DETERMINANTS OF EFFICIENCY OF DEPOSIT TAKING SAVINGS AND CREDIT

COOPERATIVE SOCIETIES IN KENYA

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DECLARATION

This research project is my original work and has not been presented for award of any degree in any university

Signature…………………………….. Date…………………………………………

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This research project has been submitted for examination with my approval as

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DEDICATION

I dedicate this research project to my daughter Lydia. I owe my hard work to you.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

ATM   Automated Teller Machine

BOSA   Back Office Service Activity

DTs   Deposit Taking Saccos

EMV   Euro Pay MasterCard Visa

FOSA   Front Office Service Activity

ICT   Information Communication Technology

SACCO   Savings and Credit Co-operative

SASRA   Sacco Societies Regulatory Authority

SMEs   Small Scale Undertakings

ABSTRACT

The main objective of the study was to establish the determinants of efficiency of deposit taking savings and credit cooperative societies in Kenya. This study used descriptive research design and focused on a target population of 99 DTs. Secondary data was used in the study from all the Saccos sampled with the data being extracted from the financial statements which had been audited for the year ended 31st December 2012 to 31st December 2016.The study found that the independents variables (technology, firm size and credit risk) contributed to 79.3% of the variation in efficiency. The study also established that technology and credit risk were the strongest determinants of efficiency with firm size being the least determinant. The study from the ANOVA results established that the model was significant in determining the relationship between dependent variable (efficiency) and the predictor variables (credit risk, technology and firm size) as the probability value was less than 0.05.The study established that technology had a positive relationship with efficiency whereby holding all other independent variables constant, a unit increase in technology led to 0.544 increase in efficiency, its p value was less than 0.05 hence significant. Firm size had a positive relationship with efficiency where a unit increase in firm size led to 0.081 increase in efficiency holding other independent variables constant. Firm size was statistically significant in determining efficiency since its p value was less than 5%.Credit risk had an inverse relationship with efficiency where a unit increase in credit risk led to a 1.123 decrease in efficiency and its p value was less than 0.05 which showed that credit risk was statistically significant in determining efficiency. The study recommended DTs need to make sure that they have robust and well defined loan policies so as to make sure that their "cash cow" such as investment in loan portfolio is prudently managed so as to affirm sustainability and efficient management of the same. The study also recommended that DTs should put in place the clear rules and guidelines on how credit decisions are made for the benefit of potential investors and Sacco growth, which will ensure minimization of conflict of interest that might cause decrease in efficiency. DTs make sure their employees are trained on Deposit Taking Saccos policies. The study recommends that DTs should emphasize on setting reasonable minimum monthly contribution targets as this is the only way members will help improve the financial performance of DTs. The study also recommended thorough audit of DTs financial statements to ensure accountability and transparency.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

A savings and credit society (SACCO) is a financial institution which gives its customers saving and borrowing facilities. They are also called credit unions, which gives credit at low interest rates compared to the banks and other financial institutions. World Council of Credit Unions (WOCCU) is a body that enables sustainable development of credit unions in the world.Savings and credit cooperative societies have started to become relevant than other financial institutions most of which are banks (Aggrey, Eliab & Joseph, 2010).

Account holders in Saving and Credit are shareholders and hence lead a command on one vote one member which means that only these customers can save and borrow from these Saccos (Halkos & Tzeremes, 2012).In developed and developing nations, the budgetary foundations are compelled to look at their execution since their survival relies on their gainful efficiencies (Pandey, 2010).Factors that prevent markets to adopt good stabilization policies are constraints of political economy, reversal in the global capital market, unsuitable conversion rate administrations, money related unsteadiness, wasteful aspects and budgetary market flaws (Blejer, 2011).

The root of a successful economy is financial efficiency and therefore issues of financial efficiency should be at the forefront as it would enhance banking stability. Schumpeter (2009) contended that better economy occur as a result of more effective financial frameworks. In this manner, change in the money related execution speaks to a superior allotment of budgetary assets which brings about higher private speculations that favor financial development (Pandey, 2010).

According to McNeil, Frey and Embrechts (2013), neoclassical microeconomic hypothesis is the basis for efficiency of an economy due to the fact that its main focus involves pushing for non-wastage of assets by laying emphasis on cost reduction and the allocation and utilization of resources.As a result, financially effective organizations tend to possess an upper hand over adversary firms thus creating less proficiently in a similar industry.Halkos and Tzeremes (2012) argue that a change that expands esteem is a proficient change while the one that declines esteem is a wasteful change.

Therefore, efficiency of an economy is time and again connected with superbly focused markets than with imposing business model due to deadweight misfortune which is related with yield limitations. In a more focused industry, organizations tend to gains efficiency when they gain just typical benefits over the long haul and react to changes in customer inclination by expanding yield (Berger and De Young, 2010).

The Kenyan Sacco sector consists of Deposit Taking Saccos and Non Deposit Taking Saccos. Deposit Taking Saccos (DT Saccos) are controlled by SASRA and non-Deposit Taking Saccos are controlled by the Commissioner for Co-operatives. According to SASRA(2015), the total assets of Deposit Taking Saccos grew by 13.7% in 2015,gross loans grew by 13%, net loans and advances grew by 9.9% in the same year, however allowance for loan losses from Kshs 9.2 Billion in 2014 to Kshs 7.1 Billion in 2015.

1.1.1 Efficiency of Deposit Taking Saccos

As per Aggrey et al. (2010), efficiency is critical to organizations themselves as it has direct association with gainfulness (present and future), intensity, and dissolvability. Likewise, administrative powers request the same from organizations in arrangement of financially savvy

administrations and items. The various partners' interests in a firm should be fulfilled. Partner hypothesis portrays those riches amplification is center motivation behind a business (Berger & Hamphrey, 2007).

A business entity can only be said to be efficient if it shows increased profitability with less resources in form of inputs (Alila & Obado, 2011). With the current competition in the business world, no firm can afford not to pay attention to its operations to ensure maximum efficiency. To achieve high levels of efficiency, a firm should ensure that it employ the best practices in its operations. There have always been considerable debates about what constitutes input and output more so in the banking industry. Arunkumar and Kotreshwar (2012) add that the intermediation approach is used for the analyses of production approach and efficiency level in banks.

1.1.2 Determinants of Efficiency

The key factors that are utilized to assess efficiency of firms include technology, firm size, credit risk, firm trade orientation, investment in fixed capital, soft budget constraints, quality of labor (Sinani, Jones & Mygind, 2007), competition, among others as determinants of firm performance and consequently firm efficiency (Aggrey et al., 2010). Additionally, Ab-Rahim, Md-Nor and Ubaldillah, (2012) identified some of the factors which affect efficiency as capital, size of the firm, credit risk, and managerial quality.

Technology has greatly improved efficiency of DTs. The SACCO sector has continued to use technology which has facilitated use of credit cards which are swiped through a small card reader and payments are made (Arunkumar & Kotreshwar, 2012). Migration from magnetic stripped cards to chip cards has greatly reduced fraudulent cases on ATM machines worldwide.

2017 Debit Issuer Study in the USA noted that USA financial institutions increased chip cards issued hence reducing fraud. The study determined that approximately 80% of USA debit cards were converted to chip cards hence reducing fraud loss rates by 28% in 2016. According to Lagodzinski (2017), the new EMV (Euro pay MasterCard Visa)-enabled plastic cards, which are currently being issued to customers, have cardholder details encrypted in a chip instead of on the traditional magnetic stripe. Therefore, EMV standard has helped in the reduction of card fraud due to lost or stolen cards. The tiny chip embedded on the new cards works like a small computer. The computer negotiates with point of sale terminals at a supermarket, restaurant or ATM, and creates a unique number for every transaction, rather than one number that is repeated over and over, improving transaction security

Additionally according to Lagodzinski (2017), EMV-compliant cards have security details hence making it hard for malicious people to have access hence preventing card skimming and cloning, which is not easy to do with magnetic stripe cards because they contain payment data that does not change. In EMV-certified transactions when card is determined to be genuine and holder of the card is verified, the transaction can take place. The transaction security features, which are certified by Visa or MasterCard in line with predetermined standards, helps minimize the chances of your card being used to make fraudulent purchases.

 Adoption of M-banking services by SACCOs has facilitated easy services access. Customers are able to check their balances, request for loans, statements and make deposits through their phones without having to visit the DTs offices (Alila & Obado, 2011). Technology increases efficiency of DTs because it improves services.

Size refers to the total assets of the DTs and since other dependent variables under consideration are standardized by using total assets, then size was measured as logarithm of total assets. Groksy (1998) noted that company size has a negative relationship to efficiency. Haloks and Tezermes (2006) in their study noted that efficiency and productivity of small firms is higher than large and medium sized firms.

Ab-Rahim et al. (2012) in their study considered two set of variables such as environmental variables and financial institution variables, which they considered as the determinants of efficiency. For the financial institution variables, they used capital, size, credit risk, and management quality. Firm size has a positive relationship with firm size. Large firms have large economies of scale therefore they are able to spread fixed costs hence lower average costs. This therefore leads to an increase in performance and hence efficiency. Capital also has positive relationship with efficiency because higher levels of equity provide a safety net in case of future losses

Credit risk is the probability of default by a borrower. The borrower may request for a loan facility and may not be able to repay the facility in future hence the DTs lose the interest related to it. Berger and Mester (2007) noted that when a borrower borrows from a bank there is always a risk of default that he may not be able to repay it in future. Credit risk is measured by ratio of loans over total assets and the management quality is determined by ratio of non interest expenses to total assets (Sinani et al., 2007).

A direct relationship is expected and credit risk with efficiency hence firms with high asset to loan ratio have higher efficiency (Ab-Rahim et al., 2012). According to Mukherjee, Ray and Miller (2002), loans are riskier and the least liquid asset but still loans are a very important

5

aspect of operating income. For the asset quality and management quality variables, they were both expected to have a negative relationship. The higher the non-performing loans of a financial institution, the lower the efficiency scores and the lower the non interest expenses the higher the efficiency (Needless, Powers & Crosson, 2010).

1.1.3 Deposit Taking Savings and Credit Cooperative Societies (DTs) in Kenya

A Savings and Credit Cooperative is a form financial institution which pools savings for its customers and in return gives them access to credit facilities. According to SASRA (2013), DTs accounts for 77% of total deposits and 78% of total assets of the Sacco sector. This emphasizes the that the growth potential for SACCOs sector remain in deposit taking business. Kenya has more than 5,000 SACCOs of which 215 are deposit taking.

Efficiency has improved in DTs which in turn has improved the performance of DTs. According to SASRA (2016) total assets of DTs increased from Kshs 301,573,000 in 2014 to 393,136,000 in 2016. Technology has improved efficiency in Saccos, use of Coop bank debit card enables Sacco members have access to their Sacco accounts anytime. SASRA(2016) loans and advances issued in DTs increased from Kshs 228,524,000 in 2014 to Kshs 282,733,000 in 2016 this growth has been achieved through use of technology. The Saccos remain competitive by offering modern channels of service.

Large firms have large economies of scale hence they are able to spread their fixed costs hence lower average costs. Therefore larger DTs have increased performance and higher efficiency, compared to small DTs. According to SASRA (2016) DTs membership has increased from 3,008,497 in 2014 to 3,456,975 in 2016.

Credit risk occurs when borrowers are not able to repay their loans. The DTs offer loans, credit cards and mortgage facility which the borrower may fail to pay in future, DTs with high credit risk have lower efficiency. According to SASRA (2015) the allowance for loan losses decreased by 22.9% from Kshs 9,212,000 in 2014 to Kshs 7,103,000 in 2015.

1.2 Research Problem

The Kenyan SACCO sector has been a very important factor in the growth of financial industry in the country therefore leading to growth in the economy. It has contributed to more than forty five percent of the country's Gross Domestic Product (Irsova & Havranek, 2010). According to IMF (2011), DTs total assets are 78% in the Sacco sector. Furthermore, Schumpeter (2009) observed that the more efficient the financial system is, the better the economy and hence wealth maximization of shareholders of firms is achieved.

According to SASRA (2015), the authority revoked the operating deposit taking licences in respect of 5 DTs, which failed to comply with the mandatory requirements for deposit taking Saccos businesses. Example, one Sacco failed to comply with minimum core capital, capital adequacy ratios and perpetual illiquidity. Therefore efficiency of Saccos needs to be improved so as to promote financial performance in Saccos which in turn promote growth in the economy. Various factors determine efficiency, hence management of Saccos need to focus on each of these determinants so as to increase efficiency in the Saccos. Improved efficiency in DTs means growth in membership and assets base.

Technology has enabled easy access of services and faster processing of data. Customers in very remote areas are able to access services through mobile banking and also use of ATMs. Customers in Diaspora also access their accounts through internet banking. The use of

technology on the co-operative system improves efficiency on deposit taking savings and credit cooperative societies.

Credit risk has also affected DTs in that those Saccos with high number of non performing loans have lower efficiency. Most DTs do not offer full secure loans. The securities for their loans are guarantors and shares. They do not ask for collateral like title deed and log book making it hard to recover defaulted loans. High credit risk reduces efficiency of DTs. Larger DTs have higher performance they are able to have more customers because of many branches country wide they also have a wide asset base. Larger DTs have well established marketing teams that market the products country wide. Large DTs have higher efficiency.

Large firms have advantage because they are able to benefit from large economies of scale since their cost of capital is lower than in little firms. Scales of economies are the real method of reasoning behind mergers and takeovers. There is a confine with respect to how huge an association can develop keeping in mind the end goal to accomplish the economies of scale. In the wake of achieving a specific size the diseconomies of scale sets in as it winds up plainly costly to oversee substantial associations because of unpredictability, wasteful aspects and administration

In the world 105 countries have credit unions. Credit unions have helped people have access to quality and affordable services. They help 217 million members start small businesses, build homes and educate their children thereby improving the livelihoods of people. World Council of Credit Unions represents credit unions in the world. It governs the credit unions offering assistance and support which has enabled the credit unions improves their financial performance. In USA 100 million customers are members of credit unions. By March 2016 largest credit union

in the USA was Navy Federal Credit Union. In Canada more than 5 million people are members of credit unions, hence helping communities prosper.

In Kenya SACCOs have helped in financial and economic development. While Kenya has over 14 million co-operators, it is estimated that about 30 million of Kenyan population depended directly or indirectly on Saccos for living, Saccos have reduced unemployment by employing over 500,000 people therefore contributing to growth of GDP.

There are various studies related to determinants of efficiency. For instance, Makori et al. (2013) studied the challenges facing deposit-taking savings and credit cooperative societies' regulatory compliance in Gusii region, Kenya. The authors found that credit managent, financial management and poor governance are main challenges facing SACCOS. Haloks and Tezermes (2006) in their study found that efficiency and productivity of small firms is higher than large and medium sized firms. Sakina (2006) looked to research on the Efficiency of funds and credit co-agents in Kenya and to set up whether the Efficiency of these banks is influenced by economies of scale.

In as much as studies on efficiency have been done, a small number of them concentrated on the impact of Efficiency in DTs. Most of studies tend to concentrate in the banking sector and very few in other areas. Therefore there existed a gap in which it was important to know the factors that determine efficiency in deposit taking savings and credit cooperative societies as well as other financial institutions. This study therefore sought to fill this gap by establishing the determinants of efficiency on deposit taking savings and credit cooperative societies in Kenya.

1.3 Objective of the Study

The aim of this study was to establish the determinants of efficiency of deposit taking savings and credit cooperative societies in Kenya.

1.4 Value of the Study

Management committee found the findings of this study relevant as it was responsible for running of DTs. Understanding the determinants of efficiency helped them in coming up with the relevant policies and procedures as well as adjusting them appropriately in order to avoid the occurrence of inefficiency. Human Resource policy was a good example in which the management can be able to hire competent employees who improved the DTs' productivity and hence efficiency.

Additionally, other financial institutions benefited by understanding the determinants of efficiency of deposit taking savings and credit cooperative societies. They can therefore come up with strategies to enhance those factors that were positively related to efficiency while trending carefully with those that were negatively related.

Researchers, scholars and academicians benefited since they got a source of secondary data and contribute to academic literature in the field of efficiency that they could use for further studies. The determinants of efficiency in other sectors of the economy could be studied which might have been similar to the SACCO sector. Relevant policies could as well be developed with the proper understanding of such determinants.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The chapter reviewed literature which is relevant on the determinants of efficiency on deposit taking savings and credit cooperative societies in Kenya. In particular, this chapter reviewed theoretical framework, measures of efficiency and determinants of efficiency, empirical studies as well as a conclusion on all the literature reviewed.

2.2 Theoretical Framework

This study was guided by Theory of Financial Intermediation and Ansoff's Growth Matrix.

2.2.1 Theory of Financial Intermediation

According to Levine, Loayza and Beck (2000), the theory of financial intermediation has a key function in the banking relationship to overcome information asymmetry between the borrower and the lender and thus continues interaction enables the lenders to produce credit worthy information to the borrowers. The availed information provides strong proportion to credit and loan officers to assess and appraise the credit to borrower. Current theories assert that financial intermediaries are built on economic imperfections that emerge in the 1970s with minimal contributions (Jappelli and Pagano, 2006). Financial intermediaries exist due to their ability to decrease both transactional and informational costs arising from information asymmetry (Tripe, 2003).

Various participants in financial sectors including banks, SACCOs, fund managers, insurance firms and other sector agents typically constitutes valuable varied credit

informational details on the ability to calculate value of securities and assets in offered in the market. Asymmetric information theory problems are often caused by non-financial firms issuing security bestowed information on cash flows associated with the security than borrowers (Klein, 1992). Further some borrowers have more information about the value of a security than other borrowers. Theories of financial intermediation has a positive contribution to economic growth since it acts as a measure on the rate of saving channeled to investment activities or social - marginal productivity of investment contributing financial development and positive for economic growth.

Exchanging information on applicant's credit worth, financial institutions and banks as well shall simultaneously assess the quality of foreign credit applications and carefully advanced to both customers without bias (Klein, 1992). Financial institutions aim's on the exchange information on credit applicants is to assess past financial transactions with intentions of increasing the possibility of lending to non-classified credit consumers. On the other hand such action leads to inability to receive maximum compensation eventually decline in overall loans and disbursed.

Therefore, this theory aided in addressing efficiency of SACCOS due to the fact that they take numerous risk measures by using advanced credit technology collating and collecting private information, treat, screen and monitor borrowers efficiently (Jappelli & Pagano, 2006).Financial intermediaries help reduce transaction costs and information costs which are normally caused by information asymmetry. Financial intermediaries therefore help in efficient functioning of the markets.

2.2.2 Ansoff's Growth Matrix

This is a planning tool that help the management and marketers of an organization come up how to achieve strategic growth in that organization. Ansoff (1987) suggested that there were two strategies which were portfolio analysis and competitive strategy. Portfolio analysis was used to examine the company's activities in both existing and potential markets. Ansoff's matrix was used to examine growth strategies. In market analysis some positions emerge: Invest – The Company invests resources into products/services therefore strengthening position over longer and medium terms. Harvest- the aim was to maximize streams of revenue with low level of resources invested. Divest- the company identifies the weakest point and therefore divest in the product or services.

Movement was not restricted within the grid's framework. Stanton et al. (1994) suggested that company may find it profitable to divest its product or services to another company. Proceeds from divestment can be used to invest in product or services in another profitable area, although there are costs incurred during divestment, resources received can improve or solve a problem in another area. Within organizations, emotions can make or break an organization (Fineman, 1993).

This hypothesis expressed that for association to be focused organizations need to diminish their expenses and this can be refined by keeping the expenses of stocking stock to a sensible least which was tried in this study.

Fig 2.1 Market Matrix Penetration

Matrix market penetration is a strategy where firm increases its sale of existing products in the current market. A strategy where firm introduces new products in to the current markets is called product development strategy. Where a firm enters new market with current existing products is called market development strategy. Offering new products into new markets, diversification growth strategy is achieved.

2.3 Empirical Review

Andries (2010) carried out a study to investigate the determinants of bank efficiency and productivity growth in the Central and Eastern European banking systems. The extracted from

Annual reports National Bank and from Bankers Almanac Database, which comprised of 112 banks, during a five year period. He used two approaches to examine efficiency: Stochastic Frontier Analysis and Data Envelopment Analysis. The results showed factors influencing the level of efficiency of banks in Central and Eastern European countries some of which were total assets, inflation rate and capital structure.

Limam (2001) evaluated specialized proficiency of Kuwaiti Banks utilizing a stochastic cost outskirts approach. Gaining resources spoke to yield and settled resources, work and monetary capital were the data sources. The study found that banks produce winning resources at steady comes back to scale and thus have less to pick up from expanding size of generation quite, through converging with different banks, than from lessening their specialized wastefulness. With the exception of the biggest two banks, the study found that there was a vast space for enhancing specialized effectiveness of a large portion of the banks. The study demonstrated that bigger bank size, higher offer of value capital in resources and more noteworthy gainfulness are connected with better proficiency.

Clement and Martin (2012) carried out a study concerning the financial practice as a determinant of growth of savings and credit co-operative societies' wealth. The researcher clearly elaborated the statement of the problem and clearly showed the problem and how he intended to address the issue, the researcher showed the framework and the relationship between the dependent and independent variables very well, the author highlighted the key challenges of SACCOs and pointed out different researches that seem to support his work. The author had excellent citation related to SACCOs and their progress across a period of time and their growth and eminent challenges they had gone through

Kising'u (2007) examined the relationship between specialized productivity of business banks in Kenya and administrative abilities to be specific instruction, involvement in years and recurrence of preparing. The concentrate additionally inspected the substitution potential outcomes between an administrator's level of training and years of involvement in connection to specialized effectiveness. The theories of the study were that a positive relationship exists between administrative aptitude attributes and specialized effectiveness and that there are substitution potential outcomes between years of experience and instruction level. The study depended on an example of 39 banks and utilized a stochastic creation wilderness and relapse investigation to test the relationship.

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Kising'u (2007) found that there was a direct relationship between specialized effectiveness and the level of instruction, years of experience, and recurrence of preparing. The outcomes likewise demonstrated that bigger bank size, higher capitalization and more noteworthy gainfulness are connected with higher specialized proficiency. Further there were no substitution conceivable outcomes between a supervisor's level of

training and years of involvement in connection to specialized productivity. The study presumed that, banks should select supervisors with abnormal amounts of instruction and encounter and enhance them through constant preparing as this prompts higher specialized effectiveness.

Lyaga (2006) concentrated on the Efficiency of 33 business banks in Kenya and utilized the Stochastic Econometric Cost Frontier Analysis. The study found that the level of Efficiency in Kenya's business banks is 18%. Proof was found that the normal little bank is moderately more wasteful than the normal vast bank. Mutanu (2002) examined the proficiency scores of profoundly and humble promoted banks. The study utilized the productive cost outskirts approach. In view of an example of eight cited business banks, it was found that the low promoted banks were more proficient than profoundly promoted banks.

At long last, Sakina and Lyaga (2013) tried to examine on the efficiency of business banks in Kenya and to set up whether the X productivity of these banks was influenced by economies of scale. Effectiveness was characterized as the general proficiency of a firm judged on administrative and innovative criteria in changing contributions at least expenses into most extreme benefits. It incorporated intra-bank financial effectiveness; intra-bank motivational proficiency singular identity; and outside motivational productivity -emerging from administration impetuses and nature. The information set comprised of yearly operation expenses of banks including premium cost. Stores and obtained assets were dealt with as the information sources while the advances to clients, speculations, and different earnings were dealt with as yields.

The example included 33 banks for the period 2005 to 2010. A stochastic econometric cost wilderness was utilized to gauge Efficiency level of business banks in Kenya. The observational results acquired built up that Efficiency existed in the Kenya's business banks industry at 18% and it was observed to be influenced by economies of scale. In an offer to build up whether the perseverance of Efficiency was identified with bank size, Sakina and Lyaga (2013) further discovered that normal substantial banks have a tendency to be more diligent than normal little banks at the level of 23%. Furthermore, bank size influences Efficiency for huge banks.

Muriuki (2010) studied factors affecting Sacco performance in Meru South district. The objective of the study was to establish the effects management variables on SACCO's performance in the TNT SACCO. The researcher used Descriptive research design, he used questionnaires to collect data and used SPSS to analyse data. The study found out that governance affected performance of Saccos. The results also indicated that governance structures were influenced by aspects of education and training.

2.4 Conceptual Framework

Fig 2.1 shows nexus between technology, firm size, credit risk and efficiency. A direct relationship was expected between technology and efficiency. A direct relationship was also expected between firm size and efficiency. An inverse relationship wass expected between credit risk and efficiency.

INDEPENDENT VARIABLES   **DEPENDENT VARIABLE**

Determinants of Efficiency

TECHNOLOGY

- NUMBER OF CUSTOMERS ISSUED WITH ATMS
- CUSTOMERS REGISTERD FOR MBANKING SERVICES

CREDIT RISK

- NON-PERFORMING LOANS

EFFICIENCY

- TOTAL DEPOSITS
- TOTAL LOANS

SIZE

- TOTAL ASSETS
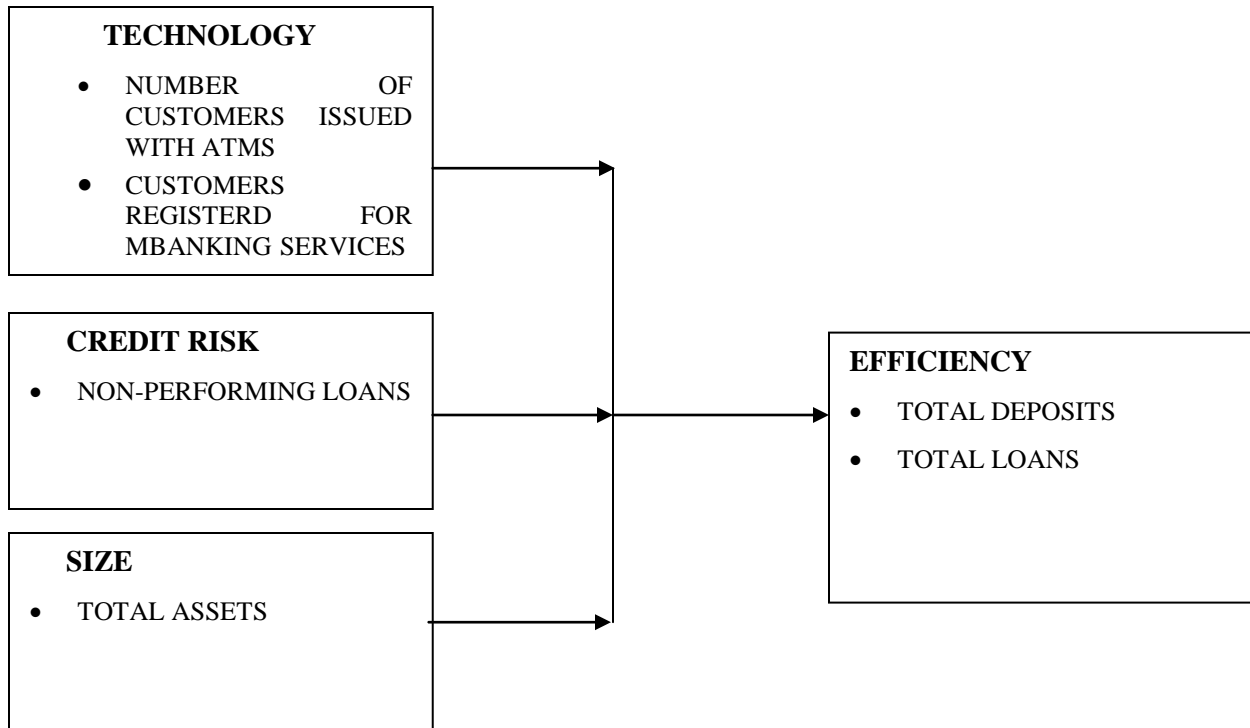
Fig 2.2 Conceptual Framework

2.5 Summary of the Literature Review

The researcher established from the literature that efficiency improved financial performance and therefore the increasing economic growth. The researcher also observed from the literature review that different factors have been found to explain efficiency levels of firms and some are positively while others are negatively related to efficiency. The researcher tried to establish how societies that have embraced efficiency so that they can find ways of enhancing those that are positively related while mitigating those that are negatively related in order to improve their efficiency and the overall financial performance.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

Research methodology gives details regarding approaches and procedures used in conducting studies (Kothari, 2004). This chapter gave description on data analysis techniques, data collection techniques and procedures, sample and sampling techniques, study and population area.

3.2 Research Design

Research design is a strategy that is used to logically intergrate components of study hence ensuring that the problem of research is addressed effectively.

This study adopted descriptive research design to examine the determinants of efficiency on deposit taking savings and credit cooperative societies in Kenya. A descriptive design is a study designed to describe people taking part in a study without interfering with them. It is also concerned about particular forecasts and portrayal of actualities and attributes worried about people, gathering or circumstances. The benefit of the plan was that it permitted adaptability in information accumulation.

3.3 Population of Study

Population of study is where researchers apply their conclusions. It is from population that researchers draw sample from. There were 215 deposit taking Saccos in Kenya. This study focused on 99 of those DTs as represented in Appendix II.

3.4 Sampling Techniques and Sample Size

The sample size is used to draw conclusions about a population. Sample size to be used depend on the study's objectives. Drawing a subset of individuals from a chosen population so as to come up with the characteristics of the whole population is called sampling technique. The study adopted simple random sampling to sample managers from SACCOS and DTS. The reason why this technique was used was that the research was not sensitive and many people were willing to respond. Random sampling also assisted in reducing biasness while selecting respondents.

To determine the sample size, we applied the Yamane (1967) formula hence:

$$N = \frac{N}{1 + Ne2}$$

Where;

n = required responses

N = Sample size

e^2 = Error limit (A margin error of 0.10 was selected)

Thus n=6000/ (1+6000*0.01)

n=99 firms

3.5 Data Collection Techniques

Secondary data was used in the study from all the Saccos sampled. The data was extracted from statements of finance which had been audited for the year ended 31st December 2012 to 31st

December 2016 and was considered sufficient for the study. These included Statement of comprehensive income and Statement of financial position. The source of the statements was obtained from the audited reports which were filed with the office of the Kenya Co-operative Commissioner.

3.6 Data Analysis Techniques

The data collected was arranged into sub-tests at that point be altered and cleaned to lessen vagueness. The cleaned information was coded into SPSS 22 for consequent information examination through inferential measurements. The examination utilized various direct relapse conditions, and the technique for estimation is an Ordinary Least Squares (OLS) to build up a connection amongst efficiency and determinants of efficiency. OLS is a factual strategy for evaluating the obscure parameters in a direct relapse demonstrate by limiting total of watched reactions and the anticipated reactions, subsequently, giving least fluctuation mean-impartial estimation (Silverman, 2010).

The noteworthiness of the elements were tried at a certainty level of 95%. Relationship examination was utilized to depict how much one variable is identified with the other. The relapse condition was as per the following equation;

$$Y = \beta 0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Where;

Y = Efficiency measured as output over input where output is loans whereas Input is total deposits,

B0= Constant. The value of Y when X is zero

Bi (1, 2, 3) =Coefficients of determinants of efficiency

X_1 =Technology measured by the average number of customers issued with ATM cards and those registered for M-banking services over the total membership

X_2 =Firm Size measured as Logarithm of total assets

X_3 =Credit Risk measured as Ratio of nonperforming loans to total loans

ε = Error Term

3.6.1 Diagnostic Test

In this test, diagnostic test was assessed in terms of Sensitivity Analysis also called What If Analysis. This technique was used to determine how values of an independent variable impacted dependent variable under a set of assumptions.

3.6.2 Test of Significance

This study applied F-test, T-test and coefficient of determination (R^2). F-test established whether variables were jointly significant. T statistics was used to examine the significance in the model. Coefficient of determination (R^2) was used to measure the relationship between efficiency and determinants of efficiency. The study applied 95% confidence level.

CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATION OF FINDINGS

4.1 Introduction

This chapter contained analysis of data and interpretation of findings. The study's aim was to establish the determinants of efficiency of deposit taking savings and credit cooperative societies in Kenya. This study focused on 99 Saccos as the sample size for the study. The results were analyzed by use of SPSS and results shown on the following sections.

4.2 Efficiency of Saccos

This section sought to illustrate a depiction of the variables by use of means and standard deviations in describing the relationship between variables. Table 4.1 present the results.

Table 4.1: Descriptive Statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
EFFICIENCY	495	32.1348	435.4846	103.884355	29.6763495
TECHNOLOGY	495	4.5206	94.3221	40.951196	16.9991835
FIRM SIZE	495	18.8337	2133.5082	29.493913	132.0670674
CREDIT RISK	495	12.1434	88.5489	51.355609	12.8802578
Valid N (listwise)	495				

From the findings, this study used 495 observations as indicated in Table 4.1. The mean for efficiency, which was the dependent variable, was 103.884. In addition, efficiency had a standard deviation, maximum and minimum values of 29.676, 435.48 and 32.1348 respectively. The results indicated that efficiency levels of DTs ranged between 32.1348 to 435.4846 showing that

efficiency increased with a margin of 403.3498 because of rapid increase of loans issued and total deposits.

Technology had a mean score of 40.95 and standard deviation of 16.999 with maximum and minimum values being 94.3221 and 4.5206 respectively. The results showed that technology use increased in the period of study due to increase in the number of customers issued with ATMs cards and those registered for M-banking services. The mean for firm size was 29.493 with 132.067 being the standard deviation. This showed that Firm size had maximum and minimum values of 2133.50 and 18.833 respectively. This meant firm size increased in the period of study due to growth in DTs assets.

Lastly, credit risk had a mean score of 51.355, standard deviation of 12.88, maximum value of 88.548 and minimum of 12.14.This showed that credit risk increased in the period of study due to increase in nonperforming loans. As seen from the analysis, technology and credit risk had the highest mean scores in that order with firm size having the lowest mean score. This shows that technology and credit risk are the strongest determinants of efficiency of deposit taking savings and credit cooperative societies with firm size being the least determinant of efficiency.

4.3 Correlation Analysis

Pearson correlation was applied in this study to scrutinize the determinants of efficiency of deposit taking savings and credit cooperative societies in Kenya. The results are shown in Table 4.2.

Table 4.2: Correlation Analysis

Correlations		EFFICIENCY	TECHNOLOGY	FIRM SIZE	CREDIT RISK
EFFICIENCY	Pearson Correlation	1			
TECHNOLOGY	Pearson Correlation	.732**	1		
FIRM SIZE	Pearson Correlation	.512**	.187**	1	
CREDIT RISK	Pearson Correlation	-.782**	-.724**	-.191**	1

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

From the findings in Table 4.2, there was a positive correlation between efficiency and firm size as shown by correlation coefficient of 0.512. These results imply that firm size had an impact on the efficiency of Saccos, large firms are able to access credit facilities as compared to smaller firms.

In addition, the study found a strong positive correlation between technology and efficiency as indicated by a correlation coefficient of 0.732. This showed that investing in technology increases profitability of Saccos resulting from increased market share, good customer services, cost reduction and cheaper distribution channels. Conversely, credit risk and efficiency had a correlation coefficient of -0.782 therefore denoting a negative relationship. This showed that lack of monitoring credit policies and procedures will affect the Sacco negatively because of the risk of default.

4.4 Regression Analysis

In order to test the relationship independent variables (technology, firm size and credit risk) and dependent variable (efficiency of Saccos), a multiple linear regression was done. The regression involved use of Ordinary Least Squares (OLS) since the study had more than two variables. The findings were indicated in Table 4.3.

Table 4.3: Model Summary

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.891[a]	.793	.792	13.5281112	1.865

a. Predictors: (Constant), CREDIT RISK, FIRM SIZE, TECHNOLOGY

b. Dependent Variable: EFFICIENCY

From the analysis in Table 4.3, the coefficient of determination (R^2) equals 0.792. Percentage variation in the dependent variable that is explained by the independent variables is called coefficient of determination. It was used to explain the extent to which changes in the dependent variable can be explained by the change in the independent variables. In this study, coefficient of determination (R^2) indicated that the independents variables (technology, firm size and credit risk) contributed to 79.2% of the variation in efficiency. This therefore meant that other factors not studied comprise of 20.8%.

The study conducted an Analysis of Variance in order to test the significance of the model. The results were indicated in Table 4.4.

Table 4.4: ANOVA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	345200.936	3	115066.979	628.748	.000[b]
	Residual	89857.808	491	183.010		
	Total	435058.745	494			

a. Dependent Variable: EFFICIENCY

b. Predictors: (Constant), CREDIT RISK, FIRM SIZE, TECHNOLOGY

From the ANOVA results in Table 4.4, the probability value of 0.000[b] was calculated showing that the regression model was significant in determining the relationship between dependent variable (efficiency) and the independent variables (credit risk, technology and firm size) as it was less than $\alpha=0.05$. In addition, the overall model was significant at 5% level of significance because the F calculated (628.748) was greater than the F critical (value = 1.2768), thus a substantial association amongst credit risk, technology and firm size and efficiency.

Table 4.5: Coefficient of Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	136.893	5.307		25.796	.000
	TECHNOLOGY	.544	.052	.311	10.446	.000
	FIRM SIZE	.081	.005	.361	17.221	.000
	CREDIT RISK	-1.123	.069	-.487	-16.335	.000

a. Dependent Variable: EFFICIENCY

From the regression model; $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$, the established regression equation was; $Y = 136.893 + 0.544 X_1 + 0.081_2 - 1.123 X_3$.

The results in the regression model insinuate that holding all independent variables (credit risk, technology and firm size) constant at zero (0), efficiency would have been 136.893. In addition, the findings in Table 4.5 illustrate that holding all other independent variables constant, a unit increase in technology led to a 0.544 increase in efficiency of Saccos, a unit increase in firm size led to a 0.081 increase in efficiency of Saccos, while a unit rise in credit led to a -1.123 decrease in efficiency of Saccos. This implied that technology had the highest influence on efficiency of Saccos followed by firm size while credit risk had a negative influence on efficiency of Saccos. The obtained regression equation additionally inferred that there was a direct relationship between (firm size and technology) and efficiency of Saccos while there was an inverse relationship between credit risk and the efficiency of Saccos.

4.5 Summary and Interpretation of Findings

The aim of the study was to establish the determinants of efficiency of deposit taking savings and credit cooperative societies in Kenya. The study analyzed the relationship using a regression model. The study established that there was a direct relationship between firm size and technology and efficiency of Saccos while there was an inverse relationship between credit risk and the efficiency of Saccos.

The study found that firm size and efficiency of Saccos were positively and significantly related. The findings concurred with those of Chandler (2011) who posited that the size is important in

operation of a firm in that large firms have advantage of large economies of scale, have more qualified employees and their good market penetration as compared to small firms. Large firms higher capabilities in marketing and commercialization as compared to small ones (Yang and Chen, 2009).

The study found out that the coefficient for technology was 0.544. There was a positive relationship between technology and efficiency. Technology was statistically significant with a p value of below 5%.This positive relationship was in line with Badescu and Garces(2009) who did a study on the impact of technology on Tunisian manufacturing industries and found out a direct relationship between technology and efficiency and believed that technology emergence preparedness was to invest in human capital and complimentary concerns.

Furthermore, the study found that the coefficient for credit risk was -1.123. It therefore found that credit risk had a negative influence of the efficiency of Saccos. According to Wasankar (2009), credit risk is dangerous, giving out loans to already overloaded borrowers and those with poor credit score can expose the bank to credit risk. To reduce such risks, banks need to consider customer debt history, debt to income ratio and overall performance for industrial loan applicants to avoid loan default.

However, the findings on credit risk disagreed with those of Gisemba (2010) found out that financial performance and credit management practices had a positive relationship. Hence, it was important and necessary for Saccos to have very strict and straight forward risk management practices to ensure monitoring, measuring and controlling of credit risk.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This section presented the summary of the findings, conclusions, recommendations, limitations and suggestion for further research work.

5.2 Summary of Findings

In studying the determinants of efficiency of deposit taking savings and credit cooperative societies in Kenya, the researcher used descriptive research design. In addition, the study sampled 99 DTs with the data being extracted from the statements of finance which had been audited for the year ended 31st December 2012 to 31st December 2016. Ordinary Least Squares (OLS) was used to establish a connection amongst efficiency and determinants of efficiency. From the regression model, the study found that technology, firm size and credit risk had an impact on the efficiency of Saccos in Kenya. It found that technology and firm size had a positive influence on efficiency of Saccos whereas credit risk had a negative influence on efficiency of Saccos. Moreover, the study found that the independents variables (technology, firm size and credit risk) contributed to 79.2% of the variation in efficiency.

With regard to technology, the study found that the regression coefficient was 0.544. As such, the study found that technology had an influence on the efficiency of Saccos. The findings of this study concurs with Thompson et al (2010)'s study which indicated a direct relationship between firm efficiency and technology strategy. Similarly, Kleinschmidt (2006) found a positive relationship between firm performance and technology strategy- business strategy fit. Firms who combined technology strategy and business strategy were competitive in the market. According

to Mitchell (2012), firms that do not have technological advancement find their products being out of the market and being outdated hence stop being competitive.

The study also found that the regression coefficient for firm size was 0.081. It found that firm size and efficiency of Saccos were positively and significantly related. The findings were in agreement with those of Ramsay, Ong and Yeung (2010) firm size helps a firm to compete and raise barriers for potential market entrants. Larger firms have a higher advantage to smaller firms because they have a high access to credit, high negotiation power to suppliers and clients and access to qualified human capital (Yang and Chen, 2009). With the exception of the biggest two banks, the study found that there was a vast space for enhancing specialized effectiveness of a large portion of the banks. The study demonstrated that bigger bank size, higher offer of value capital in resources and more noteworthy gainfulness are connected with better proficiency.

5.3 Conclusion

The study established that technology had an influence on the efficiency of Saccos in those firms who combined business strategy and technology strategy were highly competitive in the market. Use of technology enables improvement in performance through good managing and planning the business and also technology eases transaction activity hence lowering operating costs (Siu, 2001). Technology use on co-operative system improves decision making and customer satisfaction. It couldn't be clear whether employees of Credit Unions (CUs) could accept and adopt technology. The CUs' officials would adopt technology on condition it was easy to use and it was useful on performance of the firm (Kusuma, 2008).

The study also revealed that firm size and efficiency of Saccos were positively and significantly related due to the fact that firm size helps a firm gain competitive advantage with possible

entrants in the market and also helps firm gain productivity leverage. The nature of the relationship between firm size and profitability may give a clear picture on factors that maximize profits. Lindsey (2012) found out that change in cost and demand caused change in profits, hence profitability could be affected by changes in output.

Lastly, the study concluded that credit risk had a negative influence on the efficiency of Saccos in that giving out loans to customers who are already overloaded with debt without background check can expose the firm to very unfavorable credit risk. Vassileios (2011) found that global risk in credit which began in 2007 summer raised issues about risk management and corporate governance, financial institutions such as banks had experienced financial crisis hence causing them to collapse.

5.4 Recommendations

Saccos should ensure that right policies and protocols are put in place to ensure that right and proper decisions are made on how credit is administered to avoid losses and conflict of interest. This is important as it will give confidence to investors and customers.

As a common practice, Saccos need to make sure that they have well defined loan policies so as to make sure that loan portfolio was prudently managed so as to affirm sustainability and efficient management of the same. The study recommends that Saccos should emphasize on setting reasonable minimum monthly contribution targets as this is the only way members will help improve the financial performance of Saccos.

The study recommends to the Government; the Deposit Taking Savings and Saccos' controller that there is have to keep up Deposit Taking Savings and Acknowledgment Co-agent's with a

national viewpoint as single substances instead of lapsing them into littler units at area levels. This is on the grounds that the examination found there is a positive connection between efficiency, all out resources proficiency level and financial execution, vast measured Deposit assuming Savings far as aggregate resources were observed to be more proficient that both medium estimated and little size Deposit taking Savings and Saccos.

In perspective of the finding that there is a positive connection amongst efficiency and Size of Deposit Taking Savings And Credit Co-Operative's which part of it was contributed due to overvaluation of their assets primarily land, building, office equipment, furniture and fittings in order to have a glossy balance sheet that could enable them access credit facilities from other financial institutions which painted a completely different picture of true state state of affairs of their books of accounts. This falsification of financial statements is meant to hoodwink the members and non members that the Sacco is well managed and consequently promise them hefty returns inform of dividends and interest on their shares hence enticing more customers to join, in line with the above, I recommend thorough auditing of DTs financial statements to ensure accountability and transparency.

5.5 Limitations of the Study

Various impediments from the study can be referred to. To begin with the study concentrated on three free variables to be specific; technology, firm size and credit risk. The understanding of the outcomes as efficiency ought to be confined to the variables utilized as a part of the study. It was unrealistic to evaluate the effect of credit risk on efficiency since a large portion of the Deposit Taking Savings and Saccos did not reveal their level of nonperforming advances.

Access to the information especially the secondary data was hard, it was difficult code, edit and analyse. The analysis of multiple models was challenging and difficult to provide explanation on the determinants of efficiency of deposit taking savings and credit cooperative societies in Kenya which depends on many factor from different dimensions.

Besides the study utilized two measures of efficiency to be specific the loans and total deposits, other bookkeeping proportions, for example, return on capital utilized and degree of profitability among others can likewise be utilized to gauge firm efficiency (Ikhide, 2000). There are likewise different procedures of measuring efficiency, for example, parametric system .

5.6 Suggestions for further Research

The target of the study was to assess the determinants of efficiency of deposit taking savings and credit cooperative societies in Kenya. This exploration can be enhanced by testing different variables that affect efficiency, for example, resource quality measured by taking Non performing advances net of arrangements for advance misfortune isolated by the gross advances of a given Deposit Taking Savings and Saccos.

This study recommends that future research be carried out on all deposit taking savings and credit cooperative societies in Kenya so as to allow for generalization of findings. The study also recommends that future research be carried out using primary data instead of secondary data.

Moreover the study suggests use of different source of data instead of the financial statements. The study recommends that future research be done covering a longer period of studies like seven years and with a bigger sample size.

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APPENDICES

APPENDIX I: SECONDARY DATA COLLECTION FORM

DATE... NAME OF THE MANAGER..........................

NAME OF THE SACO...

S/NO	NAME OF THE SACCO	YEAR	TOTAL LOANS	DEPOSITS	NON PERFORMING LOANS	NUMBER OF CUSTOMERS ISSUED WITH ATMS	NUMBER OF CUSTOMERS REGISTERED FOR MBANKING	TOTAL ASSETS
		2012						
		2013						
		2014						
		2015						
		2016						

Signature...

APPENDIX II: LIST OF DEPOSIT TAKING SACCOS IN KENYA

	NAME DEPOSIT TAKING SACCO		NAME DEPOSIT TAKING SACCO
1	2 NK	49	MMH
2	AFYA	50	MOI UNIVERSITY
3	AIRPORTS	51	MOMBASA PORT
4	ARDHI	52	MUKI
5	ASILI	53	MWALIMU NATIONAL
6	BANDARI	54	MWINGI MWALIMU
7	BIASHARA	55	MWITO
8	BINGWA	56	NACICO
9	BORESHA	57	NAFAKA
10	CAPITAL	58	NASSEFU
11	CENTENARY	59	NATION
12	CHAI	60	NAWIRI
13	CHUNA	61	NDEGE CHAI
14	COMOCO	62	NG'ARISHA
15	COSMOPOLITAN	63	OLLIN
16	DAIMA	64	ORIENT
17	DHABITI	65	PRIME-TIME
18	DIMKES	66	QWETU
19	ECO-PILLAR	67	SAFARICOM
20	EGERTON	68	SHERIA
21	ELIMU	69	SHOPPERS
22	FORTUNE	70	SIMBA CHAI
23	FUNDILIMA	71	SKYLINE
24	GITHUNGURI	72	SMART LIFE
25	GUSII MWALIMU	73	SOLUTION
26	HARAMBEE	74	SOUTHERN STAR
27	HAZINA	75	STIMA
28	IMARIKA	76	SUKARI
29	IMARISHA	77	TAI
30	JAMII	78	TAIFA
31	JITEGEMEE	79	TARAJI
32	K- UNITY	80	TELEPOST
33	KENPIPE	81	TEMBO
34	KENVERSITY	82	THAMANI
35	KENYA BANKERS	83	TOWER
36	KENYA HIGHLANDS	84	TRANS NATION

37	KENYA POLICE	85	TRANS NATIONAL TIMES
38	KIMBILIO DAIMA	86	TRANS-ELITE COUNTY
39	KINGDOM	87	UKRISTO NA UFANISI
40	KITE	88	UKULIMA
41	KITUI TEACHERS	89	UNAITAS
42	KMFRI	90	UNITED NATIONS
43	MAFANIKIO	91	UNIVERSAL TRADERS
44	MAGADI	92	VISION POINT
45	MAGEREZA	93	WAKENYA PAMOJA
46	MAISHA BORA	94	WANAANGA
47	MENTOR	95	WANANCHI
48	METROPOLITAN NATIONAL	96	WANANDEGE
		97	WAUMINI
		98	WINAS
		99	YETU

APPENDIX III: RAW DATA COLLECTED

	NAME OF DTs	EFFICIENCY	TECHNOLOGY	FIRM SIZE	CREDIT RISK
1	2 NK	42.912	17.906	19.575	31.354
		54.909	42.249	19.732	33.974
		62.690	41.929	20.324	33.430
		57.597	42.615	20.464	34.340
		71.547	87.661	22.823	40.011
2	AFYA	94.585	13.087	23.107	36.676
		92.913	28.540	23.199	50.041
		97.569	45.945	23.264	57.964
		96.496	49.253	23.320	64.928
		98.950	56.094	23.419	60.587
3	AIRPORTS	96.205	33.031	19.680	39.476
		97.756	41.919	19.858	50.492
		102.605	32.863	20.036	57.321
		97.936	31.094	20.127	59.726
		87.167	53.419	20.182	63.702
4	ARDHI	100.006	21.308	20.821	46.277
		90.244	31.293	20.978	48.523
		102.520	38.606	21.018	48.543
		95.928	59.730	21.104	52.896
		98.198	68.634	21.179	65.627
5	ASILI	101.140	24.440	21.080	51.066
		95.578	33.058	21.179	66.121
		89.154	40.346	21.249	74.171
		86.082	72.368	21.345	85.010
		81.851	70.824	21.395	83.957
6	BANDARI	147.242	25.829	21.955	28.226
		146.157	32.031	22.226	24.836
		138.049	66.167	22.372	31.266
		134.269	63.179	22.521	45.274
		114.702	79.118	22.642	46.186
7	BIASHARA	103.864	29.586	19.695	41.847
		113.803	31.241	20.050	63.614
		110.848	37.489	20.252	61.308
		108.022	38.571	20.489	52.438
		112.275	57.062	20.724	66.965
8	BINGWA	75.670	9.517	21.406	33.149
		91.253	21.767	21.721	44.063
		131.234	29.837	21.763	45.833

		122.787	34.812	21.884	68.202
		101.952	35.050	22.126	64.787
9	BORESHA	109.047	14.381	21.859	21.040
		118.781	30.028	21.947	40.946
		128.475	42.381	22.068	46.077
		124.322	45.239	22.185	58.984
		133.415	47.237	22.321	52.931
10	CAPITAL	76.309	24.368	21.255	50.386
		97.653	28.009	21.258	47.851
		108.492	36.240	21.436	68.070
		74.234	47.794	21.459	88.549
		67.128	45.743	21.676	84.859
11	CENTENARY	120.336	24.752	18.834	71.888
		105.114	34.975	19.254	58.919
		110.291	39.190	19.619	48.453
		98.123	26.935	19.889	54.984
		94.699	42.645	20.093	49.354
12	CHAI	105.925	24.815	20.992	46.764
		116.584	38.861	21.151	43.574
		127.466	40.311	21.407	43.076
		126.428	70.872	21.551	51.510
		125.758	72.143	21.758	48.281
13	CHUNA	129.329	26.015	21.070	30.665
		144.547	32.944	21.277	29.251
		144.337	42.146	21.378	43.352
		142.714	66.429	21.422	51.237
		91.788	74.540	21.568	66.842
14	COMOCO	101.191	17.946	20.081	48.802
		100.901	35.646	20.175	47.991
		103.094	44.120	20.300	58.091
		103.188	34.099	20.380	71.477
		105.310	57.422	20.473	72.127
15	COSMOPOLITAN	96.454	33.190	23.551	26.174
		98.223	37.838	21.570	33.467
		100.276	32.655	21.736	34.053
		96.742	48.030	21.939	36.740
		101.378	52.851	22.140	43.388
16	DAIMA	58.602	20.634	19.882	60.300
		63.190	30.094	20.065	73.301
		75.710	35.122	20.038	78.421
		72.890	35.004	20.192	67.733
		55.270	57.848	20.454	70.225
17	DHABITI	435.485	29.563	19.173	69.255

		240.741	38.121	19.482	49.744
		240.675	38.360	19.735	73.522
		120.677	36.132	19.960	78.497
		103.311	68.656	20.004	79.440
18	DIMKES	76.810	27.780	19.160	59.437
		97.115	30.883	19.936	63.861
		100.993	34.860	20.354	53.446
		98.833	63.262	20.708	44.196
		100.900	59.749	21.026	34.582
19	ECO-PILLAR	79.065	23.405	21.606	31.236
		54.425	42.999	20.302	39.431
		56.969	42.139	20.221	42.762
		50.916	42.933	20.416	44.126
		48.988	88.101	20.533	43.314
20	EGERTON	115.502	23.021	21.815	31.356
		107.510	32.689	21.075	65.742
		112.108	37.262	21.293	54.431
		108.548	56.010	21.485	66.136
		110.739	58.154	21.608	60.469
21	ELIMU	78.960	30.414	20.262	22.011
		76.462	36.467	20.419	23.159
		93.234	29.595	20.629	35.454
		80.378	40.343	20.736	37.516
		68.956	40.220	20.764	57.740
22	FORTUNE	62.448	18.831	22.208	24.800
		116.316	31.278	21.014	41.742
		173.426	38.597	21.217	55.144
		124.481	45.816	21.326	81.872
		103.793	58.171	21.591	75.583
23	FUNDILIMA	101.516	27.862	20.059	50.970
		102.455	30.633	20.133	54.902
		98.560	26.639	20.149	66.206
		96.775	20.661	20.338	67.810
		98.587	43.990	20.444	63.933
24	GITHUNGURI	70.219	34.866	19.855	69.998
		79.907	32.187	20.107	58.480
		91.609	35.120	20.351	58.202
		97.607	39.421	20.667	55.801
		109.084	61.805	20.906	44.555
25	GUSII MWALIMU	102.895	17.917	21.143	28.860
		151.074	28.234	22.302	30.990
		154.789	55.975	22.431	29.939
		117.657	57.015	22.530	40.638

		124.128	70.424	22.633	35.074
26	HARAMBEE	124.200	6.695	20.509	55.003
		115.975	32.030	23.593	55.908
		124.802	33.603	23.715	59.649
		117.288	36.795	23.738	63.880
		119.906	38.862	23.815	73.511
27	HAZINA	104.030	17.491	21.287	34.741
		100.865	30.732	21.997	43.268
		101.291	53.472	22.186	40.348
		101.489	48.349	22.339	54.927
		106.437	62.005	22.478	60.461
28	IMARIKA	106.148	12.484	20.429	37.902
		118.670	25.512	21.790	40.687
		114.277	36.344	22.025	46.798
		111.861	40.666	22.198	55.030
		122.545	45.709	22.466	42.985
29	IMARISHA	122.990	21.074	20.960	30.924
		134.772	37.920	22.376	48.422
		140.117	54.412	22.583	66.155
		126.211	58.578	22.703	73.237
		115.782	61.328	22.834	70.462
30	JAMII	116.767	22.521	22.302	32.138
		119.309	29.968	21.312	38.552
		118.743	35.198	21.492	39.777
		109.213	75.565	21.660	48.392
		115.404	89.882	21.851	39.308
31	JITEGEMEE	234.270	27.474	20.978	16.803
		141.844	34.126	20.666	25.475
		134.042	39.699	20.473	30.181
		112.339	42.178	20.335	33.241
		100.197	75.450	20.398	34.138
32	K- UNITY	51.963	21.139	22.926	36.269
		74.163	32.875	21.549	37.171
		79.755	39.049	21.561	38.269
		55.627	51.892	21.664	49.508
		62.179	56.602	21.790	60.816
33	KENPIPE	112.051	29.329	20.279	36.849
		108.881	33.936	21.103	50.173
		104.675	42.563	21.214	56.853
		104.334	78.418	21.371	58.622
		101.743	77.135	21.468	60.864
34	KENVERSITY	112.847	28.622	19.935	63.450
		107.895	33.759	20.819	46.341

		104.316	36.555	20.979	49.121
		104.807	58.248	21.153	49.140
		111.530	68.109	21.370	47.508
35	KENYA BANKERS	85.417	18.176	21.304	12.143
		82.675	43.483	22.337	32.002
		83.319	58.730	22.434	53.489
		84.367	56.403	22.569	51.138
		91.153	63.187	22.635	56.790
36	KENYA HIGHLANDS	59.722	18.536	19.138	18.371
		68.883	36.529	21.149	42.105
		78.774	33.853	21.165	50.658
		66.433	44.574	21.251	66.273
		62.493	53.124	21.493	59.515
37	KENYA POLICE	100.248	13.445	22.034	63.435
		120.300	28.666	23.168	64.863
		124.229	38.925	23.476	62.009
		118.420	43.653	23.588	63.150
		120.240	47.940	23.720	59.843
38	KIMBILIO DAIMA	49.244	27.855	19.906	42.907
		60.956	46.284	19.630	62.745
		91.384	38.718	19.525	53.732
		84.455	34.498	19.732	54.501
		64.180	50.498	20.055	55.173
39	KINGDOM	76.922	23.608	19.498	48.798
		79.747	39.835	20.103	51.587
		94.331	42.571	20.179	46.681
		104.884	31.219	20.439	47.240
		100.836	51.452	20.699	38.887
40	KITE	88.312	21.749	20.967	32.225
		90.669	33.741	20.429	39.612
		94.962	33.764	20.712	44.458
		82.594	31.672	20.420	50.886
		85.028	60.015	20.411	51.628
41	KITUI TEACHERS	121.404	16.689	19.376	35.231
		117.423	39.564	21.475	35.034
		115.369	30.621	21.627	44.518
		105.502	56.152	21.762	44.190
		109.361	47.651	21.910	39.510
42	KMFRI	92.877	21.221	21.532	67.378
		104.167	34.941	19.153	58.971
		103.706	34.372	19.300	72.350
		95.414	28.450	19.393	78.780
		110.445	55.174	19.555	64.653

50

43	MAFANIKIO	107.393	26.695	20.676	42.347
		122.109	25.759	20.048	83.565
		111.976	41.854	20.097	83.569
		101.540	44.244	20.219	80.982
		106.238	79.439	20.362	66.186
44	MAGADI	92.341	18.616	19.706	40.739
		108.446	43.403	19.832	61.994
		92.529	38.607	19.866	66.761
		104.671	38.905	19.882	65.233
		105.677	66.120	19.980	59.566
45	MAGEREZA	75.461	22.497	22.092	43.647
		85.309	33.689	22.187	37.393
		90.071	57.348	22.212	61.363
		68.191	65.285	22.140	75.359
		92.009	58.114	22.156	56.102
46	MAISHA BORA	111.728	18.538	20.932	53.291
		110.607	26.662	21.131	52.269
		108.919	42.712	21.271	52.042
		107.466	60.106	21.447	54.820
		111.626	80.990	21.579	47.016
47	MENTOR	97.733	23.281	23.815	21.218
		98.373	34.697	21.711	24.511
		102.539	60.772	21.912	40.322
		104.753	75.060	22.091	60.466
		113.380	86.330	22.308	56.773
48	METROPOLITAN NATIONAL	150.019	14.827	20.404	48.765
		139.968	30.839	22.344	45.384
		152.657	43.415	22.626	64.711
		151.847	44.381	22.869	55.238
		159.401	48.155	23.122	49.876
49	MMH	90.308	38.305	21.074	46.594
		89.172	42.376	19.284	51.714
		110.576	37.319	19.427	46.249
		115.344	32.282	19.589	48.201
		128.370	40.788	19.812	52.696
50	MOI UNIVERSITY	70.337	26.231	21.584	44.462
		61.235	30.361	21.089	46.035
		72.037	40.460	21.098	47.738
		74.218	57.259	21.089	50.035
		86.202	63.953	21.086	63.183
51	MOMBASA PORT	161.085	22.807	20.704	41.989
		156.448	32.564	21.340	57.134

		168.713	34.363	21.553	49.046
		155.797	67.881	21.948	47.977
		143.792	62.354	22.077	58.693
52	MUKI	64.082	22.006	19.713	52.451
		66.993	36.631	19.870	43.366
		103.512	41.174	20.024	41.901
		105.518	40.237	20.185	46.114
		111.080	64.976	20.234	43.119
53	MWALIMU NATIONAL	53.902	9.970	20.421	53.709
		113.450	19.084	23.924	45.859
		111.111	27.728	24.077	58.245
		98.571	33.706	24.199	62.034
		96.270	41.224	24.345	59.949
54	MWINGI MWALIMU	106.228	34.239	19.192	48.173
		98.370	34.642	19.376	47.845
		106.742	34.843	19.487	47.162
		110.127	22.242	19.730	41.165
		104.119	43.776	19.942	61.249
55	MWITO	106.283	33.753	20.659	15.870
		110.840	28.524	20.567	36.553
		106.357	34.030	20.725	42.114
		110.773	56.722	20.840	41.985
		113.568	64.555	20.967	46.099
56	NACICO	133.907	18.761	21.203	49.891
		129.431	33.128	21.665	46.530
		82.563	32.979	21.629	68.151
		88.886	60.399	21.761	67.696
		95.979	57.419	21.882	58.130
57	NAFAKA	96.213	42.181	19.457	49.337
		77.542	42.949	19.502	59.016
		107.196	41.771	19.668	52.656
		121.582	19.755	19.730	51.483
		118.790	48.345	19.812	53.063
58	NASSEFU	129.159	22.227	20.042	25.852
		117.834	36.213	20.658	28.514
		118.028	42.465	20.780	53.908
		120.976	70.973	20.839	52.802
		114.939	72.737	21.038	63.498
59	NATION	103.074	27.658	20.785	45.939
		100.254	39.973	20.645	50.444
		113.471	30.590	20.807	50.308
		110.175	48.746	20.957	55.345
		113.696	61.103	21.065	57.120

60	NAWIRI	32.135	24.631	21.567	45.449
		51.813	41.039	20.701	45.190
		46.272	25.862	20.630	66.468
		55.067	31.519	20.757	52.992
		55.512	42.193	20.949	59.092
61	NDEGE CHAI	124.756	19.225	21.571	42.752
		126.130	37.647	21.375	47.622
		131.734	31.927	21.497	51.753
		124.559	14.662	21.541	53.272
		122.460	60.248	21.610	49.467
62	NG'ARISHA	94.595	25.933	21.435	31.763
		102.113	28.259	20.943	48.000
		102.914	38.756	21.042	52.552
		101.835	63.914	21.101	55.857
		114.810	54.990	21.190	51.182
63	OLLIN	128.873	28.596	21.508	56.299
		122.753	33.509	21.444	51.545
		120.603	34.949	21.547	55.603
		112.963	53.229	21.690	52.836
		111.332	26.198	21.872	60.323
64	ORIENT	148.528	29.248	22.964	37.431
		149.662	28.374	20.092	45.372
		159.308	47.793	20.302	53.133
		153.249	41.427	20.346	64.482
		175.793	86.648	20.446	52.539
65	PRIME-TIME	92.701	34.742	20.866	62.861
		91.484	34.381	20.036	63.830
		93.028	42.737	20.122	71.193
		89.121	37.293	20.161	74.912
		96.405	70.743	20.214	65.775
66	QWETU	109.812	21.819	20.429	46.719
		115.183	28.742	20.620	46.212
		111.428	26.223	20.691	54.021
		96.989	51.377	20.820	60.138
		108.193	59.789	21.011	50.274
67	SAFARICOM	108.055	31.499	20.742	58.093
		95.867	31.777	21.152	55.812
		105.538	37.503	21.515	46.208
		109.962	77.911	21.894	42.697
		106.926	77.671	22.145	34.918
68	SHERIA	103.149	28.265	20.488	33.155
		109.729	30.031	21.766	43.209
		105.172	59.057	21.951	39.933

		118.436	69.637	22.140	57.051
		113.213	80.633	22.207	56.300
69	SHOPPERS	80.548	26.056	20.866	38.426
		99.174	31.477	21.127	39.634
		96.219	39.881	21.298	37.466
		103.448	64.565	21.396	37.537
		104.846	74.953	21.525	41.258
70	SIMBA CHAI	113.331	26.183	20.193	59.177
		123.239	39.363	20.532	57.286
		123.346	35.060	20.548	68.897
		128.360	32.297	20.668	69.348
		137.733	58.460	20.915	63.712
71	SKYLINE	97.057	23.556	19.385	51.046
		86.102	32.034	19.671	59.449
		94.564	31.779	20.009	54.914
		83.780	33.674	20.449	52.743
		80.204	63.923	20.676	50.010
72	SMART LIFE	106.069	24.094	20.676	46.061
		112.646	31.537	20.341	55.786
		125.182	43.946	20.483	53.328
		120.679	39.843	20.602	56.170
		121.901	80.530	20.652	56.319
73	SOLUTION	97.141	18.113	21.130	47.355
		103.567	41.724	21.636	59.816
		122.398	33.084	21.669	75.059
		107.060	56.095	21.808	74.545
		112.662	48.212	21.942	64.108
74	SOUTHERN STAR	79.339	11.937	20.360	34.169
		95.024	34.886	20.384	39.152
		97.133	35.983	20.485	66.008
		81.013	37.193	20.607	65.175
		82.521	54.921	20.692	63.580
75	STIMA	115.100	24.801	21.075	69.078
		118.186	33.903	23.241	60.373
		109.085	37.140	23.518	50.941
		102.456	41.024	23.732	54.110
		110.568	46.465	23.921	46.805
76	SUKARI	97.325	21.699	20.330	26.265
		89.826	38.581	20.803	29.061
		96.218	38.072	20.613	34.288
		97.117	41.743	20.641	51.319
		102.542	71.775	20.685	49.979
77	TAI	83.443	15.292	21.135	50.491

		100.799	32.272	20.710	47.227
		119.533	31.721	20.914	44.256
		104.522	47.154	21.181	50.635
		95.704	57.458	21.352	48.753
78	TAIFA	49.022	13.639	21.306	38.454
		61.280	37.824	21.168	47.925
		54.958	40.149	21.337	50.002
		75.443	45.815	21.491	52.663
		79.010	52.100	21.627	51.942
79	TARAJI	78.166	27.876	19.726	63.878
		70.857	38.641	19.729	64.516
		73.778	40.174	19.757	69.248
		57.060	41.551	19.794	67.470
		62.159	72.438	19.853	59.739
80	TELEPOST	160.289	21.421	22.541	36.759
		121.255	25.867	21.232	40.000
		117.274	34.037	20.728	44.996
		129.632	80.174	20.746	45.626
		78.253	76.789	20.700	47.579
81	TEMBO	81.500	30.858	22.089	50.676
		94.452	35.731	20.646	52.276
		106.010	37.433	20.820	62.230
		120.106	50.568	21.062	55.326
		91.705	55.818	21.373	57.893
82	THAMANI	99.003	15.604	19.438	48.476
		114.286	42.993	19.682	48.148
		125.152	44.326	19.702	51.621
		96.374	44.069	19.873	57.780
		87.740	67.777	19.951	55.322
83	TOWER	103.376	23.775	19.370	36.894
		102.568	38.843	21.544	37.942
		107.551	51.309	21.874	36.142
		99.825	58.704	22.112	37.017
		108.671	69.172	22.400	29.726
84	TRANS NATION	109.338	22.427	22.602	79.494
		130.259	8.875	21.259	41.445
		106.462	39.742	21.383	43.250
		103.916	72.196	21.542	47.224
		116.366	69.296	21.770	40.851
85	TRANS NATIONAL TIMES	102.814	25.513	20.211	52.807
		110.855	4.521	20.300	46.667
		120.953	41.438	20.481	60.532
		85.338	59.210	20.717	70.894

		88.272	67.801	20.839	62.131
86	TRANS-ELITE COUNTY	61.752	24.382	21.335	40.360
		66.498	33.498	20.286	32.810
		83.895	39.635	20.626	27.931
		56.337	39.759	20.543	39.219
		64.703	82.611	20.660	34.411
87	UKRISTO NA UFANISI	90.306	29.873	20.085	48.011
		110.578	29.094	20.479	50.765
		108.170	35.366	20.652	53.165
		109.029	53.097	20.837	56.716
		112.445	59.591	21.050	82.010
88	UKULIMA	103.433	13.595	20.676	44.339
		103.029	36.065	22.714	52.033
		103.437	49.970	22.839	54.895
		101.834	53.616	22.944	54.251
		102.145	61.561	23.023	61.195
89	UNAITAS	86.357	8.957	20.630	34.112
		102.676	29.772	22.437	52.264
		118.514	33.273	22.652	51.069
		137.970	37.178	22.952	51.868
		115.675	42.110	23.097	52.237
90	UNITED NATIONS	108.668	19.111	20.611	54.465
		105.123	62.908	22.747	64.320
		99.656	73.103	22.901	72.195
		90.904	76.779	23.035	73.570
		88.702	74.140	23.108	71.524
91	UNIVERSAL TRADERS	136.152	30.118	19.783	33.929
		133.788	28.961	19.962	40.306
		136.813	40.481	20.146	48.876
		139.170	39.656	20.318	51.251
		139.692	70.969	20.449	41.675
92	VISION POINT	58.312	20.202	19.370	52.320
		75.000	33.369	19.533	44.231
		87.171	32.139	19.650	48.035
		70.489	31.967	19.737	56.608
		48.103	50.314	19.984	63.507
93	WAKENYA PAMOJA	121.643	20.111	21.223	27.434
		163.393	20.222	20.783	43.898
		151.158	27.566	20.795	59.417
		133.325	30.780	20.941	56.574
		97.742	34.289	21.024	56.873
94	WANAANGA	97.810	40.069	21.093	42.724
		91.967	37.852	20.710	50.886

		87.497	39.721	20.799	62.101
		83.833	74.638	20.870	62.649
		92.811	66.626	20.828	59.898
95	WANANCHI	75.812	16.061	20.954	47.344
		106.347	22.962	20.689	39.156
		136.991	26.397	20.882	43.477
		109.596	35.455	20.870	50.892
		85.859	47.139	20.929	53.372
96	WANANDEGE	61.260	24.152	19.587	60.916
		59.877	27.597	20.888	64.261
		64.321	33.236	21.016	57.858
		69.241	65.487	21.009	54.804
		68.564	94.322	20.929	59.651
97	WAUMINI	99.760	18.460	20.145	70.528
		89.748	28.800	21.480	60.843
		111.247	31.423	21.665	60.864
		114.456	56.720	21.744	63.744
		114.655	55.252	21.893	55.965
98	WINAS	115.161	23.150	20.133	70.330
		120.183	39.598	21.336	37.769
		125.092	39.460	21.567	50.382
		117.646	6.493	21.748	50.216
		132.303	7.339	21.957	55.774
99	YETU	98.279	24.314	20.130	45.416
		97.858	35.817	21.168	46.337
		106.557	33.256	21.253	52.786
		91.375	60.492	21.414	57.285
		89.056	66.315	21.605	57.859