DETERMINANTS OF EFFICIENCY OF SAVINGS AND CREDIT CO-OPERATIVE SOCIETIES IN NAIROBI COUNTY

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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 University of Nairobi supervisor.

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DEDICATION

I dedicate this work to my loving wife and best friend Beatrice Kathomi for her support and understanding.

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ABBREVIATIONS

DEA	–	Data Envelopment Analysis
EMH	–	Efficient Market Hypothesis
FOSA	–	Front Office Service Activities
MFI	–	Micro Finance Institution
SACCO	–	Savings and Credit Co-operative
SPSS	–	Statistical Package for Social Sciences
ANOVA	–	Analysis of Variance
ICT	–	Information Communication Technology

ABSTRACT

The most important aspect of running a business is how well you are running the business. An efficient business will show increased profitability with less input of resources. Therefore, to keep pace in an increasingly competitive world, a business needs to run as efficiently as possible, since any company not operating efficiently will be out of business. The key pillar of a successful economy is financial efficiency and therefore all the stakeholders in the economy should put it into consideration at all times to ensure stability in the financial sector.

The purpose of the study was to investigate the determinants of efficiency of savings and credit co-operative (SACCO) societies in Nairobi County. The study used descriptive research design. The population of the study comprised of 1,102 active SACCOs in Nairobi County from which a sample of 56 SACCOs was selected using stratified sampling technique. The secondary data in this analysis covered a period of 3 years from year 2010 to 2012 extracted from the audited financial statements of comprehensive income statement and statement of financial position. Data Envelopment Analysis (DEA) was used to measure technical efficiency of the SACCOs. The data collected was then analysed using a linear regression equation model to test the extent of relationship.

The study found out that there were factors influencing the efficiency of SACCOs in Kenya, which are size, capital, credit risk and management quality. They either influenced it positively or negatively. The four independent variables that were studied (size, capital, credit risk and management quality) explained a substantial 70.1% of the efficiency of SACCOs as represented by the average R^2 (0.701). The study concludes that size, capitalisation and management quality positively and significantly influenced efficiency of SACCOs while credit risk inversely affected efficiency of SACCOs. The study recommends that there is need to understand the changes that technology was causing on the financial sector in order to examine in detail how the recent and foreseeable advances in technology can affect its future evolution. The study also recommends that all the SACCOs should embrace the concept of credit risk management practices. There is also need to address the managerial gaps in SACCOs in the areas of training, organization capability, reliability, risk taking propensity and customer relationship management.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

In a competitive environment, financial institutions are forced to examine their performance since their survival depends upon their productive efficiencies. Blejer (2006) argued that the factors hindering the ability of markets to adopt optimal stabilization policies ranges from constraints of political economy, reversal in the global capital market, inappropriate exchange rate regimes, financial instability, inefficiencies and financial market imperfections. 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 (1969) argued that the more efficient the financial system is, the better the economy. Thus, improvement in the financial performance represents a better allocation of financial resources which results in higher private investments that favours economic growth.

Berger & Hamphrey (1997) argued that investigation of financial institutions efficiency is important from both microeconomic and macroeconomic point of view. From the micro perspective, the issue of inefficient banking system is crucial due to the increasing competition and improvements in the institutional, regulatory and supervisory framework. On the other hand from the macro perspective, the efficiency of banking sector influences the cost of financial intermediation and the soundness of financial market.

Economic efficiency is based on the neoclassical microeconomic theory which focuses on resource allocation and utilization, advocating for non-wastage of resources by emphasising on cost reduction while producing the maximum possible

level of output for a given available input and technology. A firm that is economically efficient may therefore possess competitive advantage over rival firms producing less efficiently in the same industry. In the process of transforming inputs into output value, a change that increases value is an efficient change while the one that decreases value is an inefficient change. Economic efficiency is often associated with perfectly competitive markets than with monopoly because of deadweight loss which is associated with monopoly pricing and output restrictions. For the firms which are operating in a competitive industry, efficiency gains accrue when they earn only normal profits in the long run and respond to changes in consumer preference by increasing output.

Berger et al. (1993) argued that in a word in which the structures of financial services industries are changing rapidly, it is important to determine the cost and revenue efficiency of the evolving institutions. Efficiency has important ramifications for the institutions themselves such as profitability, solvency and competitiveness, as well as in terms of the demands placed upon regulatory authorities, and ultimately tax payers, in the provision of low risk financial intermediation.

1.1.1 Efficiency

Efficiency indicates how well an organization uses its resources to produce goods and services. It focuses on inputs, outputs and the rate i.e. productivity at which inputs is used to produce the output. Efficiency is improved when more outputs of a given quality are produced with the same or fewer inputs, or when the same amount of output is produced with fewer inputs. An economic system is said to be more efficient than another in relative terms if it can provide more goods and services without using

more resources. According to Berger et al. (1993), efficiency implies improved profitability, greater amount of funds channelled in, better prices and services quality for consumers as well as greater safety in terms of improved capital buffer in absorbing risks.

The most important aspect of running a business is how well you are running the business. An efficient business will show increased profitability with less input of resources. Therefore, to keep pace in an increasingly competitive world, a business needs to run as efficiently as possible, since any company that is not operating efficiently will be out of business. Any efficient study of financial institutions can be used as a tool by managers to improve performance, as long as there is information in the study on the characteristics or identities of the relatively efficient and inefficient institutions. Characteristics or management practices that are found to be relatively common among financial institutions on or near the efficient frontier may be identified as best practices which should be adopted if possible. Managers can adjust their policies and procedures to avoid worst practices that are relatively common among institutions that are far from the efficient frontier (Berger & Mester, 1997).

There are considerable debates about what constitutes input and output of banking industry. Berger & Mester (1997) suggested that the intermediation approach is best suited for analyzing bank level efficiency while the production approach is well suited for measuring branch level efficiency. Tesfamariam et al. (2013) in their study used the intermediation approach for selecting input and output where savings and total expenses are identified as inputs while loans and total income are identified as outputs, such that efficiency = Output/ Input.

1.1.2 Determinants of Efficiency

Different factors may explain efficiency levels in a firm, some of which may be inherent in the internal organization structure of the firm such as managerial expertise, skills level and experience of workers. According to Sinani et al. (2007), the growing body of theoretical and empirical literature on firm performance has identified variables such as firm trade orientation, investment in fixed capital, soft budget constraints, quality of labor, competition, among others as determinants of firm performance and consequently firm efficiency. The existence of soft budget constraint is likely to lead to lower levels of efficiency, but ascertaining its effect is a difficult task due to lack of appropriate data to measure it. Ab-Rahim et al. (2012) identified some of the factors which affect efficiency as capital, size of the firm, credit risk, and managerial quality. This study therefore considered the same variables as identified by Ab-Rahim et al. (2012).

Capital was measured as the ratio of equity to total assets; credit risk was measured as the ratio of loans issued to members over total assets while the management quality measured as the ratio of non-interest expenses over total assets. Size refers to the total assets of the SACCO and since other dependent variables under consideration are standardized by using total assets, then size was measured as logarithm of total assets.

1.1.3 Relationship between Efficiency and Determinants of Efficiency

Ab-Rahim et al. (2012) in their study considered two set of variables i.e. 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 was expected to be

positively correlated with firm efficiency. If firm size reflects economies of scale, larger firms are able to spread the fixed costs of production over more production units, leading to lower average costs. This therefore leads to an increase in performance and hence efficiency. Capital was also expected to have a positive relation with efficiency because higher levels of equity provide a safety net in case of future losses. Credit risk variable was expected to have a positive relationship with efficiency which implies that firms with higher loans to asset ratio tend to have higher efficiency score (Ab-Rahim et al., 2012). Mukherjee et al. (2002) argued that loans are the most risky and the least liquid asset yet it constitutes the most crucial element 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.

1.1.4 SACCOs in Nairobi County

SACCOs receive savings from members in form of periodic deposits, usually monthly, and from this created pool, they serve the credit needs of members through personal loans. Gachara (1990) observed that most SACCOs are found in urban areas and particularly common among the employed. He also noted that SACCOs are part of the financial system in Kenya and identified other participants in the sector as commercial banks, non-banking financial institutions, building societies and insurance companies.

Nairobi County has the highest number of industries and thus attracts a significant number of people seeking for employment. These employees require financial

services to cater for their developmental needs which can only be adequately met by Savings and Credit Co-operative Societies. The basic structure of SACCOs is what differentiates them from other financial institutions in that they are user-owned financial intermediaries. Members typically have a common bond based on geographic area, employer, community, industry or other affiliations. It is on this basis that Nairobi County has the highest number of SACCOs. As at 31st December 2011, Nairobi County annual report indicated that there were 1,102 active SACCOs, with a total membership of 795,541, Share Capital amounting to Kshs. 11.78 billion while the member's savings/Deposits amounted to Kshs.110.57 billion. The SACCOs are distributed in three categories as follows: employee based 935, community based 92 and transport based 75 (Njeru, 2012).

1.2 Research Problem

The key pillar of a successful economy is financial efficiency and therefore all the stakeholders in the economy should put it into consideration at all times to ensure stability in the financial sector. In developing countries, the financial institutions are much concerned with their operating efficiency in particular, since the financial development is not any more to certain economy but indeed guided by universal guidelines. The more efficient the financial system is, the better the economy (Schumpeter, 1969) and therefore the objective of wealth maximization of shareholders of firms is achieved. Therefore, efficiency in the financial sector is crucial for the economy on the micro as well as in the macro level (Irsova & Havranek, 2010). It is widely recognized that the operating efficiency of the financial institutions supports their functionality in the economy.

The performance of SACCOs in Kenya depends on how efficient they are so that they can be able to cover all expenses as well as give something back to its shareholders. The major concern by the various stakeholders who have an interest in these Co-operative Societies is whether they are operating efficiently. Given the important role that SACCOs play in any economy, it is therefore crucial to understand efficiency and its determinants so that the management can be able to know how to improve efficiency and hence SACCO performance which will in turn ensure sustainability of the Co-operative movement in Kenya. The main objective of any SACCO is to promote thrift among its members by affording them an opportunity for accumulating their savings, and thereby create a source of funds from which loans can be made available to them exclusively for provident and productive purposes (Njagi et al., 2013). However, if the determinants of efficiency are not properly enhanced, then SACCOs will be unable to adequately advance loans to members which will have an adverse effect on efficiency. If this extends over long periods of time, the eventual result is liquidation.

Though studies have been done on efficiency, most of them have concentrated in the banking sector and very few in other areas. Therefore there exists a gap in which it is important to know the factors that determine efficiency in SACCOs as well as other financial institutions. This study therefore sought to fill this gap by finding out the determinants of efficiency of Savings and Credit Co-operative (SACCO) Societies in Nairobi County.

1.3 Objective of the study

To establish the determinants of efficiency of Savings and Credit Co-operative (SACCO) Societies in Nairobi County.

1.4 Value of the study

SACCOs have great potential in delivering goods and services to its members in circumstances which other sectors cannot manage. Their objective is to stimulate economic growth by focussing on achievements of the desired outcome. In the recent past, a number of SACCOs have collapsed due to operating inefficiently leading to poor financial performance. It is therefore prudent for those in charge with the management of SACCOs to clearly understand the determinants of efficiency and how each variable relates with efficiency, whether positively or negatively. Consequently, the findings of this study shall be of great benefit to various parties as discussed below:

First is to the management committee that is charged with the responsibility of the day-to-day running of the SACCO. Understanding the determinants of efficiency will help 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 is a good example in which the management can be able to hire competent employees who will improve the SACCOs productivity and hence efficiency.

Researchers shall benefit since they can get a source of secondary data and contribute to academic literature in the field of efficiency that they can use for further studies. The determinants of efficiency in other sectors of the economy can be studied which

may be similar to the SACCO sector. Relevant policies can as well be developed with the proper understanding of such determinants.

Other financial institutions shall benefit by understanding the determinants of efficiency of SACCOs. They can therefore come up with strategies to enhance those factors that are positively related to efficiency while trending carefully with those that are negatively related.

Government receives a great number of benefits and income from the SACCO sector through taxation as well as providing a source of employment opportunities to its citizens. The government shall be able to understand better the determinants of efficiency in SACCOs and therefore come up with proper legislation on finances that can ensure growth, sustainability and development of this sector. This can help to bring down the rate of unemployment.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews relevant literature on the determinants of efficiency of Savings and Credit Co-operative Societies in Nairobi County. In particular, the chapter reviews 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

Different theories have been found to give clear explanation on the occurrence of efficiency. Some of the theories include efficiency wage theory, Economic efficiency theory, and efficient market hypothesis, as explained here below.

2.2.1 Efficiency Wage Theory

The theory asserts that the productivity of workers in a firm is positively correlated with the wages they receive. Riveros & Bouton (1991) argues that due to the positive relationship between wages and productivity, firms no longer views the wage rate as an exogenous parameter, but rather chooses an optimal wage as a result of their profit maximization behaviour. Once the firm has determined that efficiency wage rate, they will hire as many workers and other inputs required to produce the optimal profit maximizing level of output.

Efficiency wage theory can explain normal involuntary unemployment, segmented labour markets and wage differentials across firms and industries for workers with similar production characteristics. It makes strong predictions concerning the existence of wage differentials arising from differences across industries in the wage-productivity relationship (Katz, 1986). This theory therefore explains why it is beneficial for firms to pay employees above the equilibrium wage rate so that they can operate more efficiently and make more profit.

2.2.2 Economic Efficiency Theory

The conventional economic efficiency theory states that companies should structure their output to achieve the lowest possible cost per unit produced. Due to the combination of fixed and variable costs in a business, low levels of output are inefficient because fixed costs are shared out across a relatively small number of units. Above optimal production can generate economies of scale and this apparent benefit is often offset by additional costs related to overstressing of existing systems. In the short run the point of maximum operational efficiency is achieved at the level of output at which all available economies of scale are taken advantage of, but short of the level at which the diseconomies of overstraining existing systems comes into play. However, in the long run, the optimal level of productive efficiency can be raised by increasing the capacity of existing systems.

Tripe (2003) argued that increased volumes of output are supposed to be able to be produced with less than proportionate increases in quantities of inputs. This will mean that more output is achieved with less input thereby improving the firm's efficiency. In due course, economies of scale will be exhausted and increased output will require

a more than proportionate increases in outputs, and this will lead to diseconomies of scale.

Another type of efficiency is economies of scope. This is where firms should be able to produce multiple outputs from the same group of inputs at lower cost, than if they specialized in producing only one type of output. In the context of a financial institution, a good example is a situation where a firm produces both loans and deposit services using the same staff and branch networks, rather than specializing in just one of these functions (Tripe, 2003).

2.2.3 Efficient Market Hypothesis (EMH)

Efficient Market Hypothesis (EMH) asserts that financial markets are informational efficient. One cannot consistently achieve returns in excess of average market returns on a risk adjusted basis, given the information available at the time the investment is made (Guerrien & Gun, 2011). Amihud et al. (1997) argued that EMH predicts that market prices should incorporate all available information at any point in time since the security prices adjust to all new information. The hypothesis suggests that profiting from predicting price movements is very complex and unlikely because the reason behind price changes is the arrival of new information. Due to price adjustments on arrival of new information, firm's will always operate at the best prices which leads to improved firm's performance and hence efficiency.

2.3 Measures of Efficiency and determinants of efficiency

Measure can be defined as finding the size or quantity of something in standard units. In mathematical analysis, a measure on a set is a systematic way to assign a number to each suitable subset of that set. For efficiency and determinants of efficiency, their measures can be described as follows;

2.3.1 Measures of Efficiency

According to Berger & Humphrey (1997) the established approaches to efficiency measurement differ primarily in how much shape is imposed on the frontier and the distributional assumptions on a random error. All banks utilise various measures of efficiency ranging from descriptive cost ratio to output measures. Both parametric and non-parametric techniques have been applied to the analysis of institutional efficiency in the banking sector but there exists no consensus about the preferred method of analysis (Paxton, 2003). The use of one technique over another can lead to divergent results, but research addressing the limitations of each approach will allow the parametric and non- parametric results to be increasingly comparable (Berger & Mester, 1997)

Data Envelopment Analysis (DEA) is a non-parametric technique that utilizes mathematical programming to create a multi-dimensional efficient surface based on empirical data. DEA is a flexible performance measurement that is based on plotting inputs and outputs in multidimensional space. It is typically used to measure technical efficiency, i.e. the ability to produce maximum output from a given set of inputs. Efficiency for a firm or decision making unit is measured by output/ input where

savings and total expenses are identified as inputs while loans and total income are identified as outputs (Paxton, 2003).

2.3.2 Measures of Determinants of Efficiency

This research considered using the following financial institution variables which Ab-Rahim et al. (2012) used in his study on determinants of cost efficiency in Malaysian banking which were capital, size, credit risk, and management quality. Capital was measured as the ratio of equity to total assets; credit risk was measured as the ratio of loans issued to members over total assets while the management quality was measured as the ratio of non-interest expenses over total assets. Size refers to the total assets of the SACCO and since other dependent variables under consideration are standardized by using total assets, then size was measured as logarithm of total assets.

2.4 Empirical Studies

Singh et al. (2013) carried out a study on technical efficiency and its determinants in micro finance institutions in India on a firm level analysis. They obtained data from Mix Market Network and a total of 41 micro finance institutions were sampled depending on the availability of data for five consecutive years 2005 – 2009. The study employed DEA model since it integrates multiple inputs and outputs, and it does not require any price information for dual cost function as is required for parametric approaches. The results showed that correlation coefficient of value of total assets is positive with all the efficiency measures and that of age is positive with pure technical efficiency and scale efficiency. The location variable exhibits positive

correlation with efficiency measures and it indicates that micro finance institutions from southern India have positive correlation with all the three measures of efficiency. However, debt equity ratio was found to be negatively related to pure technical efficiency and scale efficiency measures. Return on assets and operational self sufficiency which represents the financial ability of micro finance institutions had positive correlation with all the measures of efficiency.

Ab-Rahim et al. (2012) carried out a study to estimate the cost efficiency and its decompositions of Malaysian banks over the period 1995 to 2010 by utilising data envelopment analysis (DEA) method. The study contributed to the existing literature by integrating determinants of banking efficiency into the areas of DEA methodology in the context of Malaysian banking system across individual domestic banks. The objective of the study was to estimate cost efficiency and its decompositions, i.e., technical and scale efficiency. The result indicated that government ownership, population density, demand density and market concentration are positively associated with several measures of efficiency, while year that merger takes place, macroeconomic condition, capitalisation, credit risk, asset quality and Management quality have a negative relationship with various measures of efficiency. But the size of a bank was found to have mixed sign, positive relationship with technical and pure technical efficiency and negative relationship with scale efficiency, cost and allocative efficiency. The results also found out that throughout the period, the level of cost efficiency is estimated at 57%, suggesting that it would be possible for banks to reduce costs by approximately 70%.

Kinuthia (2012) carried out a study with an objective of establishing the impact of financial controls on the financial efficiency of free primary education funds in

Murang'a County. Stratified sampling was carried out and primary data was collected from 32 respondents using questionnaires. For data analysis, descriptive statistics including mean, frequency and percentages were used to describe the socio-economic characteristics of borrowers. The study concluded that even though all financial controls are perceived as critical, there are some controls that had a positive impact while others had a negative impact on financial efficiency.

Njenga (2012) sought to investigate the relationship between cost X-efficiency and financial performance of companies listed in Nairobi Securities Exchange in Kenya. The sample comprised of firms listed in Nairobi Securities Exchange whose published financial data was available continuously over the sample period of the study between the years 2006 to 2011. It included firms in the following sectors; Agriculture, automobile and accessories, banking, communication and services, construction and allied, energy and petroleum, insurance and investment firm. The study concluded that cost X-efficiency may arise because managers use more input than would a best practice firm, or because they employ an input mix that does not minimise cost for a given input vector. Moreover, it was established that X-efficiency arises from the fact that neither individuals nor firms work as hard nor do they search for information as effectively as they could.

Oteng-Abayie et al. (2011) carried out a study to investigate empirically the economic efficiency of micro finance institutions (MFIs) in Ghana using a Cobb-Doughlas stochastic frontier model. The sample consisted of 135 MFIs for the period from 2007 – 2010. Data was mainly sourced from Ghana Microfinance Information Network, Association of Credit Unions and other identifiable microfinance institutions across the country. Results indicated that there was a positive coefficient of the parameters

for productivity which proved that the performance of the staff had a significant impact on the efficiency of the MFIs i.e., the higher the productivity of the workers, the more efficient the institution. It was also found out that the source of the high variation of inefficiencies across the group of MFIs in Ghana was due to variation in management practices and technical capacities i.e., the product designs, portfolio quality, effectiveness of the marketing strategies, the degree of commitment towards clients and staff, the level of experience of MFIs, the effectiveness of training programs as well as the productivity of workers are all important factors that account for these variations.

Amer et al. (2011) in their study of determinants of operating efficiency for lowly and highly competitive banks in Egypt used a sample of 24 commercial banks covering the period 2001 – 2008. They used the partial adjustment model that measures the extent to which bank financial performance affects its operating efficiency. The results showed that in the highly competitive banks, the operating efficiency is positively and significantly affected by the asset quality, capital adequacy, credit risk and liquidity of banks.

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 data used in the analysis was taken from the Annual reports of banks, reports of the National Bank and from Bankers Almanac Database, which comprised of 112 banks from the following countries: Bulgaria, 21; Czech Republic, 9; Poland, 23; Romania, 23; Slovak Republic, 10; Slovenia, 13 and Hungary, 13. This was for the period 2004 – 2008. The results indicated that the factors influencing the level of efficiency of banks in Central and Eastern European countries were capital structure, size, total

assets, annual inflation rate, form of ownership, asset share of state-owned banks, asset share of foreign-owned banks, the level of concentration in banking system, percentage of assets owned by the 5 largest banks in the system, the banking reform and interest rate liberalization, deposit rate and lending rate.

A study by Delis & Papanikolaou (2009) used a two-stage model to examine the effect of bank-specific, industry-specific and macroeconomic determinants of bank efficiency. They proposed a bootstrap procedure to be used in the second stage and compared the results to the equivalents of a Tobit model. Data was collected from 10 newly acceded EU countries for the period 1994 – 2005, yielding an unbalanced panel dataset of 4368 observations corresponding to 364 banks. The results indicated that the banking sectors of almost all the newly acceded EU countries showed a gradual improvement in their efficiency levels which was not surprising since the banking systems examined had seen fundamental changes in their ownership structure. Size of the banking institutions was found to play a significant role on their efficiency only if they employed the Simar and Wilson (2007) model. The relationship between bank size and efficiency is non-linear, with efficiency increasing with size to a certain point and decreasing there after. Industry concentration was found to have a negative impact on bank efficiency only when the Simar and Wilson (2007) model is employed. Public ownership had an adverse effect on efficiency while foreign ownership had a strong positive impact on efficiency. This was explained by technological innovations and new managerial practices brought about by foreign-owned institutions which substantially facilitated the efficiency advancement.

Sinani et al. (2007) in their study used a representative panel of Estonian firms over the period 1993 – 1999 to investigate the determinants of firm efficiency as well as its

dynamics, applying the stochastic frontier approach. This method made it possible for the parameters of both firm level efficiency and production function to be estimated simultaneously, resulting in efficient estimates. Their finding were that compared to employee and state ownership, foreign ownership increases technical efficiency; firm size and higher labour quality display higher levels of efficiency, while soft budget constraints adversely affect efficiency; the percentage of firms operating at high levels of efficiency increases over time.

Kosak & Zajc (2006) carried out a study on determinants of bank efficiency differences in the new EU member countries. Their main objective was to examine the issue of bank efficiency for five new EU member countries from Central and Eastern European countries (the Czech Republic, Hungary, Poland, Slovakia and Slovenia) and the three Baltic countries (Estonia, Latvia and Lithuania) for the period 1996 – 2003. The sample was constructed using information drawn from the financial statements (i.e. balance sheet, income statements and other relevant notes in audited annual reports) of individual banks provided by the Fitch IBCA's BankScope database. This study was performed on a sample of about 100 banks from the eight new EU member countries. Their findings indicated that there was a connection between the level of the development of the financial system and the cost efficiency and showed mixed results for the correlation of the banking industry characteristics and the cost efficiency. They also found a negative relationship of the intermediation ratio and density of demand on the one side and cost efficiency on the other side. The deposit per capita parameter and the population per bank indicator turned out to be positively associated with cost efficiency.

Badunenko & Stephan (2004) in their study the potential determinants of German firms' technical efficiency used industry level data and employed stochastic frontier analysis to calculate technical efficiencies. The data came from the German Cost Structure Census of manufacturing for the period 1995 – 2001 and comprised almost all large German manufacturing firms with 500 or more employees. Firms with 20 – 499 employees were also included as a random sample which was representative for the respective size category and industry, while firms with less than 20 employees were not sampled. German industries in the sample during the study period were characterized by quite low level of technical efficiency and the scores of technical efficiency were negatively related to concentration indices and positively related to new firm formation and human capital proxies. The results indicated that research and development expenditure, sales growth, capital intensity, proportion of East German firms and size of the firm do not have influence on technical efficiency.

Paxton (2003) carried out a study on technical efficiency in Mexico's popular savings and credit sector (PSCIs) with an objective to evaluate the technical and scale efficiency and also to determine the significant determinants of inefficiency. Confidential financial information from June 30, 2001 was obtained from 350 PSCIs in a census performed by Banco de Ahorro Nacional Servicios Financieros (BANSEFI), where relevant information about overall inputs and outputs, institutional types and client outreach were obtainable. DEA was performed for 350 institutions using both the production approach and the intermediation approach. Given the incomplete data for certain variables, the dataset was reduced to 325 institutions for the intermediation approach and 294 institutions for the production approach. The findings were that the average technical efficiency scores, irrespective of methodology or approach are very low in comparison with other studies of banking

technical efficiency. The determinants of technical efficiency shed light on institutional variables affecting efficiency. One of the most important outcomes of the analysis was that client profile (including the percentage of female, juvenile and rural clients) did not affect technical efficiency which was important in the sense that institutions with varying client profiles can be equally technically efficient.

In their study on the determinants of efficiency, Gumbau-Albert & Maudos (2002) aimed to analyse the factors explaining the technical efficiency of Spanish industrial sector during the period 1991 – 1994 using the Survey of Business Strategies of the Ministry of Industry and Energy. They analysed whether efficiency can be explained by factors external to the firm such as the degree of competition in the market in which it operate, characteristics of the firm (size, organisation, advantages of location, participation of public capital, among others), as well as the effects of dynamic disturbances that may affect the degree of utilisation of the productive capacity. The results indicated that efficiency increases with the size of the firm and with the greater volume of investment made. Efficiency also increases in those firms that are most subjected to the pressure of external competition. On the other hand, they found out that lowest levels of efficiency are manifested by firms operating in more concentrated markets where there is presumably less competition and by firms with greater public participation in the firms' capital.

Worthington (1998) carried out a study on the determinants of non-bank financial institution efficiency where he employed a two stage estimation procedure. In the first stage, maximum likelihood estimates of an econometric cost function were obtained for 150 Australian credit unions where the results indicated that a typical credit union's cost in 1995 were only 7% above what could be considered efficient. In the

second stage, he used limited dependent variable regression techniques to relate credit union efficiency scores to structural and institutional considerations. The results indicated that non-core commercial activities have no significant influence on the level of cost efficiency, although asset size, capital adequacy regulation, branch and agency networks are significant. He found out that the primary influence on credit union efficiency would appear to be the industrial or community associated bond under which they were created, and to a lesser extent the state-based regulatory framework.

2.5 Summary of Literature Review

From the above literature, it can be concluded that when a firm operates efficiently, it will improve its financial performance and therefore the greater the economic growth will be. Different factors have been found to explain efficiency levels of firms and some are positively while others are negatively related to efficiency. Savings and Credit Co-operative Societies therefore need to understand the effect of each variable 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

This chapter provides the methods that were used to address the objectives and research problem. It also provides the research design, the target population, sample and sampling techniques, data collection techniques and procedures, and finally data analysis techniques.

3.2 Research Design

The study used descriptive research design to examine the determinants of efficiency of Savings and Credit Co-operative Societies in Nairobi County. According to Cooper and Schindler (2001), a descriptive study is structured with clearly stated investigative objective. The design allowed the researcher to make a speculation on the basis of the literature and any other earlier evidence as to what to expect the findings of the research to be. The analysis of the data collected can then support or disprove the research proposition.

3.3 Population of Study

According to Mugenda (2003), a population is a group of individuals, events, or objects having a common observable characteristic. Sim & Wright (2000) defines population as the collection of cases in which the researcher is ultimately interested, and to which he or she wishes to make generalization. The population of this study

comprised 1,102 active SACCOs in Nairobi County, which were distributed as follows: employee based 935, community based 92 and transport based 75.

3.4 Sample and Sampling Techniques

According to Mugenda (2003), sampling is the process of selecting individuals for a study in such a way that the individuals selected represent the larger group from which they were selected. This study used stratified sampling technique. This is sampling where the population is divided into relatively homogeneous groups or sub-groups called strata, then select at random from each stratum a specified number of elements, then combine the samples to form an overall sample. Therefore every element in each stratum had an equal chance of being selected.

SACCOs in Nairobi County are divided into three categories, and therefore each category formed a stratum, from which a random sample equivalent to 5% of the total population was selected. In this case, the sample size was as follows: Employee based 47, Community based 5 and Transport based 4, giving a sample size of 56 (Appendix I).

3.5 Data Collection Techniques

The study used secondary data from all the SACCOs sampled. The data was extracted from the audited financial statements for the year ended 31st December 2010 to 31st December 2012 and was considered sufficient for the study. These included Statement of comprehensive income and Statement of financial position. The source of the

statements was from the audited reports which are filed with the office of the Nairobi County Co-operative Commissioner.

3.6 Data Analysis Techniques

Various factors determine the SACCOs efficiency. Data Envelopment Analysis (DEA) was used to measure technical efficiency of the SACCOs. The data collected was then analysed in order to determine the relationship between efficiency and determinants of efficiency. Efficiency was the dependent variable while the determinants were the independent variables. The results were then subjected to test the extent of relationship using the following linear regression equation model:

$Y = \beta 0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$

Where Y = Efficiency

X_1 = Size (Logarithm of total assets)

X_2= Capital (Equity / total assets)

X_3= Credit Risk (Loans / total assets)

X_4= Management quality (Non-interest expense / total asset)

$\beta 0$ = Constant, the value of Y when the value of X is zero.

βi (i= 1, 2, 3, 4) = Coefficients of determinants of efficiency.

ε = Error term

Efficiency = Output/ Input.

Where: Input = Savings and Total Expenses

Output = Loans and Total Income

Data Envelopment Analysis (DEA) was used to measure technical efficiency of the SACCO where coefficients are calculated from the most efficient SACCO that had

the ability to produce maximum output from a given set of inputs. The coefficient of determination (R^2) was used to measure the extent to which the variation in efficiency is explained by the variations in its determinants. F-statistic was also computed at 95% confidence level to test whether there is any significant relationship between efficiency and its determinants. This analysis was done using SPSS software and the findings presented in form of a research report.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the information processed from the data collected during the study on the determinants of efficiency of Savings and Credit Co-operative (SACCO) Societies in Nairobi County. The sample composed of 56 SACCOs in Nairobi County which had audited reports for the period year ended 31st December 2010 to 31st December 2012.

4.2 Efficiency of the SACCOs

Table 4. 1: Summary of the DEA Coefficients for the SACCOs

Year	N	Minimum	Maximum	Mean	Std. Deviation
2010	56	.06	1.00	.6438	.13938
2011	56	.22	1.00	.6089	.12816
2012	56	.36	1.00	.6663	.13734
Average				**0.6397**	**0.1350**

Source: Author 2013

Table 4.1 shows the efficiency of the SACCOs for the three years as measured by the DEA coefficients. From the findings, the SACCOs had an average DEA coefficient of 0.6397 with a standard deviation of 0.1350 showing that they were generally operating above average. However, the highest efficiency was recorded in 2012 (DEA coefficient of 0.6663) with the lowest being registered in 2011 (DEA coefficient of 0.6089).

4.3 Regression Results

The study conducted a cross-sectional multiple regression on several determinants over the period 2010 - 2012 and of efficiency of the SACCOs. Coefficient of determination explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (efficiency of the SACCOs) that is explained by all the four independent variables (Size, capital, credit risk and management quality).

Table 4. 2: Results of multiple regression between efficiency of SACCOs and the combined effect of the selected predictors

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.845	0.714	0.701	0.127

Source: Author (2013)

The four independent variables that were studied, explain only 70.1% of the efficiency of the SACCOs as represented by the adjusted R^2. This therefore means the four variables contribute to 70.1% of efficiency of the SACCOs, while other factors not studied in this research contributes 29.9% of efficiency of SACCOs in Nairobi County. Therefore, further research should be conducted to investigate the other (29.9%) factors influencing efficiency of SACCOs.

Table 4. 3: Summary of One-Way ANOVA results of the regression analysis between efficiency of SACCOs and predictor variables

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.437	4	.609	21.905	.0004[a]
	Residual	4.617	163	.028		
	Total	7.054	167			

Source: Author (2013)

From the ANOVA statistics in table 4.3, the processed data, which are the population parameters, had a significance level of 0.0004 which shows that the data is ideal for making a conclusion on the population's parameter. The F calculated at 5% Level of significance was 21.905. Since F calculated is greater than the F critical (value = 2.3719), this shows that the overall model was significant i.e. there is a significant relationship between efficiency and its determinants.

Table 4. 4: Regression coefficients of the relationship between efficiency of SACCOs and the four predictor variables

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.04	0.127		0.625	0.037
	Size	0.037	0.015	0.169	2.625	0.009
	Capital	0.792	0.115	0.1	1.502	0.013
	Credit Risk	-0.232	0.091	-0.592	-8.09	0.043
	Management quality	0.268	0.306	0.135	1.914	0.017
Dependent variable: Efficiency of the SACCOs						

Source: Author (2013)

The coefficient of regression in table 4.4 above was used in coming up with the model below:

EFF = 0.04 + 0.037 SIZE + 0.792 CAP - 0.232 CR + 0.268 MQ

Where EFF is Efficiency, CAP is Capital, CR is Credit Risk and MQ is Management Quality. According to the model, all the variables were significant as their significance value was less than 0.05. However, credit risk was negatively correlated with efficiency of the SACCOs while size, capital and management quality were

positively correlated with efficiency of the SACCOs. From the model, taking all factors (size, capital, credit risk and management quality) constant at zero, efficiency of the SACCOs will be 0.04. The data findings analyzed also shows that taking all other independent variables at zero, a unit increase in size will lead to a 0.037 increase in efficiency of the SACCOs; a unit increase in capital will lead to a 0.792 increase in efficiency of the SACCOs; a unit increase in credit risk will lead to a 0.232 decrease in efficiency of the SACCOs while a unit increase in management quality will lead to a 0.268 increase in efficiency of the SACCOs. This infers that capital contributed most to the efficiency of the SACCOs followed by management quality then size while the credit risk had a negative significant effect on the efficiency of the SACCOs.

4.4 Summary and Interpretation of Findings

From the above regression model, the study found out that there were factors influencing the efficiency of SACCOs in Kenya, which are size, capital, credit risk and management quality. They either influenced it positively or negatively. The study found out that the intercept was 0.04 for all years.

The four independent variables that were studied (size, capital, credit risk and management quality) explain a substantial 70.1% of efficiency of SACCOs as represented by adjusted R^2 (0.701). This therefore means that the four independent variables contributes 70.1% of the efficiency of SACCOs while other factors and random variations not studied in this research contributes a measly 29.9 % of the efficiency of SACCOs.

The study found out that the coefficient for size was 0.037, meaning that size positively and significantly influenced the efficiency of SACCOs. This is in line with Sinani et al. (2007) who found that firm size and higher labour quality display higher levels of efficiency, while soft budget constraints adversely affect efficiency. The findings however contradict earlier findings by Badunenko & Stephan (2004) who indicated that research and development expenditure, sales growth, capital intensity, proportion of East German firms and size of the firm do not have influence on technical efficiency.

The study found out that the coefficient for capital was 0.792, which was strong, positive and significant. This means that capital positively influenced the efficiency of SACCOs. This is consistent with Amer et al. (2011) who suggested that the operating efficiency is positively and significantly affected by the asset quality, capital adequacy, credit risk and liquidity of banks. The findings however contradict those by Ab-Rahim et al. (2012) who found a negative relationship between capitalisation, asset quality and Management quality with various measures of efficiency.

The study further found out that the coefficient of the credit risk to be negative (-0.232). This depicts that, according to findings, credit risk negatively influences the efficiency of SACCOs. This concurs with Ab-Rahim et al. (2012) who found a negative relationship between credit risk and the measures of efficiency. This however contradicts earlier findings by Ab-Rahim et al. (2012) who indicated that credit risk variable was expected to have a positive relationship with efficiency which implies that firms with higher loans to asset ratio tend to have higher efficiency score.

The study also deduced that management quality positively influenced efficiency of SACCOs as it had positive coefficient (0.268). The result was consistent with prior

research by Oteng-Abayie (2011) who found out that the source of the high variation of inefficiencies across the group of MFIs in Ghana was due to variation in management practices and technical capacities i.e., the product designs, portfolio quality, effectiveness of the marketing strategies, the degree of commitment towards clients and staff, the level of experience of MFIs, the effectiveness of training programs as well as the productivity of workers are all important factors that account for these variations.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a summary, conclusion and recommendations of the main findings on the determinants of efficiency of savings and credit co-operative societies in Nairobi County.

5.2 Summary of Findings

The key pillar of a successful economy is financial efficiency and therefore all the stakeholders in the economy should put it into consideration at all times to ensure stability in the financial sector. The study used descriptive research design. The population of the study comprised of 1,102 active SACCOs in Nairobi County from which a sample of 56 SACCOs was selected using stratified sampling technique. The secondary data in this analysis covered a period of 3 years (2010 – 2012) and extracted from the audited financial statements which included comprehensive income statement and Statement of financial position. Data was analyzed using a linear regression equation model to test the extent of relationship. The purpose of the study was to investigate the determinants of efficiency of savings and credit co-operative societies in Nairobi County. From the regression model, the study found out that there were factors influencing the efficiency of SACCOs in Kenya, which are size, capital, credit risk and management quality. They either influenced it positively or negatively. The four independent variables that were studied (size, capital, credit risk and management quality) explain a substantial 70.1% of efficiency of SACCOs

as represented by the adjusted R^2 (0.701). The study concludes that size, capitalisation and management quality positively and significantly influenced efficiency of SACCOs while credit risk adversely affected the efficiency of SACCOs.

5.3 Conclusions

This paper examined the determinants of efficiency of savings and credit co-operative societies in Nairobi County. The study concludes that size positively and significantly influenced the efficiency of SACCOs as larger firms are able to spread the fixed costs of production over more production units leading to lower average costs. The study also deduced that capitalisation positively and significantly influenced the efficiency of SACCOs. The study also concludes that management quality as depicted in degree of commitment towards clients and staff, effectiveness of the marketing strategies, the level of experience and effectiveness of training programs positively and significantly influenced efficiency of SACCOs. The study finally concluded that the relationship between credit risk and efficiency of SACCOs is negative and significant.

5.4 Recommendations for Policy and Practice

The study recommends that since size was found to have a positive and significant effect on the efficiency of SACCOs, there is need to understand the changes that technology was causing on the financial sector in order to examine in detail how the recent and foreseeable advances in technology can affect its future evolution. Since adoption of ICT improves the SACCOs image and leads to a wider, faster and more

efficient market, it is imperative for SACCOs management to intensify investment in ICT products to facilitate speed, convenience, and accurate services.

The study recommends that all SACCOs should embrace the concept of credit risk management practices. This will help them to be able to lower the risks associated with credit in the SACCOs. The study also recommends that for efficient and effective credit risk management systems, credit policy in the SACCOs should be reviewed regularly, for example annually or semi annually. The study also recommends that the risk monitoring procedures used by the SACCOs should be efficient and easily understandable by the people concerned. The employees should be regularly trained and meetings held regularly in order to make them aware of the risks associated with credit in their SACCOs and to be able to avoid these risks.

To improve efficiency of the SACCOs in Kenya, there is need to address the managerial gaps in the areas of training, organization capability, reliability, risk taking propensity and customer relationship management. Training and manpower development is a major problem affecting SACCO management and the overall efficiency of SACCOs in the country. Government must therefore make the right policies to ensure that SACCOs management committee members can acquire first hand and necessary skills.

5.5 Limitations of the Study

There are challenges which were encountered during the study. Some officers who are concerned with safe custody of SACCO files containing audit reports were initially reluctant to release them. That reluctance delayed the completion of data collection.

Further, the data was tedious to collect and compute as it was in its very raw form. Due to lack of standardization of financial statements from various SACCOs, data computation was made even harder.

5.6 Suggestions for Further Research

Since the study focused on the determinants of efficiency of Savings and Credit Co-operative Societies in Nairobi County, further studies should be done on all Savings and Credit Co-operative Societies to allow for generalization of findings for the Kenyan Savings and Credit Co-operative Societies.

This study was confined to Savings and Credit Co-operative Societies yet there are many players in the financial sector. There is therefore need to study determinants of efficiency on micro finance institutions, insurance companies, commercial banks and other financial institutions, and how these factors affects their operational efficiency and performance in general.

The study also recommends that further studies should be done on the effect of other factors in the SACCOs such as number of branches, number of customers, level of technological adoption among others. A similar study should also be done whereby the data collection relies on primary data i.e. in-depth questionnaires and interview guide so as to complement this study.

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APPENDICES

Appendix I: List of SACCOs Studied

	Name of the SACCO	CS / No.
	COMMUNITY BASED	
1.	Nairobi Consumer	5201
2.	Gikomba Wanabiashara	10858
3.	Gikomba Upendo Fish Traders	12326
4.	APS Baraka	10227
5.	Umoja Wendani	9725
	TRANSPORT BASED	
6.	Nawaku	11680
7.	Meru Nissan Operators	9873
8.	Ganaki	10511
9.	Indima - Nje	9359
	EMPLOYEE BASED	
10.	Radio Guard	3950
11.	AFCO	3991
12.	Nacico	2406
13.	Lompasago	3212
14.	Sportsview	5935
15.	Farmers Choice	4877
16.	Kasarani Talanta	11915
17.	Champion	3395
18.	Allosca	6533
19.	Murphy	6546
20.	Musumeno	3684
21.	PCEA Kasarani	12512
22.	Kenafric	7120
23.	Correp	6245
24.	Alpha Medical	9583
25.	Aspco	4754
26.	Air Connection	7605
27.	Vanguard	6591
28.	Duty Free	6765
29.	Notaff	3185
30.	Airports	7315
31.	Wanandege	2700
32.	Transglob	10533
33.	Interco	12325
34.	Wanamizigo	3942
35.	Doll	6151

36.	Epco	9527
37.	Nasca	2280
38.	MarkFirst	8030
39.	Prisco	4851
40.	United Nations	2375
41.	Ushuru	1926
42.	Pressfine	5861
43.	Mboga na Matunda	2776
44.	Colour Printers	5656
45.	Trans - Africa	5851
46.	AmiAir	3914
47.	Amiran	6440
48.	Kimisitu	4252
49.	Concorde	3061
50.	Tape	9827
51.	Phiphatecs	11484
52.	Vegpro	9652
53.	Shirika	1854
54.	Planning	5955
55.	Irrigation	2761
56.	Gassco	3190

Appendix II: DEA Coefficients and Ranking

	Inputs		Outputs		DEA coefficients	Ranking
Name of the SACCO	**Savings (Kshs.)**	**Total Expenses (Kshs.)**	**Loans (Kshs.)**	**Total Income (Kshs.)**		
2010						
Nairobi Consumer	26,834,102.00	3,018,436.00	26,289,851.00	3,454,782.00	0.680	22
Gikomba Wanabiashara	993,050.00	47,720.00	1,227,771.00	199,205.00	0.932	2
Gikomba Upendo Fish Traders	654,280.00	143,835.00	618,891.00	147,243.00	0.653	32
APS Baraka	11,735,925.00	3,158,068.00	10,596,800.00	3,170,279.00	0.626	38
Umoja Wendani	51,286,425.00	3,124,390.00	56,188,976.00	3,360,107.00	0.741	5
Nawaku	6,164,290.00	2,336,921.00	3,385,861.00	2,482,149.00	0.469	51
Meru Nissan Operators	23,100,018.00	5,081,332.00	14,984,707.00	7,681,846.00	0.544	48
Ganaki	10,240,176.00	1,519,030.00	11,203,412.00	1,558,790.00	0.741	6
Indima - Nje	4,381,927.00	2,039,931.00	3,778,570.00	2,488,854.00	0.667	30
Radio Guard	90,349,000.00	7,046,456.00	74,057,000.00	7,690,000.00	0.571	44
AFCO	72,045,842.00	14,326,147.00	110,913,484.00	15,891,614.00	1.000	1
Nacico	904,148,713.00	121,842,126.00	685,472,366.00	181,906,040.00	0.578	43
Lompasago	183,562,676.00	24,505,267.00	179,986,392.00	24,648,220.00	0.667	31
Sportsview	6,291,987.00	682,485.00	6,843,148.00	744,538.00	0.741	7
Farmers Choice	108,233,077.00	10,927,377.00	117,552,422.00	11,220,803.00	0.735	9
Kasarani Talanta	616,902.00	25,881.00	265,955.00	34,629.00	0.320	55
Champion	30,703,966.00	6,108,183.00	39,476,684.00	8,312,050.00	0.884	3

Allosca	3,577,835.00	539,267.00	3,544,304.00	568,098.00	0.680	23
Murphy	7,016,540.00	1,056,490.00	7,372,575.00	1,164,319.00	0.721	13
Musumeno	8,891,090.00	897,100.00	9,622,535.00	1,003,346.00	0.741	8
PCEA Kasarani	1,075,255.00	57,715.00	0	100,650.00	0.061	56
Kenafric	25,223,848.00	2,729,246.00	23,519,530.00	2,849,246.00	0.639	35
Correp	4,205,431.00	322,383.00	2,595,750.00	356,417.00	0.442	53
Alpha Medical	1,341,229.00	186,210.00	1,237,186.00	192,215.00	0.639	36
Aspco	8,842,106.00	1,424,867.00	8,766,279.00	1,474,142.00	0.680	24
Air Connection	8,325,395.00	792,366.00	6,803,717.00	823,500.00	0.571	45
Vanguard	12,044,725.00	1,366,086.00	12,152,950.00	1,477,530.00	0.694	18
Duty Free	27,564,368.00	1,727,143.00	19,990,627.00	2,129,040.00	0.517	49
Notaff	11,341,383.00	1,356,695.00	10,802,591.00	1,405,260.00	0.653	33
Airports	143,700,356.00	14,968,254.00	148,410,858.00	15,540,125.00	0.701	16
Wanandege	715,718,541.00	128,161,087.00	638,512,016.00	129,544,017.00	0.619	39
Transglob	15,457,906.00	325,505.00	15,905,052.00	1,185,008.00	0.735	10
Interco	407,500.00	32,563.00	238,546.00	30,124.00	0.415	54
Wanamizigo	6,617,649.00	510,881.00	6,257,541.00	558,172.00	0.653	34
Doll	6,241,913.00	61,045.00	5,826,470.00	404,513.00	0.673	27
Epco	7,271,443.00	570,146.00	7,413,614.00	597,980.00	0.694	19
Nasca	66,067,250.00	6,295,984.00	74,439,635.00	6,956,862.00	0.762	4
MarkFirst	562,882.00	186,791.00	315,158.00	200,091.00	0.469	52
Prisco	8,078,085.00	742,439.00	6,495,555.00	818,582.00	0.565	46
United Nations	3,748,852,303.00	565,376,739.00	3,995,860,008.00	613,597,200.00	0.728	12
Ushuru	1,044,275,903.00	115,409,122.00	1,047,172,781.00	125,732,745.00	0.687	21

Pressfine	14,568,958.00	1,591,096.00	14,956,337.00	1,649,120.00	0.701	17
Mboga na Matunda	27,613,392.00	2,151,356.00	27,837,387.00	2,386,827.00	0.694	20
Colour Printers	22,923,600.00	2,951,717.00	24,721,906.00	3,293,060.00	0.735	11
Trans - Africa	10,606,712.00	1,491,949.00	9,117,550.00	1,545,091.00	0.599	42
AmiAir	33,695,527.00	3,026,325.00	29,874,848.00	3,144,817.00	0.612	40
Amiran	28,493,304.00	2,207,729.00	28,205,771.00	2,353,416.00	0.680	25
Kimisitu	1,070,927,590.00	113,797,470.00	1,047,994,502.00	120,487,664.00	0.673	28
Concorde	215,094,207.00	23,356,302.00	168,983,273.00	26,809,236.00	0.558	47
Tape	6,378,347.00	633,045.00	5,534,827.00	699,115.00	0.605	41
Phiphatecs	6,648,041.00	547,770.00	6,541,091.00	596,302.00	0.673	29
Vegpro	29,085,823.00	2,598,277.00	26,867,501.00	2,755,995.00	0.633	37
Shirika	629,693,326.00	68,790,355.00	624,820,639.00	72,664,574.00	0.680	26
Planning	7,199,431.00	556,529.00	5,229,290.00	611,774.00	0.510	50
Irrigation	32,492,348.00	3,131,384.00	33,548,719.00	3,598,191.00	0.707	14
Gassco	7,702,987.00	1,271,552.00	7,909,879.00	1,382,463.00	0.707	15
2011						
Nairobi Consumer	34,315,639.00	4,119,772.00	31,267,639.00	4,569,143.00	0.571	37
Gikomba Wanabiashara	1,168,250.00	67,983.00	1,253,455.00	138,200.00	0.693	9
Gikomba Upendo Fish Traders	1,414,571.00	367,482.00	2,179,693.00	369,756.00	0.877	3
APS Baraka	17,976,379.00	4,334,842.00	17,774,898.00	4,514,828.00	0.613	27
Umoja Wendani	96,530,714.00	5,766,426.00	103,624,958.00	6,286,720.00	0.656	14
Nawaku	9,055,988.00	3,517,911.00	6,096,711.00	3,691,100.00	0.479	50
Meru Nissan Operators	30,397,195.00	6,981,423.00	16,992,015.00	5,716,364.00	0.374	55
Ganaki	10,075,674.00	947,255.00	10,249,720.00	1,345,865.00	0.644	17

Indima - Nje	6,115,727.00	4,328,419.00	3,698,868.00	5,569,797.00	0.546	41
Radio Guard	94,051,000.00	8,207,290.00	79,016,000.00	8,984,000.00	0.528	47
AFCO	81,808,736.00	18,614,788.00	143,510,535.00	19,897,832.00	1.000	1
Nacico	808,583,493.00	201,586,971.00	1,347,105,251.00	235,531,409.00	0.963	2
Lompasago	232,433,337.00	35,409,374.00	246,328,228.00	35,665,217.00	0.644	18
Sportsview	7,962,667.00	935,845.00	8,452,985.00	1,017,262.00	0.650	16
Farmers Choice	125,109,929.00	12,516,385.00	136,340,310.00	12,764,890.00	0.663	13
Kasarani Talanta	1,181,836.00	39,529.00	999,515.00	71,589.00	0.540	44
Champion	32,050,643.00	6,936,510.00	41,465,410.00	7,145,942.00	0.767	5
Allosca	2,596,237.00	516,768.00	3,178,616.00	544,167.00	0.736	7
Murphy	8,489,997.00	1,301,628.00	8,559,940.00	1,351,486.00	0.620	25
Musumeno	9,748,923.00	775,558.00	9,896,233.00	519,681.00	0.607	28
PCEA Kasarani	2,472,845.00	64,525.00	848,119.00	76,448.00	0.221	56
Kenafric	26,990,347.00	3,087,749.00	27,023,993.00	3,273,421.00	0.620	26
Correp	5,062,000.00	379,312.00	3,627,325.00	428,273.00	0.460	51
Alpha Medical	1,716,000.00	227,895.00	1,492,191.00	242,074.00	0.546	42
Aspco	12,451,383.00	1,781,507.00	11,992,601.00	1,888,125.00	0.601	32
Air Connection	10,303,369.00	781,050.00	9,234,349.00	817,717.00	0.558	39
Vanguard	18,368,692.00	1,878,550.00	18,731,331.00	2,048,069.00	0.632	21
Duty Free	28,517,900.00	1,733,305.00	16,683,865.00	1,951,049.00	0.380	54
Notaff	12,941,608.00	1,503,761.00	12,438,322.00	1,612,864.00	0.595	34
Airports	176,474,408.00	24,838,380.00	189,428,090.00	26,356,701.00	0.656	15
Wanandege	772,806,844.00	138,636,045.00	586,452,555.00	141,028,594.00	0.491	49
Transglob	21,787,637.00	1,134,954.00	21,699,881.00	1,702,277.00	0.626	23

Interco	836,227.00	43,500.00	767,983.00	46,627.00	0.571	38
Wanamizigo	7,075,954.00	681,881.00	6,170,021.00	645,647.00	0.540	45
Doll	8,974,763.00	75,263.00	9,082,577.00	785,175.00	0.669	10
Epco	8,595,526.00	878,254.00	10,622,024.00	878,571.00	0.742	6
Nasca	69,434,769.00	6,480,894.00	82,570,257.00	6,945,929.00	0.724	8
MarkFirst	709,311.00	110,239.00	487,521.00	110,471.00	0.448	52
Prisco	9,911,722.00	926,940.00	8,753,970.00	1,031,308.00	0.552	40
United Nations	4,462,385,144.00	675,202,210.00	4,832,582,691.00	775,932,543.00	0.669	11
Ushuru	1,227,971,411.00	144,044,083.00	1,199,996,645.00	156,089,936.00	0.607	29
Pressfine	15,719,439.00	1,749,604.00	16,406,449.00	1,809,937.00	0.638	19
Mboga na Matunda	30,980,252.00	2,501,067.00	32,029,745.00	2,760,804.00	0.638	20
Colour Printers	25,722,503.00	3,020,153.00	23,945,333.00	3,491,843.00	0.583	36
Trans - Africa	14,233,048.00	1,666,053.00	13,977,208.00	1,707,538.00	0.607	30
AmiAir	40,463,815.00	2,762,467.00	41,393,363.00	2,826,496.00	0.626	24
Amiran	29,280,025.00	2,552,812.00	24,144,960.00	2,612,547.00	0.515	48
Kimisitu	1,376,867,603.00	146,806,184.00	1,406,675,849.00	157,194,678.00	0.632	22
Concorde	266,724,351.00	27,444,007.00	233,383,262.00	28,704,096.00	0.546	43
Tape	8,143,416.00	809,230.00	6,897,437.00	882,247.00	0.534	46
Phiphatecs	11,417,327.00	999,291.00	11,173,945.00	1,084,505.00	0.607	31
Vegpro	34,926,812.00	3,230,903.00	33,861,013.00	3,455,670.00	0.601	33
Shirika	761,768,115.00	87,264,204.00	729,972,707.00	93,100,597.00	0.595	35
Planning	9,907,368.00	626,039.00	6,848,460.00	706,445.00	0.442	53
Irrigation	44,664,902.00	4,509,867.00	57,658,095.00	5,127,881.00	0.785	4
Gassco	9,833,333.00	1,326,877.00	10,862,033.00	1,350,168.00	0.669	12

2012						
Nairobi Consumer	50,944,183.00	5,924,892.00	43,664,826.00	6,464,889.00	0.595	42
Gikomba Wanabiashara	1,378,800.00	83,565.00	1,211,247.00	171,208.00	0.642	35
Gikomba Upendo Fish Traders	1,929,963.00	391,535.00	3,889,084.00	395,420.00	1.250	1
APS Baraka	24,158,316.00	4,762,312.00	23,749,281.00	4,921,742.00	0.669	29
Umoja Wendani	157,101,899.00	11,057,567.00	183,184,967.00	12,001,768.00	0.784	6
Nawaku	12,381,818.00	4,897,896.00	7,584,678.00	5,070,207.00	0.493	53
Meru Nissan Operators	40,116,485.00	6,712,494.00	21,294,461.00	3,683,889.00	0.358	56
Ganaki	10,742,020.00	1,088,445.00	10,373,190.00	1,406,830.00	0.676	27
Indima - Nje	9,498,763.00	6,427,148.00	9,333,297.00	7,705,469.00	0.723	11
Radio Guard	108,117,000.00	10,540,811.00	89,441,000.00	11,716,000.00	0.574	46
AFCO	91,947,420.00	21,597,895.00	146,010,000.00	22,065,872.00	1.000	2
Nacico	992,877,095.00	222,483,092.00	1,329,536,704.00	249,750,779.00	0.878	4
Lompasago	284,563,402.00	41,173,793.00	289,448,374.00	41,366,648.00	0.689	22
Sportsview	10,000,114.00	1,203,824.00	10,904,699.00	1,312,541.00	0.736	9
Farmers Choice	144,478,251.00	14,062,693.00	155,836,183.00	14,304,658.00	0.723	12
Kasarani Talanta	2,115,277.00	37,556.00	2,118,903.00	137,479.00	0.709	17
Champion	31,694,308.00	7,577,312.00	44,089,938.00	7,689,648.00	0.892	3
Allosca	3,173,533.00	359,313.00	2,744,263.00	229,616.00	0.568	47
Murphy	10,183,500.00	1,004,781.00	10,799,969.00	1,613,528.00	0.750	7
Musumeno	7,880,081.00	631,428.00	7,099,815.00	654,188.00	0.615	38
PCEA Kasarani	5,379,730.00	98,543.00	3,903,299.00	432,206.00	0.534	51
Kenafric	31,989,170.00	3,250,594.00	28,010,479.00	3,397,773.00	0.601	39
Correp	5,555,500.00	473,640.00	4,748,660.00	568,506.00	0.595	43

Alpha Medical	2,157,595.00	181,580.00	2,053,769.00	185,380.00	0.649	33
Aspco	15,835,508.00	2,358,195.00	15,856,051.00	2,515,056.00	0.682	25
Air Connection	11,356,500.00	978,223.00	5,910,074.00	1,069,003.00	0.385	55
Vanguard	24,054,314.00	2,549,828.00	23,832,136.00	2,826,451.00	0.676	28
Duty Free	30,263,120.00	2,325,175.00	17,894,216.00	3,237,654.00	0.439	54
Notaff	15,260,547.00	1,821,411.00	14,486,172.00	1,954,262.00	0.649	34
Airports	231,520,979.00	36,002,182.00	235,444,410.00	36,071,409.00	0.682	26
Wanandege	811,712,713.00	162,289,160.00	606,679,339.00	168,803,359.00	0.541	49
Transglob	24,434,427.00	2,579,951.00	24,685,996.00	3,199,346.00	0.696	20
Interco	1,115,421.00	63,380.00	983,576.00	64,455.00	0.601	40
Wanamizigo	6,870,484.00	675,518.00	6,751,688.00	928,901.00	0.689	23
Doll	10,934,100.00	114,890.00	10,478,419.00	1,258,295.00	0.716	13
Epco	12,234,855.00	1,257,502.00	12,986,801.00	1,303,381.00	0.716	14
Nasca	75,210,922.00	7,565,252.00	91,259,988.00	8,164,365.00	0.811	5
MarkFirst	1,200,501.00	95,709.00	836,216.00	126,905.00	0.500	52
Prisco	11,258,912.00	1,132,441.00	8,890,928.00	1,255,459.00	0.554	48
United Nations	5,374,384,514.00	872,564,621.00	5,840,225,640.00	960,941,197.00	0.736	10
Ushuru	1,446,103,014.00	182,630,398.00	1,526,762,808.00	194,136,080.00	0.716	15
Pressfine	14,214,987.00	1,388,134.00	15,091,606.00	1,443,541.00	0.716	16
Mboga na Matunda	32,650,540.00	2,599,235.00	33,445,925.00	2,876,480.00	0.696	21
Colour Printers	28,417,301.00	3,166,293.00	24,474,271.00	3,641,777.00	0.601	41
Trans - Africa	18,240,982.00	2,049,171.00	16,682,382.00	2,090,991.00	0.628	37
AmiAir	36,110,270.00	3,302,276.00	28,014,012.00	3,325,451.00	0.541	50
Amiran	31,026,368.00	2,870,751.00	26,364,664.00	3,031,040.00	0.588	44

Kimisitu	1,782,390,657.00	196,813,872.00	1,837,663,850.00	218,480,325.00	0.703	19
Concorde	336,222,286.00	36,632,691.00	323,332,121.00	38,212,253.00	0.655	31
Tape	11,105,220.00	1,171,455.00	10,422,774.00	1,267,933.00	0.642	36
Phiphatecs	20,491,312.00	1,539,440.00	21,540,099.00	1,617,611.00	0.709	18
Vegpro	40,910,761.00	3,917,137.00	39,250,500.00	4,182,411.00	0.655	32
Shirika	922,428,406.00	107,742,714.00	902,684,849.00	116,545,689.00	0.669	30
Planning	12,027,347.00	1,031,645.00	10,051,576.00	1,172,890.00	0.581	45
Irrigation	61,038,127.00	5,854,982.00	67,729,660.00	6,473,083.00	0.750	8
Gassco	12,106,459.00	1,500,867.00	12,418,409.00	1,515,236.00	0.689	24

Appendix III: Raw Data

Name of the SACCO	Year	Total Assets (Kshs.)	Equity (Kshs.)	Non-Interest expense (Kshs.)
COMMUNITY BASED				
Nairobi Consumer	2010	30,399,858.00	1,891,586.00	1,238,136.00
	2011	39,639,126.00	2,277,657.00	1,819,772.00
	2012	53,124,062.00	2,619,724.00	2,689,852.00
Gikomba Wanabiashara	2010	1,676,990.00	365,660.00	47,720.00
	2011	1,840,125.00	358,185.00	67,983.00
	2012	2,148,909.00	451,829.00	83,565.00
Gikomba Upendo Fish Traders	2010	1,093,348.00	3,408.00	108,835.00
	2011	4,111,425.00	88,682.00	187,482.00
	2012	5,679,227.00	92,567.00	171,127.00
APS Baraka	2010	16,450,773.00	2,034,924.00	2,742,967.00
	2011	23,181,835.00	2,331,739.00	3,180,570.00
	2012	30,480,006.00	2,589,246.00	3,497,019.00
Umoja Wendani	2010	57,047,394.00	2,224,956.00	1,072,933.00
	2011	108,941,956.00	5,190,487.00	11,611,360.00
	2012	181,966,267.00	9,219,767.00	2,377,585.00
TRANSPORT BASED				
Nawaku	2010	7,461,527.00	591,157.00	1,831,449.00
	2011	10,826,836.00	675,970.00	2,748,152.00
	2012	14,933,141.00	814,961.00	3,775,484.00
Meru Nissan Operators	2010	44,802,876.00	9,855,866.00	3,149,780.00
	2011	48,237,457.00	8,606,807.00	4,610,977.00

	2012	62,521,052.00	5,504,702.00	4,678,257.00
Ganaki	2010	12,647,580.00	1,667,454.00	1,064,080.00
	2011	13,493,930.00	2,953,226.00	947,255.00
	2012	14,661,935.00	3,578,815.00	1,088,445.00
Indima - Nje	2010	7,270,284.00	2,522,140.00	1,839,931.00
	2011	17,247,709.00	5,418,576.00	3,528,419.00
	2012	22,540,659.00	9,888,735.00	5,627,148.00
EMPLOYEE BASED				
Radio Guard	2010	107,738,000.00	9,730,733.00	3,446,456.00
	2011	114,016,000.00	11,254,859.00	4,007,290.00
	2012	133,465,000.00	13,574,185.00	4,315,323.00
AFCO	2010	149,350,591.00	8,335,082.00	2,732,756.00
	2011	177,642,300.00	10,602,404.00	3,676,330.00
	2012	190,761,753.00	11,150,555.00	4,465,552.00
Nacico	2010	1,698,457,876.00	444,637,361.00	121,842,126.00
	2011	2,343,434,525.00	544,273,781.00	129,723,116.00
	2012	2,364,652,350.00	605,496,438.00	148,623,175.00
Lompasago	2010	212,259,686.00	12,679,581.00	13,560,096.00
	2011	286,373,795.00	13,935,424.00	15,310,050.00
	2012	333,388,395.00	14,128,278.00	17,498,529.00
Sportsview	2010	7,738,390.00	976,425.00	229,251.00
	2011	9,623,278.00	1,009,242.00	343,085.00
	2012	12,047,031.00	1,069,759.00	353,824.00
Farmers Choice	2010	128,926,160.00	3,679,927.00	2,015,099.00
	2011	146,954,140.00	4,108,433.00	2,138,884.00
	2012	168,305,588.00	4,452,398.00	2,162,693.00

Kasarani Talanta	2010	613,051.00	605,050.00	25,881.00
	2011	1,240,345.00	44,899.00	39,529.00
	2012	2,277,409.00	148,895.00	37,556.00
Champion	2010	50,370,063.00	3,538,393.00	3,037,787.00
	2011	53,077,942.00	3,669,126.00	3,891,699.00
	2012	55,238,963.00	3,684,557.00	4,502,964.00
Allosca	2010	4,048,673.00	170,682.00	399,267.00
	2011	3,715,370.00	178,081.00	354,377.00
	2012	3,633,176.00	48,384.00	197,383.00
Murphy	2010	10,652,452.00	1,029,640.00	229,653.00
	2011	12,006,720.00	1,269,498.00	263,870.00
	2012	14,386,476.00	1,471,243.00	280,804.00
Musumeno	2010	12,276,638.00	917,368.00	495,718.00
	2011	11,806,612.00	488,263.00	481,261.00
	2012	11,774,420.00	417,169.00	631,428.00
PCEA Kasarani	2010	1,191,590.00	101,335.00	57,715.00
	2011	2,623,103.00	138,258.00	64,525.00
	2012	5,906,651.00	509,321.00	98,543.00
Kenafric	2010	28,187,319.00	725,083.00	620,892.00
	2011	33,334,008.00	858,155.00	539,374.00
	2012	35,781,589.00	951,534.00	373,530.00
Correp	2010	4,641,560.00	162,953.00	72,383.00
	2011	5,583,070.00	193,914.00	79,312.00
	2012	6,203,215.00	270,280.00	123,640.00
Alpha Medical	2010	1,628,102.00	130,673.00	41,210.00
	2011	2,032,152.00	144,852.00	67,895.00

	2012	2,429,947.00	148,652.00	81,580.00
Aspco	2010	10,741,548.00	394,923.00	679,867.00
	2011	13,995,305.00	446,541.00	906,507.00
	2012	18,034,934.00	510,902.00	913,195.00
Air Connection	2010	9,351,227.00	275,904.00	107,366.00
	2011	11,339,666.00	334,571.00	131,050.00
	2012	12,717,150.00	437,850.00	128,223.00
Vanguard	2010	14,175,433.00	608,807.00	516,086.00
	2011	20,968,819.00	707,826.00	718,550.00
	2012	27,788,597.00	853,949.00	719,828.00
Duty Free	2010	30,649,015.00	953,766.00	627,143.00
	2011	31,878,383.00	1,080,710.00	733,305.00
	2012	35,414,434.00	1,887,189.00	825,175.00
Notaff	2010	12,037,585.00	672,442.00	661,695.00
	2011	15,718,694.00	667,042.00	598,761.00
	2012	18,156,443.00	1,204,039.00	676,870.00
Airports	2010	180,538,986.00	6,440,664.00	6,871,460.00
	2011	281,062,432.00	14,284,984.00	17,538,380.00
	2012	353,238,243.00	28,666,028.00	36,002,182.00
Wanandege	2010	1,044,871,557.00	64,886,833.00	107,859,226.00
	2011	1,206,286,516.00	64,777,056.00	110,336,045.00
	2012	1,204,999,335.00	104,439,601.00	126,705,660.00
Transglob	2010	17,659,793.00	979,284.00	325,505.00
	2011	23,970,229.00	1,185,087.00	492,451.00
	2012	28,470,159.00	1,412,966.00	482,371.00
Interco	2010	425,261.00	7,061.00	32,563.00

	2011	880,115.00	10,188.00	20,500.00
	2012	1,207,434.00	45,763.00	28,380.00
Wanamizigo	2010	8,433,752.00	772,291.00	360,881.00
	2011	8,767,470.00	799,057.00	368,881.00
	2012	9,371,575.00	1,052,440.00	325,518.00
Doll	2010	7,697,639.00	1,149,019.00	61,045.00
	2011	11,209,819.00	1,881,431.00	75,263.00
	2012	13,246,723.00	2,297,698.00	114,890.00
Epco	2010	7,972,777.00	311,922.00	296,740.00
	2011	11,079,202.00	320,239.00	469,966.00
	2012	13,977,349.00	343,468.00	670,228.00
Nasca	2010	83,306,996.00	6,739,743.00	4,195,984.00
	2011	97,001,869.00	6,926,779.00	4,380,894.00
	2012	105,934,734.00	4,891,707.00	4,365,252.00
MarkFirst	2010	760,148.00	62,193.00	76,791.00
	2011	846,545.00	69,625.00	110,239.00
	2012	1,365,677.00	105,821.00	95,709.00
Prisco	2010	9,129,496.00	414,319.00	188,939.00
	2011	11,170,589.00	440,624.00	214,940.00
	2012	12,794,783.00	472,642.00	212,441.00
United Nations	2010	4,656,875,859.00	4,453,200,341.00	105,197,201.00
	2011	5,610,570,727.00	255,602,169.00	111,171,930.00
	2012	6,547,006,192.00	392,364,230.00	98,397,909.00
Ushuru	2010	1,232,381,128.00	41,979,481.00	28,185,906.00
	2011	1,448,717,436.00	60,077,061.00	37,084,603.00
	2012	1,329,684,545.00	133,109,853.00	44,515,170.00

Pressfine	2010	16,082,349.00	331,259.00	378,752.00
	2011	17,422,046.00	343,592.00	564,711.00
	2012	15,648,574.00	364,499.00	528,134.00
Mboga na Matunda	2010	31,587,227.00	1,740,487.00	632,619.00
	2011	35,657,074.00	1,912,274.00	642,252.00
	2012	36,610,110.00	2,062,874.00	966,708.00
Colour Printers	2010	27,999,734.00	540,501.00	820,663.00
	2011	28,957,684.00	658,813.00	865,153.00
	2012	31,907,196.00	771,797.00	912,585.00
Trans - Africa	2010	13,244,777.00	484,160.00	308,149.00
	2011	17,350,921.00	538,245.00	303,551.00
	2012	22,318,282.00	599,565.00	444,413.00
AmiAir	2010	39,417,805.00	1,633,394.00	726,325.00
	2011	45,101,449.00	1,647,422.00	556,477.00
	2012	43,735,526.00	2,781,597.00	1,174,870.00
Amiran	2010	33,499,047.00	363,272.00	657,729.00
	2011	33,146,414.00	467,007.00	776,380.00
	2012	35,731,207.00	527,296.00	544,303.00
Kimisitu	2010	1,233,251,820.00	38,644,742.00	27,889,623.00
	2011	1,597,952,594.00	55,015,896.00	33,011,938.00
	2012	2,084,163,027.00	75,668,929.00	43,595,269.00
Concorde	2010	240,457,258.00	5,728,462.00	6,148,765.00
	2011	299,362,110.00	6,413,952.00	6,097,087.00
	2012	376,702,767.00	8,054,628.00	7,671,806.00
Tape	2010	7,344,085.00	201,523.00	113,045.00
	2011	9,301,599.00	251,538.00	149,230.00

	2012	12,763,060.00	326,016.00	151,455.00
Phiphatecs	2010	7,595,928.00	381,105.00	121,770.00
	2011	12,931,646.00	530,319.00	199,291.00
	2012	23,039,707.00	756,490.00	299,440.00
Vegpro	2010	32,070,712.00	1,058,917.00	1,452,277.00
	2011	38,272,212.00	1,176,685.00	1,465,903.00
	2012	44,869,675.00	1,239,959.00	1,587,137.00
Shirika	2010	750,802,374.00	20,676,827.00	12,117,956.00
	2011	912,425,909.00	25,058,188.00	14,896,233.00
	2012	1,109,564,038.00	31,600,855.00	17,344,730.00
Planning	2010	8,167,244.00	419,936.00	66,529.00
	2011	10,992,388.00	464,381.00	86,039.00
	2012	13,639,612.00	545,626.00	81,645.00
Irrigation	2010	43,841,541.00	7,614,625.00	1,316,980.00
	2011	64,680,960.00	7,915,802.00	1,509,867.00
	2012	75,719,852.00	8,119,903.00	1,854,982.00
Gassco	2010	9,535,937.00	694,617.00	471,552.00
	2011	12,124,157.00	750,408.00	326,877.00
	2012	14,689,008.00	1,179,338.00	300,867.00