics that influence adoption and categorizing adopting individuals (Christensen, 2006). The innovation attributes influencing adoption are its perceived relative advantage over other innovations, its compatibility with a person's needs, values, and past experience, an individual's comprehension of the complexity to learn and adopt the innovation, the level the individual can experiment with and use the new technology before full adoption and how much the new technology can be seen by others to be in use (observability), (Danneels, 2004; Tiwari, Buse & Herstatt, 2006).

The diffusion process has 5 stages namely persuasion, knowledge, decision, confirmation, and implementation. Those interested in the innovation seek information on it and once convinced of its advantages, make a decision for adoption, implement it, and either reaffirm reject it (Rogers, 1983; Rogers, 1962). According to Rodgers, 1983 the adopters are grouped into early majority, innovators, late majority, laggards and early adopters as per when they accept an innovation. Innovators, comprising 2.5 per cent of the group are risk-takers with ample financial resources willing to sample fresh ideas, while the early adopters are mostly influential personalities in social settings and are 13.5 per cent of the group. The early majority deliberate before adoption while late majority are skeptical. Both comprise 34 per cent of the group while the laggards are the last 16 per cent of the adopters.

The theory explains how SACCOs decide to acquire technology for MBS after consideration that the qualities and capabilities of the innovation march the members' and institution's current needs which include improvement of SACCOs' financial performance.

2.2.2 Technology Acceptance Model

Davis (1989) proposed a model which forecasted adoption for new technologies in the information arena, specifically on acceptability for an information system, within an organization. The theory focuses on psychological predispositions and social influences such as intentions, beliefs, and attitudes. It was aimed at predicting how admissible a tool would be and to discern the necessary modifications to this system so that it is acceptable for users. This theory proposed that an information system's potential usefulness or perceived ability to be used were factors determining its acceptability.

Davis further noted that an individual considered the effect a system has on performance for an individual's apart from just their outlook towards the system. Attitude on usage of that particular system and the expected usefulness determines the behavioral intention. Consequently, attitude is determined by both the opinion on ease of utilization and the apparent benefit from the system

(Davis, 1989). It is definitely a convincing explanation of the increased performance of SACCOs reported in literature. For instance, it appears that it is because of widespread acceptance, coupled with exclusions from the mainstream financial sector, that more people opted to send their savings using mobile money instead of having to physically travel to the financial institution.

The theory indicates the various factors considered by SACCOs before investing in mobile enabled services in banking. These include the contemplated simplicity in use and functionality and the influence on its financial performance. The theory also cautions SACCOs to sensitize both employees and clients on the new technology's utilization adopted for improving service and importantly, financial performance.

2.2.3 Disruptive Innovation Theory

Proposed by Christensen in a series of studies conducted between 1997 and 2006 (Christensen, 2006), the theory explains how a service or product lodges itself first through basic ways at lowest levels of a market. The product then in a sustaining and relentless manner scales a market upwards to eventually replace the already present competitors.

It essentially proceeds from four key elements with the first proposing that those already in a market are developing by following a path that sustains innovation (King & Baartartogtokh, 2015). However, innovating companies or technologies have a distinctly different trajectory to introduce new and improved products or through a sustaining innovation. Second is that incumbents overshoot customer needs, third is that incumbents have the ability to act upon threats which are disruptive, while fourth is when they finally fail after being disrupted.

This theory essentially explains how a service or product lodges itself first through basic ways at lowest levels of a market. The product then in a sustaining and relentless manner scales a market upwards to eventually replace the already present competitors. It would thus explain the low financial performance in SACCOs following the introduction of mobile banking and the subsequent rise in performance after a period of time.

2.3 Determinants of Financial Performance

SACCOs' performance just like for other institutions in the financial sector including banks are influenced by macroeconomic and organization-specific elements (Al-Tamimi, 2010).

The World Council of Credit Unions (WOCCU, 2009) recommends utilizing PEARLS system, comprising of several financial-ratios able to quantify individual factors as well as the whole

system, hence an early warning system against unseen financial risk in SACCOs**.** This acronym is broken down as follows:

2.3.1 Protection

Protection is adequate when a SACCO can cover all bad loans delinquent over a period of one year and 35% of bad loans delinquent over a period of between one to twelve months (WOCCU, 2009).

The provision for loan-loss is a significant factor of the variations in capital positions and bank profitability as a lower loan- loss provision translates to higher profits (Mustafa, Ansari & Younis 2012).

2.3.2 Effective financial structure

It helps determine a SACCO's earnings capacity, growth potential and general financial strength. It shows how financing of assets and capacity of the institution to take care of losses (Hassan & Bashir, 2003).

WOCCU, 2009 recommends a credit union to have 95% productive assets comprising of 70-80% loans, liabilities of 70-80% member deposits, 10-20% share capital. Suggestions for investment include net loan (70 – 80%), liquid assets (20%), financial assets (10%) and investments which are not financial (0%) (WOCCU, 2009).

2.3.3 Asset quality

The measure seeks to establish the effect of the non-earning assets on profitability and solvency. WOCCU recommends the ration to be less than or equal to 5%.

The lower the level of non-performing assets, the better the management of credit risk which translates to better asset quality (Swamy 2013). High delinquency indicates a weakness in other important credit union areas of operations such as the institutional capital, net income and provisions in losses from loans (Baral, 2006).

2.3.4 Rates of return and costs

Its indicators quantify average income yield from all the most productive assets of the Balance Sheet and average yield of each of the liability and capital accounts (WOCCU, 2009).

It entails monitoring the return earnings from every asset type i.e. determining the kinds of assets which would bring the most returns, and cost of every kind of liability determining the least expensive sources of funds. This ensures control of the operating costs (Baral, 2006).

2.3.5 Liquidity

The indicators point out whether there is effective management of cash to enable the credit union fulfill deposit withdrawal claims and liquidity reserve obligations.

A large liquidity gap may cause banks to take on higher interest rate loans from the repo market thereby increasing the cost of the banks. The increased cost will eventually affect the bank's profitability (Maaka, 2006).

There is need to establish a balance between the need to maximize profit and preserving liquidity as enhancing profits at the expense of liquidity can cause major challenges to a banking institution (Sufian & Chong, 2008).

2.3.6 Signs of growth

According to WOCCU (2009), the indicators in this variable seek to determine the proportion of gain in each of the very crucial accounts in the financial statements and the membership growth.

The growth of an institution in terms of loans, saving, total assets, among others reflects satisfaction for member and client, suitability of what the product offers and strength in the financial issues. However, growth and profitability are to some extent competing objectives and interdependent (Goddard, Molyneux & Wilson, 2001)

2.4 Empirical Review

Recent literature on the topic of study has focused mainly on the taking up of banking using mobiles by deposit taking SACCOs for certain regions/ county in the country.

Aboelmaged and Gebba (2013) sought to considered components that influenced mobile banking adoption in the United Arab Emirates (UAE). Survey data, collected through self-administered questionnaire, from 119 respondents was analyzed where they found that attitude and expected usefulness substantially influenced adoption of banking using mobiles. Conversely, influence of control in behavior and its importance on adoption of banking by mobiles phones were unimportant.

Daud, Kassim, Said, and Noor (2011) in a study, looked at the variables affecting phone banking adoption for the Malaysia market by means of advanced Technology Acceptance Model (TAM). Survey data gathered from about 300 users of banking services on their opinions on mobile banking was empirically evaluated. They found that perceived helpfulness and perceived credibility or users' perception on the safety transactions details and private data from unauthorized access affected adoption of mobile banking.

Sonja (2010) aimed at establishing how automation affected the growth of Ugandan SACCOs. Information ranging from 2005-2010 was collected on five of the eight SACCOs from the mid-north and southern region of Uganda. Her findings implied that automation of SACCOs services lead to efficiency in running the SACCOs, customer growth, increased transparency and generation of different accurate financial reports.

Crabbe *et al* (2009) sought to establish and examine factors influencing phone banking adoption behavior for Ghana. Data gathered by using a self-administered, closed questionnaire issued to 271 people from diverse segments was analyzed through stepwise regression analysis. It was established that adoption decisions were easily swayed by cultural and social factors including demographic factors, apparent credibility, facilitating conditions, and incorporating social impacts including building an image and peer influence. The latter can positively influence those who adopt while at the same time negatively influencing those who do not adopt. Additionally, facilitating conditions and expected credibility have an impact on attitudes to technology.

Kosmidou (2008) looked at the factors impacting on bank performance in Greece between 1990 and 2002 when there was the EU integration. Using a time series data set which was unbalanced pooled from 23 banks, they established that banks that were well-capitalized and that had lower ratio of cost to income got high returns on average assets (ROAA). This return was realized as positively affected by the growth in Gross domestic product (GDP) and negatively affected by inflation.

Mwania (2017) aimed at establishing the correlation between financial performance and growth for Kenyan SACCOs. More specifically, he sought to assess how return on assets affects growth of SACCOs, the effect of innovation in SACCO growth, the extent at which return on equity affect growth of SACCOs, and how earnings per share affect growth of SACCOs. Secondary and primary data ranging from 2012 to 2016 on 42 out of the target population of 175 deposit taking licensed SACCOs underwent analysis using a multivariate model of regression. Findings indicated Return on Equity increases the growth of SACCOs while Earnings per Share and Return on Assets decrease this increase. It concluded that financial performance positively impacted on development in SACCOs.

Wanjiru (2015) investigated how SACCO services impacted using mobiles had on performance in terms of finances of the 42 DTS located in Nairobi. The data obtained from audited statements of finance over a period of four years (2011 – 2014) underwent analysis through a model of regression that was linear. It was discovered that the quality in management, investment for M-Sacco services, and amount of transactions for M-Sacco positively conducted and significantly affected the financial performance in SACCOs. It further came to the conclusion that a negative and an important link exists between SACCO size and performance in finances of SACCOS. The
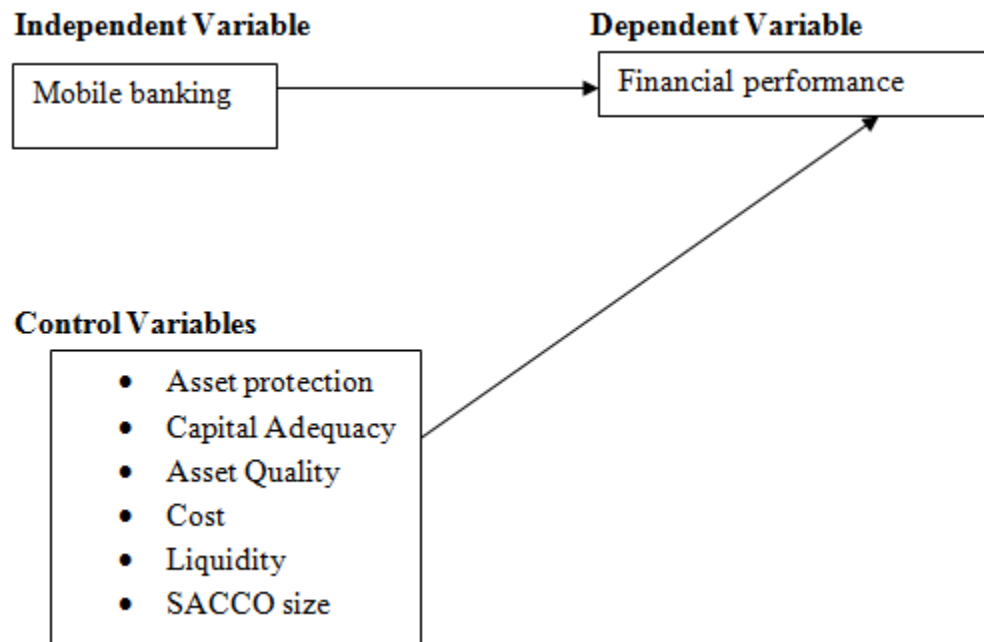
findings cannot be wholly adopted as applying to all SACCOs that are licensed and take deposits.

Kiaritha (2015) established positive association between performance in finances of Kenya SACCOs operating in the banking industry and its effects such as internal politics, commercial banks' competition, costs for operations, investment policy and culture of savings. It was determined that the study variables were significant statistically in the explanation of financial performance of the banking sector's SACCOs and urged SACCOs to be implement effective strategic plans and investment policies and be proactive for it to obtain competitive advantage above its opponents.

Kivuvo and Olweny (2014) looked at how deposit-taking SACCOs in Kenya performed financially through Altiman's Z score model of corporate insolvency prediction. Longitudinal data from statements of finance in the duration ranging between 2008 and 2013 for 30 out of Kenya's 215 registered SACCOs taking deposits was analyzed. The studies established that the Altiman Z Score Model is a strong tool for financial analysis. In addition, they found out that the variables X_1 *i.e.* working capital to Total assets and X_4 i.e. equity to Total book debt significantly influence the way SACCOs performed. It further concluded that the model application contributes to financial stability. The model is a good tool for measuring SACCOs' financial performance as it factors profitability, liquidity and solvency potential of the SACCOs.

Oyugi (2014) investigated how automated service affected the financial performance in 130 licensed SACCOS. Secondary and primary data ranging from year 2009 to 2013 for 45 of the SACCOs from Kiambu and Nairobi Counties were analysed through a model of multiple regression. They concluded that automated services did affect positively the financial performance of SACCOS. The sample used was not objectively identified. Hence, the conclusions arrived at cannot be used to generalize about all the SACCOs in the population.

2.5 Conceptual Framework

Independent Variable

Mobile banking

Dependent Variable

Financial performance

Control Variables

- Asset protection
- Capital Adequacy
- Asset Quality
- Cost
- Liquidity
- SACCO size

Source: (WOCCU PEARLS monitoring framework)

In this study, financial performance will be assessed through division of net income after tax with total assets; mobile banking services by logarithm of number of mobile banking transactions; asset protection by dividing the loan loss provision by total loans; the capital adequacy will be measured by getting total assets percentage sourced from capital; the asset quality by dividing total non-earning assets by total assets; cost by logarithm of expenses related to mobile banking and SACCO size will be measured by total deposits while financial performance will be measured by profitability.

2.6 Summary of Literature Review and Research Gap

While examining factors that influenced phone banking adoption, several researchers found attitude of users cultural and social factors significantly impacted mobile banking positively, led to efficiency in running the SACCOs, customer growth, increased transparency and generation of different accurate financial reports for SACCOs (Crabbe *et al*. 2009; Sonja, 2010; Daud *et al*. 2011; Aboelmaged & Gebba, 2013; Oyugi 2014).

Other researchers established performance of banks was influenced by Gross domestic product (GDP), inflation, management quality, investment in M-Sacco services, and quantity of M-Sacco bank activities (Kosmidou, 2008;Wanjiru, 2015) while others established that financial performance had a positive bearing on the growth in SACCOs (Mwania, 2017).SACCOs' financial performance could be measured by Altman's Z score model as it factors the profitability, liquidity and solvency potential of the SACCOs (Kivuvo & Olweny, 2014).

Most empirical evidence collected, especially from international studies, mainly focused on banks in the commercial sector and factors influencing introduction of mobile banking in the banks while other studies focused on SACCOs located in specific geographical locations and smaller sample sizes. Thus the conclusions drawn from the studies cannot be used to generalize about Kenya's SACCOs.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The section covers the study's research design, defines study population and specified the approach used in the sampling process. Methods for data collection used are outlined and approach to analysis of data specified.

3.2 Research Design

Descriptive research design was used as it offers summary for the observed attribute of the dependent and independent variants (Kothari, 2005; Cooper & Schindler, 2006).

3.3 Population

Population refers to a cluster of items or persons from which there is need to obtain information (Harper, 1991). The population target for the study included 166 Deposit-Taking SACCOs registered with SASRA as of 31st December 2018.

3.4 Sample Design

Sample is a finite portion drawn from the population with characteristics examined for gaining information concerning a whole entity (Cooper & Schindler, 2006). This study used simple random sampling to choose117 SACCOs identified through the formula provided by Yamane (1967) shown below:

$$n= \frac{N}{}$$

$$1+N\ (e)^2$$

Where:

n = sample size

N (population) = 166

e (extent of precision) = 5% at 95% confidence level

Therefore:

$$n= \frac{166}{1+166\ (0.05)^2}$$

= 117 SACCOs

3.5 Data Collection Technique

Secondary data comprising of audited financial statements and reports for the sampled SACCOs ranging from the year 2015 to the year ending December 2018 obtained from SASRA were used in the study.

3.6 Data Analysis

In line with the research design, and as advised in Cooper and Schindler (2006), both inferential and descriptive analysis methods were used. Descriptive analysis was essential for running frequencies while inferential analysis were for testing hypotheses related to financial performance and mobile banking. Results were presented in tables.

3.6.1 Analytical Model

A multiple regression analysis was done with a view of establishing how the adoption of phone banking impacts on fiscal outcome of the licensed DTS in Kenya. It used the following regression simulation:

$$Y=\beta o+\beta_1 X_1+\beta_2 X_2+\beta_3 X_3+B_4 X_4+B_5 X_5+B_6 X_6+B_7 X_7+\varepsilon$$

Where:

Y = financial performance of SACCOs assessed by profitability

β_0 = constant term/coefficient of intercept;

$\beta_{n>0}$ = Coefficients of X_n

X_1 = the number of mobile banking transactions;

X_2 = Asset protection

X_3 = Capital adequacy

X_4 = Asset quality

X_5 = Cost

X_6 = Liquidity

X_7 = SACCO size

ε = error term

3.6.2 Operationalization of Variables

The parameters examined and how they are measured included the following:

Table 3.1: Operationalization and Measurement of Variables

VARIABLE	VARIABLE TYPE	INDICATORS	OPERATIONALISATION	LEVEL OF MEASUREMENT	REFERENCE
PERFORMANCE	Dependent	Profitability	Net income after tax/total assets	Ratio scale	Almazari, 2011
MOBILE BANKING SERVICE	Independent	mobile banking transactions	Logarithm of number of mobile banking transactions	Ratio scale	Crabbe, Standing &Karjaluoto, 2009
ASSET PROTECTION	Control	Provision for loan loss	Loan loss provision/total loans	Ratio scale	**WOCCU, 2009;** Mustafa, Ansari & Younis, 2012
CAPITAL ADEQUACY	Control	total assets financed by capital	Percentage of total assets financed by capital	Ratio scale	WOCCU, 2009; **Hassan & Bashir, 2003).**
ASSET QUALITY	Control	Total assets not earning income	Total non-earning assets/total assets	Ratio scale	WOCCU, 2009; Baral, 2006; **Swamy 2013).**
COSTS	Control	Cost of managing asset	E*xpenses* incurred from mobile banking by SACCOs	Ratio scale	Baral, 2006
LIQUIDITY	Control	Cash available for withdrawal	Liquidity reserve/savings deposits	Ratio scale	WOCCU, 2009; Sufian & Chong, 2009

SACCO SIZE	Control	Total deposits	Logarithm of total deposits made in SACCOs	Ratio scale	**Goddard, Molyneux & Wilson, 2001**

3.6.3 Diagnostic Tests

The Kolmogorov-Smirnov normality test was used to check for data normality.

3.6.4 Tests of Significance

This study examined the statistical significance level at 95% significance confidence level. Relevance of the model was determined by employing the F-test at 5% level of significance to decide on rebuffing or accepting the null hypothesis that none of coefficients of independent variants can predict financial performance.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSIONS

4.1 Introduction

The chapter gives study results and uses tables for reviewing data. Findings and the collected data analysis were processed in order to respond to the research objective. The aim of the study was to find out the effect of MBS on financial output of Kenya's DTS.

4.2 Diagnostic Tests

The diagnostic tests that were done include the Kolmogorov-Smirnov normality test. This was done to test normality with the null hypothesis that the independent variables' data did not originate from a population which is distributed non-normally. All results from the diagnostic tests show that all the variables were derived from a normally distributed population as indicated in the table below.

Table 4.1: Diagnostic Tests

	Kolmogorov-Smirnov		
	Statistic	**df**	**Sig.**
Mobile Banking Services	0.089	117	0.196
Asset Protection	0.086	117	0.197
Capital Adequacy	0.085	117	0.190
Asset Quality	0.086	117	0.198

Costs	0.084	117	0.194
Liquidity	0.087	117	0.196
Sacco Size	0.086	117	0.195
Performance	0.084	117	0.194

Source: Survey Data (2019)

4.3 Descriptive Statistics

Data was descriptively analyzed to summarize and reveal the characteristics of the data collected. MBS showed a 3.49 average mean and 0.33 standard deviation as shown below, which indicates that the service was not used by SACCOs and their members extensively. However, one popular area of mobile banking was mobile money transfer due to low charges and convenience than financial institutions. Majority of the deposit taking SACCOs also maintained a healthy capital adequacy ratio over the period with an average of 13.93%. The results also indicate that SACCO growth has been rapid over the four- year period as evidenced by the increase in deposits.

Table 4.2: Descriptive data

	2018	2017	2016	2015	Mean	Std Dev
Mobile Banking Services	3.97	3.42	3.31	3.24	**3.49**	**0.33**
Asset Protection	4.53%	4.28%	3.86%	3.83%	**4.13%**	**0.34**
Capital Adequacy	15.08%	14.53%	13.96%	12.17%	**13.93%**	**1.26**
Asset Quality	6.98%	6.14%	5.23%	5.12%	**5.86%**	**0.87**
Costs	45.02%	43.99%	41.35%	41.58%	**42.99%**	**1.81**
Liquidity	54.72%	54.10%	49.95%	55.90%	**53.67%**	**2.59**
Sacco Size (Millions)	2,126	1,754	1,548	1,341	**1,692**	**334.73**
Performance	0.026	0.025	0.020	0.022	**0.023**	**0.028**

Source: Survey Data (2019)

Tests for skewness and kurtosis were also done as indicated in the table below. The positive values indicate that the variables' data were positively skewed and leptokurtic but not perfectly normally distributed.

Table 4.3: Skewness and kurtosis

	Skewness		Kurtosis	
	Statistic	Std Error	Statistic	Std Error
Mobile Banking Services	3.741	0.031	0.635	0.382
Asset Protection	2.138	0.255	0.854	0.299
Capital Adequacy	3.562	0.214	0.057	0.398
Asset Quality	1.816	0.471	1.851	0.274
Costs	2.639	0.195	2.328	0.197
Liquidity	0.088	0.196	3.723	0.256
Sacco Size	1.936	0.159	1.823	0.253
Performance	0.035	0.205	0.042	0.069

Source: Survey Data (2019)

4.4 Correlation Analysis

When the independent variables were correlated among themselves, all were found to be associated as indicated in Table below.

Table 4.4: Correlation Matrix

		Performance	Mobile Banking Services	Asset Protection	CapitalAdequacy	Asset Quality	Costs	Liquidity	Sacco Size
Performance	Pearson Correlation	1	.250*	.421	.513	.754**	.402	.621	.325
	Sig. (2-tailed)		.014	.165	.023	.076	.082	.048	.073

	N	117	117	117	117	117	117	117	117
Mobile Banking Services	Pearson Correlation	.250*	1	.221	.299	.225	.223	.220	.210
	Sig. (2-tailed)	.014		.014	.038	.006	.185	.093	.036
	N	117	117	117	117	117	117	117	117
Asset Protection	Pearson Correlation	.421	.221	1	.332	.362	.372	.498	.321
	Sig. (2-tailed)	.165	.014		.139	.068	.191	.030	.152
	N	117	117	117	117	117	117	117	117
CapitalAdequacy	Pearson Correlation	.513	.299	.332	1	.338*	.453	.353	.313
	Sig. (2-tailed)	.023	.038	.139		.182	.236	.035	.223
	N	117	117	117	117	117	117	117	117
Asset Quality	Pearson Correlation	.754**	.225	.362	.338*	1	.342	.391	.378
	Sig. (2-tailed)	.076	.006	.068	.182		.053	.147	.047
	N	117	117	117	117	117	117	117	117
Costs	Pearson Correlation	.402	.223	.372	.453	.270	1	.395	.302
	Sig. (2-tailed)	.082	.185	.191	.236	.031		.077	.028
	N	117	117	117	117	117	117	117	117
Liquidity	Pearson Correlation	.621	.220	.498	.353	.391	.395	1	.261
	Sig. (2-tailed)	.048	.093	.030	.035	.147	.077		.084
	N	117	117	117	117	117	117	117	117
Sacco Size	Pearson Correlation	.325	.210	.321	.313	.378	.302	.261	1
	Sig. (2-tailed)	.073	.036	.152	.223	.047	.028	.084	
	N	117	117	117	117	117	117	117	117

*. Correlationis significant at the 0.05 level (2-tailed)

**. Correlation is significant at the 0.01 level (2-tailed).

There was a correlation which was positive among all the variables. Financial performance was significantly and positively correlated with mobile banking services, while although it is positively correlated to the other variables, the correlation is not statistically important.

All control variables are positively correlated to each other but the correlation between most of the control variables was not statistically significant as most had significant values greater than 0.01, implying that the correlation was just by chance and not an indication it exists in the population.

4.5 Regression Analysis

A multiple linear regression analysis of the data was done to determine the linear association between MBS and financial output of DTS over the period 2015 - 2018. Coefficient of determination offers an explanation of the extent to which adjustments in the independent parameters explain the shifts in the dependent parameters. Regression outcome on the coefficient of determination are summarized below.

4.5.1 Summary of Regression Model Results

Regression analysis to determine the influence of MBS on financial output was also done. The adjusted R-Squared is 0.694 which indicated that the six independent variables describe 69.4 percent of variations in financial outcome while 30.6 percent is described by different factors outside the model.

Table 4.5: Model Summary

Model		R	R Square	Adjusted R Square	Std. Error of the Estimate
1		.784[a]	.723	.694	.632

a. Predictors: (Constant), Mobile Banking Services, Asset Protection, Capital Adequacy, Asset Quality, Costs, Liquidity, Sacco Size
b. Dependent Variable: Financial Performance

4.5.2   Analysis of Variance

Analysis of Variance (ANOVA) was done to find the difference in means between independent and dependent variables to discover if they are linked. The ANOVA was done at 95% confidence interval with the level of significance at 5%. The results in Table 4.6 show significance value of 0.05 that is equal to the p-value. Thus, we eliminate null hypothesis "no coefficients of the independent variables can predict financial performance". The model therefore has statistical significance. This implies that financial performance has an important linear relationship with mobile banking services, asset protection, liquidity, asset quality, capital adequacy, costs, and SACCO size in DTS.

Table 4.6: Analysis of Variance

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	0.644	2	0.322	1.3529	.050ᵃ
Residual	9.758	115	0.238		
Total	10.402	117			

a. Predictors: (Constant), Mobile Banking Services, Asset Protection, Capital Adequacy, Asset Quality, Costs, Liquidity, Sacco Size

b. Dependent Variable: Financial Performance

4.5.3 Regression Coefficients

To verify the connection of dependent and independent variables and their different strengths, the regression analysis generated coefficients as presented below.

Table 4.7: Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	T	Sig.
1 (Constant)	2.321	.433		5.360	.032
Mobile Banking Services	0.128	.230	.278	0.557	.050
Asset Protection	1.613	.086	.237	6.930	.049
Capital Adequacy	2.316	.063	.164	5.6031.4	.036
Asset Quality	1.963	.684	.036	08	.039
Costs	1.322	.849	.250	1.557	.030
Liquidity	2.247	.972	.374	2.311	.028
Sacco Size	1.023	.071	.113	3.217	.048

a. Dependent Variable: Financial Performance

Since all the significance values were less than or equal to the p-value, then the null hypothesis that none of the coefficients in the independent variables can predict financial performance. From the Coefficients Table (Table 4.7), the below stated regression model was derived;

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \epsilon$$

Financial Performance= α + β_1Mobile Banking Services + β_2Asset Protection + β_3Capital Adequacy + β_4Asset Quality + β_5Costs + β_6Liquidity + β_7Sacco Size+ ϵ

Where;

Financial Performance= $2.321 + 0.128X_1 + 1.613X_2 + 2.316X_3 + 1.963X_4 + 1.322X_5 + 2.247X_6 + 1.023X_7 + \epsilon$

The regression results show that, holding all the independent variables at 95% confidence interval to a constant zero, the SACCOs' financial performance will be at 2.321. Unit change in Mobile banking services results in a 0.128 change in financial output ceteris paribus and unit changes in Asset Protection bring about 1.613 changes in financial output, ceteris paribus. Similarly, unit changes in Capital Adequacy, Asset Quality, Costs, Liquidity and Sacco Size will lead to 2.316, 1.963, 1.322, 2.247 and 1.023 changes respectively in financial output, ceteris paribus. The results also show that the most influential variable is Capital Adequacy followed by Liquidity.

4.6 Discussion of Research Findings

This study's intention was on revealing how MBS impacts the financial outcome of Kenya's DTS. According to this study, MBS positively influences financial outcome in DTS. The deposits taking SACCOS have recorded improved performance through increase in total assets, total loans, deposits and core capital. Mobile banking transactions have also gradually increased over the period. These findings are similar to those by Munyoki (2015) who found that MBS had increased considerably. Abubakar (2016) in an identical study noted that MBS raise levels of competitiveness within financial institutions. Mobile banking provides financial inclusiveness and increased the convenience to customers (Mwania, 2017).

Mobile banking as well as all the control variables namely asset protection, asset quality, Liquidity, capital adequacy SACCO size, and costs have positive impact on the financial output in DTS. However, Capital adequacy and Liquidity determined financial performance of DTS to a greater extent. For SACCOs to operate optimally and effectively, adequate core capital, liquid assets, deposits and Capital adequacy and Liquidity ratios are maintained. Maaka (2006) found that a big gap in liquidity may lead to borrowing at higher interest rates and reduction in profitability. Mobile phone usage is not only convenient but encourages savings and is accessible, which makes mobile banking attractive and usage accessible even in the comfort of home (Mwania, 2017). A study by Okiro and Ndungu (2013) revealed that SACCOs registered high rates in the use of MBS.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The chapter covers the findings' summary and conclusions that follow from these findings. Study limitations, recommendations and areas for additional research are indicated as well.

5.2 Summary

From the research findings, it is observed that mobile banking services, asset protection, SACCO size, asset quality, liquidity, costs and capital adequacy were positively correlated to financial outcome of DTS hence implying that they influence it. The study also found that capital adequacy and liquidity determine the financial outcome of DTS to a greater extent. Although all the independent variables were positively correlated, the correlation was not vital.

The average mean for MBS was 3.49and a 0.33 standard deviation, signifying the service was not extensively used by SACCOs and their members although SACCO growth has been rapid over the four- year period as evidenced by the gradual increase in deposits.

The study also found that Deposit Taking SACCOs' growth in terms of assets and loans is gradual. In addition, the number of DTS that have adopted mobile MBS has increased gradually during the period of study but only a few have succeeded in its use due to high capital investments and expertise needed for efficiency.

5.3 Conclusion

The study had wanted to find out effect of MBS on financial outcome of Kenya's DTS. The study concludes that mobile banking services, asset protection, capital adequacy, liquidity, SACCO size, asset quality, and costspositively influence financial output in DTS.

In addition, Capital Adequacy and liquidity determine the financial performance of DTS to a greater extent. Another conclusion is that deposit taking SACCOs' growth in terms of deposits, assets and loans is gradual. In addition, majority of deposit taking SACCOs have adopted MBS but only a few have succeeded in its use due to high capital investments and expertise needed for efficiency. Adoption and usage of mobile application systems has also faced challenges including high capital investments and expertise needed for efficiency.

5.4 Recommendations of the Study

From the above summary and conclusions, the study recommends that SACCOs embrace new technologies and introduce new products through mobile banking to improve financial performance. Management of SACCOs should allocate adequate funds for new software and training to enhance full automation of operations. Further, SACCOs should make sure that members are aware of MBS and the relevant safety measures. In addition, the government should come up with incentives that can lower the cost of MBS thus encouraging SACCOs that are yet to adopt the innovation to do so.

5.5 Limitations of the Study

The study was limited to establishing the effect of MBS on financial output of DTS. Also, the study covered only four years, that is, the period between the years 2015 and 2018. A longer duration of time could have yielded more robust results in terms of significant economic situations with a negative or positive impact. In addition, the study faced limitations in accessing financial reports from SASRA leading to delays in collection of data. The study faced constraints for time in data collection and analysis to complete the project. This was addressed by making frequent follow-ups with SASRA for collection of data.

5.6 Suggestions for Further Research

From the above discussion, further studies are needed to establish the relationship between MBS and use of system by customers. Further studies are also needed in which all Deposit Taking SACCOs are included to generalize the findings. In addition, challenges affecting MBS should be studied in order to come up with strategies for improvement. A study on factors that affect financial performance in SACCOS will be beneficial to both SACCOS and SASRA and which may result in improvements of SACCO finances.

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APPENDICES

Appendix 1: Study Population

No.	NAME OF SACCO	No.	NAME OF SACCO
1	2NK SACCO SOCIETY LTD	85	MWIETHERI SACCO SOCIETY LTD
2	AFYA SACCO SOCIETY LTD	86	MWINGI MWALIMU SACCO SOCIETY LTD
3	AGRO-CHEM SACCO SOCIETY LTD	87	MWITO SACCO SOCIETY LTD
4	AINABKOI SACCO SOCIETY LTD	88	NACICO SACCO SOCIETY LTD
5	ALL CHURCHES SACCO SOCIETY LTD	89	NAFAKA SACCO SOCIETY LTD
6	AIRPORTS SACCO SOCIETY LTD	90	NANDI FARMERS SACCO SOCIETY LTD
7	AMICA SACCO SOCIETY LTD	91	NATION SACCO SOCIETY LTD
8	ARDHI SACCO SOCIETY LTD	92	NAWIRI SACCO SOCIETY LTD
9	ASILI SACCO SOCIETY LTD	93	NDEGE CHAI SACCO SOCIETY LTD
10	AZIMA SACCO SOCIETY LTD	94	NDOSHA SACCO SOCIETY LTD

11	BANDARI SACCO SOCIETY LTD	95	NG'ARISHA SACCO SOCIETY LTD
12	BARAKA SACCO SOCIETY LTD	96	NOBLE SACCO SOCIETY LTD
13	BARATON UNIVERSITY SACCO SOCIETY LTD	97	NRS SACCO SOCIETY LTD
14	BIASHARA SACCO SOCIETY LTD	98	NSSF SACCO SOCIETY LTD
15	BIASHARA TOSHA SACCO SOCIETY LTD	99	NUFAIKA SACCO SOCIETY LTD
16	BI-HIGH SACCO SOCIETY LTD	100	NYALA VISION SACCO SOCIETY LTD
17	BINGWA SACCO SOCIETY LTD	101	NYAMBENE ARIMI SACCO SOCIETY LTD
18	BORESHA SACCO SOCIETY LTD	102	NYAMIRA TEA FARMERS SACCO SOCIETY LTD
19	CAPITAL SACCO SOCIETY LTD	103	NYATI SACCO SOCIETY LTD
20	CENTENARY SACCO SOCIETY LTD	104	NEW FORTIS SACCO SOCIETY LTD
21	CHAI SACCO SOCIETY LTD	105	OLLIN SACCO SOCIETY LTD
22	CHUNA SACCO SOCIETY LTD	106	PATNAS SACCO SOCIETY LTD
23	COMOCO SACCO SOCIETY LTD	107	PRIME TIME SACCO
24	COSMOPOLITAN SACCO SOCIETY LTD	108	PUAN SACCO SOCIETY LTD
25	COUNTY SACCO SOCIETY LTD	109	QWETU SACCO SOCIETY LTD
26	DAIMA SACCO SOCIETY LTD	110	RACHUONYO TEACHERS SACCO SOCIETY LTD
27	DHABITI SACCO SOCIETY LTD	111	SAFARICOM SACCO SOCIETY LTD
28	DIMKES SACCO SOCIETY LTD	112	SHERIA SACCO SOCIETY LTD
29	DUMISHA SACCO SOCIETY LTD	113	SHIRIKA SACCO SOCIETY LTD
30	ECO-PILLAR SACCO SOCIETY LTD	114	SIMBA CHAI SACCO SOCIETY LTD
31	EGERTON SACCO SOCIETY LTD	115	SIRAJI SACCO SOCIETY LTD
32	ELGON TEACHERS SACCO SOCIETY LTD	116	SKYLINE SACCO SOCIETY LTD
33	ELIMU SACCO SOCIETY LTD	117	SMART CHAMPIONS SACCO SOCIETY LTD
34	ENEA SACCO SOCIETY LTD	118	SMART LIFE SACCO SOCIETY LTD
35	FARIDI SACCO SOCIETY LTD	119	SOLUTION SACCO SOCIETY LTD
36	FARIJI SACCO SOCIETY LTD	120	SOTICO SACCO SOCIETY LTD
37	FORTUNE SACCO SOCIETY LTD	121	SOUTHERN STAR SACCO SOCIETY LTD
38	FUNDILIMA SACCO SOCIETY LTD	122	SHOPPERS SACCO SOCIETY LTD
39	GITHUNGURI DAIRY& COMMUNITY SACCO SOCIETY LTD	123	STAKE KENYA SACCO SOCIETY LTD
40	GOOD HOPE SACCO SOCIETY LTD	124	STIMA SACCO SOCIETY LTD
41	GOODWAY SACCO SOCIETY LTD	125	SUBA TEACHERS SACCO SOCIETY LTD

42	GUSII MWALIMU SACCO SOCIETY LTD	126	SUKARI SACCO SOCIETY LTD
43	HARAMBEE SACCO SOCIETY LTD	127	SUPA SACCO SOCIETY LTD
44	HAZINA SACCO SOCIETY LTD	128	TABASAMU SACCO SOCIETY LTD
45	IG SACCO SOCIETY LTD	129	TAI SACCO SOCIETY LTD
46	ILKISONKO SACCO SOCIETY LTD	130	TAIFA SACCO SOCIETY LTD
47	IMARIKA SACCO SOCIETY LTD	131	TAQWA SACCO SOCIETY LTD
48	IMARISHA SACCO SOCIETY LTD	132	TEMBO SACCO SOCIETY LTD
49	IMENTI SACCO SOCIETY LTD	133	TENHOS SACCO SOCIETY LTD
50	JACARANDA SACCO SOCIETY LTD	134	THAMANI SACCO SOCIETY LTD
51	JAMII SACCO SOCIETY LTD	135	TRANSCOUNTIES SACCO SOCIETY LTD
52	JOINAS SACCO SOCIETY LTD	136	TRANS NATION SACCO SOCIETY LTD
53	KAIMOSI SACCO SOCIETY LTD	137	TIMES U SACCO SOCIETY LTD
54	KATHERA RURAL SACCO SOCIETY LTD	138	TOWER SACCO SOCIETY LTD
55	KENPIPE SACCO SOCIETY LTD	139	TRANS – ELITE COUNTY SACCO SOCIETY LTD
56	KENVERSITY SACCO SOCIETY LTD	140	TRANSNATIONAL TIMES SACCO SOCIETY LTD
57	KENYA ACHIEVAS SACCO SOCIETY LTD	141	UFANISI SACCO SOCIETY LTD
58	KENYA BANKERS SACCO SOCIETY LTD	142	UKRISTO NA UFANISI WA ANGLICANA SACCO SOCIETY LTD
59	KENYA HIGHLANDS SACCO SOCIETY LTD	143	UKULIMA SACO SOCIETY LTD
60	KENYA POLICE SACCO SOCIETY LTD	144	UNAITAS SACCO SOCIETY LTD
61	KIMBILIO DAIMA SACCO SOCIETY LTD	145	UNI–COUNTY SACCO SOCIETY LTD
62	KINGDOM SACCO SOCIETY LTD	146	UNITED NATIONS SACCO SOCIETY LTD
63	KIPSIGIS EDIS SACCO SOCIETY LTD	147	UNISON SACCO SOCIETY LTD
64	KITE SACCO SOCIETY LTD	148	UNIVERSAL TRADERS SACCO SOCIETY LTD
65	KITUI TEACHERS SACCO SOCIETY LTD	149	VIHIGA COUNTY FARMERS SACCO SOCIETY LTD
66	KMFRI SACCO SOCIETY LTD	150	VIKTAS SACCO SOCIETY LTD
67	KOLENGE TEA SACCO SOCIETY LTD	151	VISION POINT SACCO SOCIETY LTD
68	KORU SACCO SOCIETY LTD	152	VISION AFRICA SACCO SOCIETY LTD
69	K – PILLAR SACCO SOCIETY LTD	153	WAKENYA PAMOJA SACCO SOCIETY LTD
70	K – UNITY SACCO SOCIETY LTD	154	WAKULIMA COMMERCIAL SACCO SOCIETY LTD

71	KWETU SACCO SOCIETY LTD	155	WANA – ANGA SACCO SOCIETY LTD
72	LAINISHA SACCO SOCIETY LTD	156	WANANCHI SACCO SOCIETY LTD
73	LENGO SACCO SOCIETY LTD	157	WANANDEGE SACCO SOCIETY LTD
74	MAFANIKIO SACCO SOCIETY LTD	158	WASHA SACCO SOCIETY LTD
75	MAGADI SACCO SOCIETY LTD	159	WAUMINI SACCO SOCIETY LTD
76	MAGEREZA SACCO SOCIETY LTD	160	WEVARSITY SACCO SOCIETY LTD
77	MAISHA BORA SACCO SOCIETY LTD	161	WINAS SACCO SOCIETY LTD
78	MENTOR SACCO SOCIETY LTD	162	YETU SACCO SOCIETY LTD
79	METROPOLITAN NATIONAL SACCO SOCIETY LTD	163	JITEGEMEE SACCO SOCIETY LTD
80	MMH SACCO SOCIETY LTD	164	NANDI HEKIMA SACCO SOCIETY LTD
81	MOMBASA PORT SACCO SOCIETY LTD	165	NANYUKI EQUATOR SACCO SOCIETY LTD
82	MUDETE TEA GROWERS SACCO SOCIETY LTD	166	UCHONGAJI SACCO SOCIETY LTD
83	MUKI SACCO SOCIETY LTD		
84	MWALIMU NATIONAL SACCO SOCIETY LTD		

Appendix 2: Study Sample

SACCO SOCIETY
1. AFYA SACCO SOCIETY LTD
2. AGRO-CHEM
3. AINABKOI
4. AIRPORTS
5. AMICA
6. ARDHI
7. ASILI
8. AZIMA
9. BANDARI
10. BARAKA
11. BARATON UNIVERSITY
12. BIASHARA
13. BINGWA
14. CAPITAL
15. CENTENARY
16. CHUNA
17. COSMOPOLITAN

18.	DHABITI
19.	DIMKES
20.	DUMISHA
21.	ECO-PILLAR
22.	EGERTON
23.	ELIMU
24.	ENEA
25.	FORTUNE
26.	FUNDILIMA
27.	GITHUNGURI DAIRY & COMMUNITY
28.	GOOD HOPE
29.	GOODWAY
30.	GUSII MWALIMU
31.	HARAMBEE
32.	HAZINA
33.	IG
34.	ILKISONKO
35.	IMARIKA
36.	IMARISHA
37.	IMENTI
38.	JACARANDA
39.	JAMII
40.	JOINAS
41.	KAIMOSI
42.	KATHERA
43.	KENPIPE
44.	KENVERSITY
45.	KENYA ACHIEVAS
46.	KENYA BANKERS
47.	KENYA HIGHLANDS
48.	KENYA POLICE
49.	KIMBILIO DAIMA
50.	KINGDOM
51.	KIPSIGIS EDIS
52.	KITUI TEACHERS
53.	KMFRI
54.	KOLENGE TEA
55.	KORU

56.	K – UNITY
57.	KWETU
58.	LAINISHA
59.	LENGO
60.	MAFANIKIO
61.	MAGADI
62.	MAGEREZA
63.	MAISHA BORA
64.	MENTOR
65.	METROPOLITAN NATIONAL
66.	MMH
67.	MOMBASA PORT
68.	MUDETE TEA GROWERS
69.	MWINGI MWALIMU
70.	NACICO
71.	NAFAKA
72.	NANDI FARMERS
73.	NATION
74.	NAWIRI
75.	NDEGE CHAI
76.	NDOSHA
77.	NG'ARISHA
78.	NOBLE
79.	NRS
80.	NSSF
81.	NYALA VISION
82.	NYAMBENE ARIMI
83.	NYAMIRA TEA FARMERS
84.	NYATI
85.	NEW FORTIS
86.	PUAN
87.	QWETU
88.	SAFARICOM
89.	SHERIA
90.	SHIRIKA
91.	SIRAJI
92.	SKYLINE
93.	SMART LIFE

94. SOTICO
95. SOUTHERN STAR
96. SHOPPERS
97. STIMA
98. SUBA TEACHERS
99. TEMBO
100. THAMANI
101. TIMES U
102. TOWER
103. TRANS – ELITE COUNTY
104. UKULIMA
105. UNAITAS
106. UNI–COUNTY
107. UNISON
108. VISION POINT
109. VISION AFRICA
110. WAKENYA PAMOJA
111. WAKULIMA COMMERCIAL
112. WANA – ANGA
113. WAUMINI
114. WINAS
115. YETU
116. JITEGEMEE
117. NANDI HEKIMA