

**THE RELATIONSHIP BETWEEN MICROECONOMIC  
VARIABLES AND INSTITUTIONAL EFFICIENCY OF  
COMPANIES LISTED AT THE NAIROBI SECURITIES  
EXCHANGE IN KENYA**

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**DECLARATION**

I declare that this project is my original work and has never been submitted for a degree in any other university or college for examination/academic purposes.

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This research project has been submitted for examination with my approval as the University Supervisor.

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## **DEDICATION**

I dedicate this work to my brothers and sisters and to the memory of my parents Paul Mutemi and Rhoda Kathila for their invaluable support and respect for education.

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## **ABBREVIATIONS AND ACRONYMS**

<b>ANCOVA</b>	-	Analysis of covariance
<b>ANOVA</b>	-	Analysis of Variance
<b>CBK</b>	-	Central Bank of Kenya
<b>DEA</b>	-	Data Envelopment Analysis
<b>ICT</b>	-	Information Communication Technology
<b>NSE</b>	-	Nairobi Securities Exchange
<b>SACCOs</b>	-	Savings And Credit Co-Operative Societies
<b>SPSS</b>	-	Statistical Package for Social Science
<b>U.K</b>	-	United Kingdom



## ABSTRACT

In any economy, sectors of Agriculture, Commercial and Services, Telecommunication and Technology, Automobile and Accessories, Banking, Insurance, Investment, Manufacturing and Allied, Construction and Allied, Energy and Petroleum, Growth and Enterprise Segment are the engine that drives economic growth through efficient allocation of resources to productive units. Along the time, the relationship between economic factors and firm efficiency has been studied in the literature a lot. Approaches are numerous and very different. Since firm efficiency can be influenced by factors that can be controlled by the firm, as well as by factors that are not under the control of such firms the study sought to establish the relationship between micro-economic variables and institutional efficiency of companies listed in the NSE in Kenya. The study adopted a descriptive research design. The population of interest for this study was all the 60 companies listed on NSE in Kenya. Thus it will be a census survey. The study applied secondary data which is extracted from the firms' annual reports and financial statements for the five-year period commencing 2010 up to 2014. The data collected were therefore cleaned, coded and systematically organized in a manner that facilitates analysis using the Statistical Package for Social Sciences (SPSS). In order to test the relationship between the variables the inferential tests including the regression analysis was used. The study found that the four variables contribute to 70.9% of institutional efficiency and that a unit increase in Capitalization leads to a 0.118 increase in institutional efficiency. From the study findings and discussion, the study concludes that microeconomic variables affect the level of institutional efficiency of companies listed in the NSE. The conclusion is that microeconomic variables had a positive and significant effect on institutional efficiency of companies listed in the NSE for the period of this study. The study recommends that companies listed in NSE should approve strategy and significant policies related to the management of liquidity risk under both normal and stressed conditions and review and approve these policies frequently as need arise. Also, it was recommended that a structure should be put in place to effectively execute financial strategies and also develop methodologies and policies to determine the level of earmarked liquid assets.

# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Background of the Study**

Efficiency of a firm or an industry is very important as it shows the results achieved over a time period. Firm efficiency is dependent upon micro economic variables and macro-economic variables. Micro-economic variables are the internal firm specific variables. Management is able to control these variables. The researcher has put attention on the micro economic variables which can be handled by the management. Firm age indicates the firm experience which is gained over time. Age of the firm is measured since the incorporation of the company. Debt to Equity is ratio of financial leverage of any firm. It tells about the proportion of equity and debt being used by any firm for financing the assets (Gul, Irshad and Zaman, 2011).

Along the time, the relationship between economic factors and firm efficiency has been studied in the literature a lot. Approaches are numerous and very different. Most of them are considering both internal and external factors. Microeconomic variables that will be reviewed include; the size, the capital, market structure and cost management and liquidity. Gul, Irshad and Zaman (2011) concluded that these factors have an important effect on efficiency. This study hopes to establish the relationship between micro-economic variables and efficiency of companies listed in the NSE in Kenya.

#### **1.1.1 Micro Economic Variables**

Companies listed in the stock exchange as part of the corporate world has been affected by both micro and macro factors in their operations efficiency and performance. The micro economic variables include the institutional factors that

affect the efficiency of the firm. These factors are mainly influenced by a firm's management decisions and policy objectives (Staikouras and wood, 2004); therefore, the management efficiency is one of the main factors. Management efficiency can be measured as a ratio of operational expenses and revenue generated. Liquidity risk is also a micro economic factor that may arise from the possible inability of a firm to accommodate decrease in liabilities. This implies that Liquidity risk is a serious factor that has an impact on the efficiency of most firms. It needs further investigation in country specific situations (Ilhomovich, 2009).

Empirical study of Garcia-Herrero Gavila and Santabarbara (2009) showed a positive impact of capital on company efficiency. On the other hand, studies of Hoffmann (2011), showed a significant negative impact of capital on company efficiency. The contradicting empirical evidence suggests that higher capital ratio leads to lower efficiency. The implication of the reviewed studies is that setting up high regulatory capital may have negative effects on efficiency and ultimately firm performance. Consequently, capital structure is among the main determinants of company efficiency (Goddard, Molyneux and Wilson, 2004). The impact of growing company size on profitability can be positive up to a certain limit; beyond which the impact becomes negative on profitability. Diversification through non-interest income enhances company profitability. However, study by Stiroh and Rumbie (2006), indicated that greater diversification of the company dealings does not necessarily transform into increased company efficiency, but may instead reduce profits, therefore optimum level of non-interest income activities must be set.

### **1.1.2 Institution Efficiency**

Efficiency is key concept in Companies (Cinca, GutierrezNieto and Mar Molinero, 2002). Efficiency measurement is one aspect of a company's performance.

Institutional efficiency can be measured with respect to maximization of output, minimization of cost or maximization of profits. In general institutional efficiency is important to companies themselves as it has direct relationship with profitability (present and future), competitiveness, and solvency. Also regulatory authorities demand the same from companies in provision of cost effective services and products. The numerous stake holders' interests in a firm must be satisfied. Stakeholder theory suggests that the purpose of a business is to create as much value as possible for stakeholders. In order to succeed and be sustainable over time, executives must keep the interests of customers, suppliers, employees, communities and shareholders aligned and going in the same direction. Stakeholder management can be linked to conventional concepts of organizational success through analytical argument. The main focus of this effort in the recent literature builds on established concepts of principal-agent relations (Jensen and Meckling, 1976) and the firm as a nexus of contracts (Williamson and Winter, 1991).

According to Limam (2010), Scale efficiency addresses question whether a firm is operating at the minimum of its long-run average cost curve. Scope efficiency is measured by difference between the cost of joint production and the sum of producing the different output individually. Cost efficiency refer to how close a firm's actual cost are to the cost of best-practice firm producing same output. Cost efficiency reflects managerial ability to drive down production costs, controlled for output volumes and input price levels. Cost inefficiency may arise because managers use more input than would a best-practice firm (technical inefficiency) or because they employ an input mix that does not minimize cost for a given input vector (allocative inefficiency) (Berger, 2000).

Stiroh and Rumbie (2006) argue that inefficiency arises from the fact that “neither individuals nor firms work as hard, nor do they search for information as effectively, as they could.” More specifically, Berger (2000) defines efficiency as the ratio of the minimum costs that could have been expended to produce a given output bundle to the actual costs expended and varies between 0 and 100 percent. X-efficiency stems from technical efficiency. Nyahan (1998) defines technical efficiency measures as a way of using minimum inputs to produce a given level output (output orientation). Technical efficiency could be deterministic or stochastic and gives the maximum output that can be attained for a given level of input, or minimum cost for a given level of output and input prices (Limama, 2001).

### **1.1.3 Microeconomic Variables and Institutional Efficiency**

Institutional efficiency can be influenced by factors that can be controlled by the firm, as well as by factors that are not under the control of such firms. Controllable factors include everything related to management of inputs and outputs or transforming inputs into outputs. Firm size is generally introduced to account for existing economies of scale in the market structure. The relationship between size and efficiency is an important part of the firm’s theory. Since larger firms are more able to realize economies of scale and reduce the cost of gathering and processing information (Dietrich and Wanzenried, 2011), the firm size should be positively associated with its efficiency. However, extremely large firms might illustrate a negative relationship between size and efficiency. This is due to agency costs, the overhead of bureaucratic processes, and other costs related to managing large firms (Pasiouras and Kosmidou, 2007).

Given by international prudential regulation, capital ratio was considered as an important tool for assessing capital adequacy and should capture the general safety

and soundness of companies. Consequently, highly capitalized firms might reduce their funding costs, which affect positively their efficiency. On the other hand, highly capitalized firms usually have a reduced need to external funds, which has again a positive effect on their efficiency. However, if we consider the conventional risk-return hypothesis, we have to expect firms with lower capital ratios to have higher efficiency in comparison to better-capitalized firms. Bourke (1989) report a positive and significant relationship between capital adequacy and efficiency. He concluded that the higher the capital ratio is, the more the firm's efficiency is.

Kosmidou, Tanna and Pasiouras (2005) confirm a positive and highly significant relationship between the equity ratio to total assets and efficiency. Dietrich and Wanzenried (2011) was the first study approximating credit risk or credit quality by the Loan loss provisions over total loans ratio. Bourke (1989) and Molyneux and Thornton (1992), among others show that the level of credit risk tend to be negatively associated with the firms' efficiency. Miller and Noulas (1997) suggest a negative relationship between credit risk and efficiency. This result might reflect the fact that the higher the loans-to-assets ratio (as a proxy for credit risk) is, the more financial institutions are exposed to high-risk loans and by far the greater accumulation of nonperforming loans will be. However, Kosmidou et al (2005) and Fernandez (2007) provide the evidence that credit risk affect positively the company efficiency.

In addition, many researchers include management quality as a specific firm factor affecting their efficiency. Theoretically more competent management in companies is expected to be more efficient (Goddard et al., 2009). A further firm-specific variable is the ownership of a firm. According to Micco, Nocera and Sironi (2007), in developing countries, public companies tend to be less efficient than privately owned companies. Iannotta et al (2007) report a similar result; government ownership of

companies is negatively related to company efficiency. On the contrary, the results of Bourke (1989), Molyneux and Thornton (1992) suggest that ownership type is irrelevant for explaining efficiency. Authors find a little evidence to support the theory that state-owned companies are less efficient than privately owned ones. However, we can notice that ownership structure is always measured in empirical literature by a dummy variable that take a value of one if a company is publicly owned and Zero otherwise.

#### **1.1.4 Nairobi Securities Exchange**

The Nairobi Securities Exchange was established as Nairobi Stock Exchange in 1954 under the Societies Act. It was renamed the Nairobi Securities Exchange Limited, (NSE) in 2011 following a strategic plan to evolve into a full service securities exchange which supports trading, clearing and settlement of equities, debt, derivatives and other associated instruments. According to Nairobi Securities Exchange (NSE) (2014), there were 61 companies listed in June 2014 under the various sectors of Agriculture, Commercial and Services, Telecommunication and Technology, Automobile and Accessories, Banking, Insurance, Investment, Manufacturing and Allied, Construction and Allied, Energy and Petroleum, Growth and Enterprise Segment. The NSE is licensed and regulated by the Capital Markets Authority. It has the mandate of providing a trading platform for listed securities and overseeing its Member Firms.

According to financial report of the NSE for year ended 2013, equity turnover rose by 79.45% from 2012 Kshs. 86.8 Billion to Kshs. 155.7 Billion. Market capitalization rose by 49.91% to Kshs. 1.9 Trillion (NSE, 2014). There is hence a significant growth in the market that warrants the review of the relationship between micro economic variables and the efficiency of companies listed companies at the NSE. Each company

does publish its annual reports and financial statements which would be the basis of the study. Every listed company carries out its activities in an extremely dynamic, and often highly volatile, commercial environment. Principal financial risks faced in the normal course of any listed company's business are foreign currency rate risk, interest rate risk, credit risk, and liquidity risk. Each company's ability to recognize, successfully control and manage risks early in their development and to identify and exploit opportunities is vital to their ability to successfully realize their corporate vision.

## **1.2 Research Problem**

The relationship between microeconomic variables and institutional efficiency has been extensively studied in developed capital markets and the literatures on that study dates back to 1970s. However multifactor models have been developed as an explanatory factor of the variation in efficiency and these studies have typically focused on developed markets. The relationship between microeconomic variables and institutional efficiency has been examined in Emerging Stock Markets (ESMs) after 1980s (Menike 2006). However, interest in investing in emerging markets has grown considerably over the past decade. Harvey (1995a) shows that institutional efficiency has been found to be higher, relative to developed markets. During the last two decades, these sectors in Africa and in the rest of the developing world have experienced major transformation in their operating environment.

Owing to the importance of company efficiency to microeconomic stability, a number of country specific studies on relationship between micro economic variables and efficiency have been undertaken with mixed results. While a bulk of the studies focused on the developed economies, a handful of studies have been undertaken in the African context. Notable examples are: South Africa (Ncube, 2009), Tanzania



(Aikaeli, 2008), Namibia (Ikhide, 2008; Adongo, Stork and Hasheela, 2005) found positive results in the relationship between micro economic variables and efficiency. Casu and Molyneux (2003) Chakrabarti and Chawla (2005) and Kiyota (2009) found no significant relationship between micro economic variables and efficiency. Although there is a growing body of literature that focuses on micro economic variables and efficiency in other countries (Girardone, Molyneux and Gardener 2004; Hondroyiannis, Lolos and Papapetrou 1999; Maudos and Pastor 2002), no major study has been conducted in Kenya.

Firms are concerned with their operating efficiency since financial development is no longer tied to a certain economy but indeed guided by universal guidelines. The performance of companies listed in NSE in Kenya depends on how efficient they are so that they can cover all expenses as well as give something back to their stakeholders. The major concern by the various stakeholders who have interests in these companies is whether they are operating efficiently. Given the important role that they play in any economy, it is therefore crucial to understand the relationship between micro economic variables and efficiency so that management knows how to improve efficiency and company performance. However, if the micro economic variables are not properly enhanced, then companies listed in NSE will be unable to adequately advance their services to customers, and this will have an adverse effect on efficiency. If this extends over a long period of time, the eventual result is liquidation.

Locally, Kyalo (2002) did a study on capital allocation and efficiency of banking institutions in Kenya, the case of quoted banks at NSE, Nyapara (2013) examined the relationship between Information Communication Technology usage has on efficiency in the banking industry in Kenya, Njoroge (2013) investigated the

determinants of efficiency on savings and credit co-operative societies in Nairobi County, Thuo (2014) conducted a research on the relationship between microeconomic variables and efficiency of commercial banks in Kenya while Kinyugo (2014) also did a research on the effect of cost efficiency on institutional efficiency of companies listed on Nairobi securities exchange. None of these local and international studies have focused on the relationship between microeconomic variables and efficiency of companies listed in NSE in Kenya. This study therefore sought to answer the question: What is the relationship between microeconomic variables and institutional efficiency of companies listed at NSE in Kenya?

### **1.3 Research Objective**

To establish the relationship between micro-economic variables and institutional efficiency of companies listed in the NSE in Kenya.

### **1.4 Value of the Study**

The findings of this study will be important to various stakeholders in the Agricultural, Commercial and Services, Telecommunication and Technology, Automobile and Accessories, Banking, Insurance, Investment, Manufacturing and Allied, Construction and Allied, Energy and Petroleum, Growth and Enterprise Segment sector because it will provide an insight into the determinants of efficiency. Since the majority of the investments and savings are through these sectors, and for the public interest, it is valuable to find out Technical Efficiency of each sector..

Assessing firms' efficiency would help managers to examine the success of their managerial decisions; to better understand their management effectiveness and provides them with valuable reference for improving their performance. On the other hand, it will help policy makers to develop a strong and healthy environment for these

sectors by examining the impact of economic and financial reforms that have been taking places.

Investors want to see how well a specific firm is performing before potentially investing in it. A high stock price alone is not enough to measure; they have to see how well a firm is performing too. Therefore, for any firm to survive and succeed, managers should learn the status of their efficiency and how it is compared to their counterpart in same country or other countries. Hence, to learn the suitable financial decisions that attain better allocated financial resources in a more efficient and effective manner, it is important to assess company efficiency at country and/or cross countries level.

The information so obtained would be useful to the Government and research institutions that may want to advance the knowledge and literature on institutional efficiency. It will also add to literature on the subject as reference material and stimulate further research in the area. To find out new insights on companies listed in NSE activities evaluation, new approach other than the conventional approach (financial ratios analysis) and to help in the proper merging between the two approaches whenever possible. In other words, to add knowledge to the science of company evaluation and analysis especially in Kenya.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

In this second chapter, relevant literature information that is related and consistent with the objectives of the study is reviewed. Important issues and practical problems are brought out and critically examined so as to determine the current facts. This section is vital as it determines the information that link the current study with past studies and what future studies will still need to explore so as to improve knowledge.

#### **2.2 Theoretical Review**

The study was underpinned in Neo-Classical Theory, Efficient Structure Theory, Agency theory and Market Power Theory

##### **2.2.1 Neo-Classical Theory**

The concept of technical efficiency derives its basis in the neo-classical theory of the firm postulated by Ferguson (1969) and assumes profit maximizing behaviour. Neoclassical theory postulates that preferences between two goods are independent of the consumer's current entitlements. A firm may be technically inefficient for technical reasons such as low training or low human capital levels of managers and workers, or the use of inferior or out-of-date technology. The diffusion of new technology is not instantaneous and some firms may lag behind others in the acquisition and utilization of new technology. With further training and updating of capital, the firm can expect to move towards the efficient frontier (Cooper, Hundal and Pant, 2003). X-inefficiency is not caused by the variability of skills or the time variability of technology diffusion but by the use and organisation of such skills and technology.

The production approach recognizes that a firm is a producer of a range of services. These services are for deposit holders and borrowers alike and include not only intermediation services, but also a host of other financial services that would be charged to the non-interest earning account. For instance, in the banking sector, the number of deposit and loan accounts plus the number of financial transaction logged over a period of time would be taken as the appropriate definition of output and the inputs will be purely labour and fixed assets (as a measure of capital in neo-classical production theory). Total costs would only cover operational costs and interest costs are excluded (Ferrier, Grosskopf, Hayes and Yaisawarng, 1993). The literature on firm efficiency especially those listed in NSE has tended to produce results using the intermediation approach, largely because balance sheet and income account data is more readily available than what would be required for the production approach. Most economists generally accept the principle of rational behavior and analyze institutions utilizing the neo-classical theory of the firm (Adongo, Stork and Hasheela, 2005). Such approach makes possible to use traditional economic measures of efficiency (inputs, outputs, cost constraints, etc.). However, in reality, companies operate under uncertainty and imperfect information. This suggests that companies should not be assessed on the basis of traditional efficiency measures alone, and that assessing their overall performance requires assessing both efficiency and risk factors. In this study, management quality is deemed to be one of the main determinants of efficiency. This correlates with the Neo-Classical Theory which stipulates that a company may be technically inefficient for technical reasons such as low training or low human capital levels of managers and workers, or the use of inferior or out-of-date technology.

### **2.2.2 Efficient Structure Theory**

Demsetz (1973) was the first to formulate an alternative explanation on market structure-performance relationship and proposes the Efficiency Hypothesis. Applied to companies listed in NSE, this hypothesis stipulates that a firm which operates more efficiently than its competitors gains higher profits resulting from low operational costs. The same firm holds an important share of the market. Consequently, differences at the level of efficiency create an unequal distribution of positions within the market and an intense concentration. Since efficiency determines market structure and performance, the positive relationship between these two seems superficial. Efficiency, as a key factor of competitiveness, nowadays receives a multidimensional interest justified by the coexistence of well-defined capacities and skills making up an entangled and inter-related set which we cannot minimize nor neglect the value of one over the other. Among these capacities, the company should be skilled in the five knowledge sets, have the talent to reinforce the training process and the relational network. It should as well master the sense of prediction and selection and rely on human capital (Cooper et al., 2003). It goes without saying then that cost shrinking is no more the objective itself, in that institutions are seeking the adjustment of costs to quality and to products volumes in order to be efficient.

Smirlok (1985) subscribing to the efficiency hypothesis, considers market share as a proxy for efficiency. The efficiency hypothesis prevails when a significant positive correlation between market share and profitability is signaled. This method implicitly assumes that a higher market concentration is the main source of market power. Shepherd (1986) criticizes this method by considering that the direct source of market power is the domination of participants over the individual market, independently of the ultimate sources of such domination, hence the emergence of the Relative Market

Power (RMP) hypothesis. It is uniquely the firms with a large market share and diversified products that might exert their market power to determine prices and make profits. Consequently, under the RMP hypothesis, individual market shares accurately determine market power and market imperfections. Applied to sectors such as banking and the others that in NSE, this hypothesis stipulates that a firm which operates more efficiently than its competitors gains higher profits resulting from low operational costs. The same company holds an important share of the market.

### **2.2.3 Agency Theory**

Agency theory suggests that even though a divergence in interests exists, owners can constrain management's ability to maximize personal utility by establishing a nexus of contracts that minimizes the divergence in interests in exchange for a level of salary and benefits to management that is greater than what owner-managers would grant themselves if they were in control of the firm (Jensen and Meckling, 1976). Agency costs arise from additional salary and benefits allowed by the contract. Jensen and Meckling (1976) introduced the aspect of agency costs. These costs arise because in the absence of any restrictions, a firm's management would be tempted to take actions that would benefit stockholders at the expense of bondholders (Jensen and Meckling, 1976). Due to this, bond holders impose restrictions in the operations of a firm by way of covenants which hamper the corporation's legitimate operation. Furthermore, the bondholders are forced to monitor the firm to ensure that the covenants are upheld. The monitoring costs are passed to stockholders in terms of higher cost of debt (Ncube, 2009). Covenants lead to loss in efficiency of operation of the firm. The cost efficiency and the monitoring costs are important types of agency costs which increase the cost of debt and reduce the value of equity thus reducing the advantages of debt.

Jensen and Meckling (1976) posit that a firm should consider the agency costs of debt vis a vis the benefits of debt to determine the optimum debt. Optimum debt according to them is the point at which marginal agency costs of debt is equal to marginal benefits of debt. They identified the agency costs of debt as consisting of the agency theory of capital structure. Consistent with agency theory postulates, companies with higher leverage or lower equity are associated with higher profit efficiency. In terms of firm size, smaller firms are more profit efficient whereas medium size and larger firms are cost efficient.

#### **2.2.4 Market Power Theory**

The Market Power hypothesis by Moffatt (2008) is empirically proved when concentration introduced in the explanatory equations of performance is found non-significant in contrast to market share which should be positively and significantly correlated with price and/or profitability. Nevertheless, it is not obvious that employing market structure in these equations produces unambiguous results (Aikaeli, 2008).

According to the Quiet Life (Hicks, 1935) hypothesis, a company management unit with a large market share is less centred on efficiency as the exploitation of market power in terms of fixing prices allows deriving automatically benefits. An increase in market power comes with a deterioration of efficiency in which makes companies unable to earn higher profits. The Quiet Life hypothesis puts forward an explanation in the case of the absence of a presumed relationship between profitability and market structure. A firm with a strong position in the market may either reinforce its domination over the market or achieve a higher efficiency by marshalling its assets. As such, total asset is a main determinant of efficiency of any firm.



## **2.3 Determinants of Company Efficiency**

Studies dealing with internal determinants employ variables such as size, capital and risk management.

### **2.3.1 Firm Size**

One of the most important questions underlying company policy is which size optimizes company efficiency. Generally, the effect of a growing size on efficiency has been proved to be positive to a certain extent. However, for companies that become extremely large, the effect of size could be negative due to bureaucratic and other reasons. Hence, the size-efficiency relationship may be expected to be non-linear. We use the companies' real assets (logarithm) and their square in order to capture this possible non-linear relationship (MakDonald and Koch 2006).

One of the first studies to connect firm size and efficiency was Williamson (1967), which used a model to demonstrate that one factor limiting the optimal size of firms is loss of managerial efficiency in large hierarchical firms. Dhawan (2001) suggests that partly because of their greater organizational flexibility and because managers of small firms are more likely to take risks, small firms are more open and able to innovate.

A comparable study was made by Prasetyantoko and Parmono (2008) who re-evaluated earlier findings against new data within an improved analytical framework. The study by Prasetyantoko and Parmono (2008) included the entire distribution of firms. Results showed that firm size influences efficiency in some, but not all industries. Since efficiency is ultimately determined by several complex factors including product prices, factor costs, and the production function, the relationship to

size varies among industries and cannot be readily identified. Thus, the hypothesis that size does matter cannot be offered without providing relevant qualifications.

Another study by Agiomirgiannakis, Liargovas and Skandalis (2006) suggested that size is positively related to a firm's ability to produce technologically complicated products which in turn leads to concentration. Such markets are supplied by few competitors and are therefore, more efficient and profitable. Thus, larger firms have access to the most profitable market segments. The empirical relationship between a firm's size, structure, and efficiency has found that size is positively correlated with efficiency (Gichura, 2011), with the profit rate of the market positively correlated with the concentration ratio and negatively correlated with the marginal concentration ratio (Adams and Buckle, 2000). Amato and Amato (2004) show that the positive association between firm size and efficiency stems from implementing greater differentiation and specialization strategies, and should therefore lead to higher efficiency. Further studies also suggest that larger firms are able to leverage on economies of scale (e.g. Bashir, 2003; Chen and Wong, 2004).

However, many of the recent studies that consider the size- efficiency relationship tend to show non-significant results. In fact, in a meta-analysis conducted by Goddard et al (2006), firm size was considered not significant and further confirmed in an ANCOVA analysis. Hagedoorn and Cloudt (2003), for example, tested the relationship between firm size and efficiency for a sample of 1,478 German manufacturing firms in 31 industries. Results revealed weak size- efficiency correlations that were unstable over the study period. These results suggested that firm size is not the major determinant of profitability and that profitability would depend largely on how well firms cope with size and exploit the opportunities

associated with it. Whittington (1980) even found a negative association between firm size and efficiency for U.K. based listed manufacturing companies covering the time period from 1960 to 1974.

### **2.3.2 Capitalization**

Expenses can be expensed as they are incurred, or they can be capitalized. A company is able to capitalize the cost of acquiring a resource only if the resource provides the company with a tangible benefit for more than one operating cycle. Given by international prudential regulation, capital ratio was considered as an important tool for assessing capital adequacy and should capture the general safety and soundness of a firm. Highly capitalized firms usually have a reduced need to external funds, which has again a positive effect on their efficiency. However, if we consider the conventional risk-return hypothesis, we have to expect firms with lower capital ratios to have higher efficiency in comparison to better-capitalized firms. Bourke (1989) report a positive and significant relationship between capital adequacy and efficiency. He concluded that the higher the capital ratio is, the more the firm's efficiency is.

According to Myers (2001) debt offers firm a tax shield and therefore firms try to increase debt in order to get tax benefit. Tax advantage results in the improved efficiency. Along with this advantage it also has disadvantages and one of the disadvantages is that higher level of debt increases the cost of bankruptcy. Financial distress is another disadvantage offered by debt (Kim, 1978). Another disadvantage of debt is agency cost (Meckling, 1976). According to Pandey (2008) leverage results in the variability of the return offered to the shareholders therefore it adds risk. Nagy (2009) measured the factors affecting firm's efficiency. Study concludes that there are

number of factors which include sales, current ratio, debt-to-equity ratio, and net profit margin.

### **2.3.3 Leverage**

Leverage is a construct that has been widely studied. Many authors have studied leverage and its determinants on investments in different countries using different techniques. This has led to different outcomes and results. More recent research has focused on empirical evidence of determinants of leverage and investigates different settings and conditions in which leverage decisions occur. Aivazian, Ge and Qiu (2005) for Canada and Odit and Chittoo (2008) for Mauritius found that leverage is negatively related to investment. However, the results of the study by Bothwell, Cooley and Hall (1984) indicate that higher leveraged firms (with relatively high liabilities) are more profitable. Evidently, the more extensively firms use debts as the source of financing the higher its profits. An explanation can be that more profitable firms have had easier access to debt financing and do not need to rely exclusively on equity capital. Alternatively, it could be argued that higher leveraged firms bear greater risks of bankruptcy and need to compensate stakeholders with higher profits.

Van Horne (2002) argues that the advantage of debt in a world of corporate taxes is that interest payments are deductible as an expense. He went further in comparison to say that this will not be the case with dividends or retained earnings associated with stock which are not deductible by the corporation for tax purposes. Haim and Marshal (1988) argue that, debt magnifies the earnings available to shareholders. However, this assertion will only be valid if the return on assets (ROA) is higher than the cost of debt. In this case, the more the debt, the higher the return on equity (ROE). The implication of this is that Earnings Per Share and of course, Net Assets Per Share will

fall if the company obtains debt at a cost higher than the rate of return on the company's assets.

Previous studies revealed that managers cannot keep increasing the level of debt and that debt can also serve as a protection mechanism not to overinvest as cash should be paid to bondholders limiting the possibility of conducting wasteful activities and bondholders have a possibility to evaluate management (Pawlina, 2010). This results in a negative relationship between leverage and investment, because management is reluctant to pay the required interest and principal which increased default. Underinvestment is expected to occur in the presence of high growth opportunities as managers can only under invest when there are growth opportunities. Furthermore management might be reluctant to pay the cost of external capital (whether or not affected by information asymmetry) as risk of default rises. This results in a negative relationship between leverage and investment because debt limits investment spending due to the obligatory cost of capital and increasing risk of default.

#### **2.3.4 Management Quality**

The decision to capitalize or expense some items depends on management. As such, this choice will have an impact on a company's efficiency ratios, balance sheet, income statement and cash flow statement. Asimakopoulos, Samitas and Papadogonas (2009) measured the factors which affect profitability of the firm. It was seen that profitability is positively influenced by the size of the firm and managerial efficiency whereas it is negatively affected by leverage, while sales growth induces more profits for small firms but is insignificant for large ones. Almajali, Alamro and Al-Soub (2012) found out the factors affecting the firm efficiency. They found out that

liquidity, size, leverage and management competence has a significant impact on the firms efficiency where as age has no impact on the firms efficiency.

## **2.4 Empirical Review**

Company efficiency has always been concern for financial managers and it has been extensively studied.

### **2.4.1 International Empirical Review**

In their study on the determinants of efficiency, Gumbau-Albert and 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, e.t.c), as well as the effects of dynamic disturbances that may affect the degree of utilization 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.

Badunenko and 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.

Sinani, Jones and Mygind (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 findings 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.

Aikaeli (2008) investigate efficiency of commercial banks in Tanzania. Utilising secondary time series data of the Tanzanian banking sector, the paper examines technical, scale and cost efficiency of banks. Data Envelopment Analysis (DEA) model was applied to derive efficiency estimates of banks. Results of the study suggest that overall bank efficiency was fair, and there was room for marked improvements on all the four aspects of efficiency examined. Foreign banks ranked

highest in terms of technical inefficiencies. Cost inefficiencies of banks was attributed to inadequate fixed capital, poor labour compensation, less management capacity as banks expanded and accumulated excess liquid assets.

Applying standard econometrics frontier approach, Ikhide (2008) examines cost efficiency of commercial banks in Namibia. The cost structure of the banks was estimated using loans as output of the four input factors: labour, capital and deposit. Results of the study indicate that efficiency of commercial banks can be improved by increasing their scale of operations. In other words, there are substantial economies of scale to be exploited to enhance sector's efficiency. The findings suggest that more efficient combination of inputs will reduce operating costs and stimulate efficiency in the Namibian commercial banking sector.

Pellegrina (2012) investigated the relative impact of capitalization on risk-taking efficiency in Islamic and conventional banks. The author tested whether changes occurring to the capital structure of such different types of intermediaries unevenly affect their behaviour in terms of risk-taking efficiency. The paper conducted an empirical analysis using data for the period 2001-2011 by means of both standard regression methods and stochastic cost frontier techniques. Results provide evidence that more capitalized Islamic banks are associated to less risky positions in terms of their asset structure. In particular, the latter exhibit higher liquidity standards and a lower incidence of non-performing loans compared to other banks. This has delayed positive effects on profitability and no substantial impact on efficiency. On the other hand, highly capitalized conventional banks tend to shift from more traditional lending activities to investment in other (profit generating) assets. Such strategy increases profitability and efficiency, although raising impaired loans.



Singh, Goyal and Sharma (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 four 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.

#### **2.4.2 Local Empirical Review**

Wambugu (2010) sought to establish the extent of application of ICT and determine its impact on financial function in commercial banks in Kenya. The objectives of the study were to evaluate the impacts of ICT adoption on cost efficiency of commercial banks operating in Kenya, to find out the major challenges experienced by banks in the adoption and implementation of ICT, and to suggest the possible measures which can be applied to minimize the challenges experienced in adoption of ICT in order to foster efficiency of the banks' operations. The study used a descriptive research design to achieve these objectives. The population of the study consisted of all commercial banks in Nairobi. Purposive sampling was used to select operations

manager for this study. The sample size of this study was 45 respondents. Data was obtained through self-administered questionnaires with closed and open-ended questions. Descriptive statistics such as means, standard deviation and frequency distribution were used to analyze the data. Results were presented by the use of pie charts, bar charts and graphs, percentages and frequency tables. This study found that banks have embarked on ICT to a very great extent. Database management systems, automated teller machines, system security and integrity have been emphasized in ICT adoption by banks. ICT was found to be critical in service delivery and reducing congestion in banking halls. On contribution of ICT to financial services, convenience, efficiency in service delivery and improvement in service quality were found to be critical.

Nyapara (2013) examined the relationship between Information Communication Technology usage has on efficiency in the banking industry in Kenya. The new electronic age has transformed the marketing of banking services. The modern customer demands new and differentiated financial products and services. This way, banks must continuously search for new strategies to develop and market their products and services. The banking industry has gone through many changes as a result of the introduction of ICT. The aim of this project is to evaluate the various factors that ICT usage has brought in place to meet productivity, customer satisfaction and service delivery in the banking industry. This include the effects of service delivery on the usage of ICT, the effect of products and services differentiation on ICT, the effect of customer needs and wants on ICT, the effects of on costs on usage of ICT, the effects of competition on usage of ICT. The focus of the report has mainly been in the Licensed Commercial banks in Kenya and. Data was obtained from both the operations managers at the banks. The data was analyzed using simple descriptive

research methodology with the help of illustrations through table of figures to objectively determine the relationship between Information Communication Technology usage on Efficiency in banking industry in Kenya. The study focused on licensed commercial banks in Kenya. The case study research design was adopted for this research work; to study 43 licensed commercial banks according to the Central bank of Kenya (2012). The questionnaire was used as instrument to collect data for the study. The questionnaire was administered on the sampled population, which were dully completed and returned to the researcher. The data collected were analyzed and interpreted. Relevant findings were made fro m the study on the efficiency and application of ICT in banking sector. The finding shows that ICT adoption in banks has led to improvement of operational efficiency and reduced information costs.

Njoroge (2013) investigated the determinants of efficiency on savings and credit co-operative societies in Nairobi County. The study used descriptive research design. The population of 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 2010 to 2012 extracted from the audited financial statements of comprehensive income and Statement of financial position. Data was analysed using a simple regression equation model to test the extent of relationship. The study found out that there were several factors influencing the efficiency of the 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 the efficiency of the SACCOs as represented by the average  $R^2$  (0.701). The study concludes that that size, capitalisation and management quality positively and significantly influenced

efficiency of the SACCOs while credit risk inversely affected efficiency of the SACCOs.

Thuo (2014) conducted a research on the relationship between microeconomic variables and efficiency of commercial banks in Kenya. This study adopted a descriptive research design. The target population for this study was all the 44 commercial banks in Kenya as at December 2013. The research obtained absolute secondary data from commercial banks' audited financial statements, banks administrative report and from the Central Bank of Kenya (CBK) for the years 2008-2013. Data Envelopment Analysis (DEA) was used to measure technical efficiency of the commercial banks where coefficients were calculated from the most efficient commercial bank that have the ability to produce maximum output from a given set of inputs. In this research, intermediate approach of DEA was adopted. This analysis was done using SPSS (V 21) software and the findings presented in form of a tables and graphs to aid in the analysis and with which the inferential statistics were drawn. The study found that the four independent variables that were studied, explain 65.4% of the efficiency of the commercial banks in Kenya as represented by the adjusted  $R^2$ . The study concluded that size, management quality and capitalization positively and significantly influenced efficiency of commercial banks in Kenya while credit risk adversely affected the efficiency of commercial banks in Kenya. The study concludes that size, management quality and capitalization positively and significantly influenced efficiency of commercial banks in Kenya while credit risk adversely affected the efficiency of commercial banks in Kenya. The study recommends that in future studies of microeconomic variables should be conducted in other sectors with less strict regulations on the privacy of audit reports and other relevant data for microeconomic variables.

Kinyugo (2014) also did a research on the effect of cost efficiency on institutional efficiency of companies listed on Nairobi securities exchange. This study sought to investigate the effect of cost efficiency and institutional efficiency of companies listed in the Nairobi Securities Exchange in Kenya, The 60 companies listed in the Nairobi Securities Exchange formed the population of the study. The sample consisted of 47 companies listed in the NSE who had published financial data is available continuously over the sample period of the study 2008 to 2013. The sample included firms in the following sectors, Agriculture, Automobile and accessories, Banking, Commercial and Services, Construction and Allied, energy and Petroleum, Insurance and Investment firms. The research adopted a descriptive survey design. The population of interest for this study was all the listed companies at NSE in Kenya. Thus it was a census survey. The study utilized secondary sources of data. In order to situate the study theoretically and generate the conceptual framework with which to work on the secondary sources was obtained from financial statements and NSE Handbooks of the companies for a 6 year-period (2008-2013) and publications were also used. The findings established that assets management measures demonstrate how efficient management uses a firm's assets to generate sales over a certain period of time. Asset management ratios show how efficiently and intensively assets are used to create Revenue efficiently and intensively. From the findings, there was a fall in efficiency ratio from 2008 to 2013 in companies indicating that they were making considerably more than they were spending thus depicting a sound fiscal footing. The findings revealed a significant positive relationship between Return on Asset and Efficiency. In conclusion taking into consideration of the results provided, certain inputs are vital which impact on the level of cost efficiency of these companies. This

implies steps towards efficiency of these companies include great consideration of their capital structure.

## **2.5 Summary of the Literature Review**

The study reviewed indicates that the size of a company is positively related to a firm's ability to produce technologically complicated products which in turn leads to concentration. It was also reviewed that there is a positive relationship between efficiency of the firm and ownership structure. Although literature has been reviewed on relationship between micro-economic variables and firm efficiency, most of these studies have been done in other countries whose strategic approach and financial footing is different from that of Kenya. To the best of the researcher understands none of them therefore focused on how these apply in the Kenyan case. It is evident therefore that a literature gap exists on the relationship between micro-economic variables and efficiency of companies listed in the NSE in Kenya. This study therefore seeks to fill this gap by focusing on the relationship between micro-economic variables and efficiency of companies listed in the NSE in Kenya.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter includes the various stages that will be followed to complete the study. The chapter therefore comprise of the following subsections: research design, target population, data collection and data analysis and presentation.

#### **3.2 Research Design**

The study adopted a descriptive research design. The choice of the descriptive survey research design has been made based on the fact that in the study, the researcher is interested on the state of affairs already existing in the field and no variable will be manipulated. A descriptive study attempts to describe or define a subject, often by creating a profile of a group of problems, people, or events, through the collection of data and tabulation of the frequencies on research variables or their interaction as indicated by Cooper and Schindler (2003). Descriptive research portrays an accurate profile of persons, events, or situations (Kothari, 2000). Descriptive design allows the collection of large amount of data from a sizable population in a highly economical way.

#### **3.3 Population**

The population of interest for this study was all the 60 companies listed on NSE in Kenya. Thus it was a census survey. There are 60 companies listed in the Nairobi Securities Exchange according to the Nairobi Securities Exchange Handbooks (2015) (Appendix I). These companies formed the population of the study. According to

Mugenda and Mugenda (2003), the population is an aggregate of all that conform to a given characteristic.

### **3.4 Data Collection**

The study applied secondary data which is extracted from the firms' annual reports and financial statements for the five-year period commencing 2010 up to 2014. The period was selected because continuous performance data is available for the firms over the entire period. This will be obtained from the published financial report. The data was extracted from the following financial statements: Total Assets, Total Revenue, Net Profit and Noninterest Expense.

### **3.5 Data Analysis**

Mugenda and Mugenda (2003) assert that data obtained from the field in raw form is difficult to interpret unless it is cleaned, coded and analyzed. The data collected were therefore cleaned, coded and systematically organized in a manner that facilitates analysis using the Statistical Package for Social Sciences (SPSS). Quantitative analysis was used through descriptive statistics such as measure of central tendency to generate relevant percentages, frequency counts, mode, and median and mean where possible. In order to make the data more user friendly and attractive to the readers, graphic interactive tables will be generated using the computer spreadsheet to present the data.

#### **3.5.1 Analytical Model**

In order to test the relationship between the variables the inferential tests including the regression analysis was used. The following regression model shall be used to establish the relationship between the variables.

The regression equation will be of the form;  $Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$



Whereby  $Y$  = Institutional efficiency as measured by Output/Input (Adapted from DEA model)

Where: Inputs = Total Assets (TA), Cost of raw materials and cost of sales expenses (CRSE)

Outputs = Net Sales (NA) and Net Profit (NP)

$\alpha$  = Constant

$X_1$  = Firm size (Logarithm of total assets)

$X_2$  = Capitalization (Equity / total assets)

$X_3$  = Leverage (ratio of total debt to total capital of a firm)

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

$\beta_i$  ( $i= 1, 2, 3, 4$ ) = Regression Coefficients of efficiency.

$e$  = Error Term

### **3.5.2 Test of Significance**

The coefficient of determination ( $R^2$ ) was used to measure the extent to which the variation in interest rate spread is explained by the micro economic variables. F-statistic was also computed at 95% confidence level to test whether there is any significant relationship between micro economic variables and efficiency of companies listed in Nairobi securities exchange. This analysis was done using SPSS software and the findings presented in form of a research report.

## CHAPTER FOUR

### DATA ANALYSIS, RESULTS AND INTERPRETATION

#### 4.1 Introduction

This chapter presents the information processed from the data collected during the study on the relationship between microeconomic variables and institutional efficiency of companies listed in the NSE.

#### 4.2 Descriptive Statistics

This section focus on the general description of the study variables characteristics including the minimum (Min), maximum (Max), Mean, standard deviation (Std. Dev), Skewness and Kurtosis.

**Table 4.1: Descriptive Statistics**

	Min	Max	Mean	Std. Dev	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Capitalization	0.4857	7.40	3.018	6.346	5.891	.357	36.868	.702
Firm size	5.22	8.69	7.08	0.92	-0.16	0.21	-0.90	0.42
Leverage	0.23	21.62	3.44	2.75	3.64	0.21	19.25	0.42
Institutional efficiency	0.30	1	0.52	0.09	-0.85	0.21	-4.40	0.42

**Source: Research Findings**

The results in Table 4.1 showed that Capitalization had a mean score of 3.018, firm size had a mean score of 7.08, and leverage had a mean score of 3.44 while Institutional efficiency had a mean score of 0.52. Analysis of skewness shows that capitalization and leverage are asymmetrical to the right around their mean while institutional efficiency and firm size are skewed to the left.

### **4.3 Inferential Statistics**

The study conducted a Person's product moment correlation analysis and a multiple regression analysis to establish the relationship between the study variables.

#### **4.3.1 Correlation Analysis**

Pearson's correlations analysis was conducted at 95% confidence interval and 5% confidence level 2-tailed. The table above indicates the correlation matrix between the macroeconomic variables (firm size, capitalization, leverage and management quality) and institutional efficiency.

**Table 4.2: Correlation Matrix**

		Institutional efficiency	Firm size	Capitalization	Leverage	Management quality
Institutional efficiency	Pearson Correlation	1				
	Sig. (2-tailed)	.				
Firm size	Pearson Correlation	.638	1			
	Sig. (2-tailed)	.029	.			
Capitalization	Pearson Correlation	.764	.523	1		
	Sig. (2-tailed)	.017	.016	.		
Leverage	Pearson Correlation	.622	.743	.597	1	
	Sig. (2-tailed)	.031	.012	.028	.	
Management quality	Pearson Correlation	.529	.533	.720	.531	1
	Sig. (2-tailed)	.047	.009	.002	.014	.

**Source: Research Findings**

According to the table, there is a positive relationship between institutional efficiency and firm size, capitalization, leverage and management quality of magnitude 0.638, 0.764, 0.622 and 0.529 respectively. The positive relationship indicates that there is a correlation between the factors and the institutional efficiency. This infers that capitalization has the highest effect on institutional efficiency, followed by firm size, then leverage while management quality having the lowest effect on the institutional efficiency.

**4.3.2 Regression Analysis**

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 (institutional efficiency) that is

explained by all the four independent variables (Firm size, capitalization, leverage and management quality).

**Table 4.3: Model Summary**

<b>Model</b>	<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>
1	0.848	0.709	0.694	0.194

**Source: Research Findings**

The four independent variables that were studied explain 70.9% of the institutional efficiency as represented by the adjusted  $R^2$ . This therefore means the four variables contribute to 70.9% of institutional efficiency, while other factors not studied in this research contribute 29.1% of institutional efficiency. Therefore, further research should be conducted to investigate the other (29.1%) factors influencing institutional efficiency of companies listed in the NSE.

**Table 4.4: Regression coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.763	4.642	.000	1.621	0.022
	Firm size	0.351	0.324	0.157	0.833	0.021
	Capitalization	0.118	0.360	0.010	0.253	0.027
	Leverage	0.102	0.041	0.330	1.920	0.015
	Management quality	0.125	0.383	0.011	0.269	0.029

**Source: Research Findings**

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

$$Y = 9.763 + 0.118FS + 0.351CAP + 0.102L + 0.125MQ$$

Where FS is the firm size, L is leverage, CAP is capitalization and MQ is the management quality. From the model, taking all factors (Firm size, capitalization, leverage and management quality) constant at zero, institutional efficiency was 9.763. The data findings analyzed also shows that taking all other independent variables at zero, a unit increase in firm size will lead to a 0.351 increase in institutional efficiency; a unit increase in Capitalization lead to a 0.118 increase in institutional

efficiency; a unit increase in leverage will lead to a 0.102 increase in institutional efficiency. According to the model, all the variables were significant as their P- value was less than 0.05. All the variables were positively correlated with institutional efficiency.

#### 4.3.3 ANOVA

ANOVA statistics were also computed to establish the fitness of the model in predicting the relationship between the study variables.

**Table 4.5: ANOVA**

<b>Model</b>	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
1 Regression	5.457	4	1.364	32.057	0.063
Residual	2.341	55	0.043		
Total	7.797	590			

**Source: Research Findings**

From the ANOVA statistics in table 4.3, the processed data, which are the population parameters, had a significance level of 0.063 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 32.057. Since F calculated is greater than the F critical (value = 5.46), this shows that the overall model was significant i.e. there is a significant relationship between microeconomic variables and institutional efficiency.

#### **4.4 Interpretation of the Findings**

From the above regression model, the study found out that Firm size, capitalization, leverage and management quality had a positive effect on institutional efficiency. The study found out that the intercept was 9.763 for all years.

The four independent variables that were studied (Firm size, capitalization, leverage and management quality) explain a substantial 70.9% of institutional efficiency of companies listed in the NSE as represented by adjusted  $R^2$  (0.684). This therefore means the four variables contribute to 70.9% of institutional efficiency, while other factors not studied in this research contributes 29.1% of institutional efficiency. This is in agreement with Dietrich and Wanzenried (2011) who stated that firm efficiency can be influenced by factors that can be controlled by the firm, as well as by factors that are not under the control of such firms. Several studies conducted under the same topic by the South African Ncube (2009), Tanzanian Aikaeli (2008), Ikhide (2008) and Adongo, Stork and Hasheela (2005) found positive results in the relationship between micro economic variables and efficiency. However, Casu and Molyneux (2003), Chakrabarti and Chawla (2005) and Kiyota (2009) found no significant relationship between micro economic variables and institutional efficiency.

The study also established that the coefficient for firm size was 0.351, meaning that firm size positively and significantly influenced the institutional efficiency of companies listed in the NSE. This is in line with Agiomirgiannakis et al (2006) who found that firm size is positively related to a firm's ability to produce technologically complicated products which in turn leads to efficiency. Amato and Amato (2004) also found that the positive association between firm size and efficiency stems from implementing greater differentiation and specialization strategies, and should therefore lead to higher efficiency. Prasetyantoko and Parmono (2008) who re-



evaluated earlier findings against new data within an improved analytical framework showed that firm size influences efficiency in some, but not all industries. In addition, Ramachandran (2007) indicated that the size of a firm is a primary factor in determining the efficiency of a firm due to the concept known as economies of scale which can be found in the traditional neo classical view of the firm.

The study established that the coefficient for Capitalization was 0.118, meaning that Capitalization positively and significantly influenced the institutional efficiency of companies listed in the NSE. This correlates to Garcia-Herrero et al. (2009) showed a positive impact of capital on company efficiency. On the other hand, studies of Hoffmann, (2011), showed a significant negative impact of capital on company efficiency. The contradicting empirical evidence suggests that higher capital ratio leads to lower efficiency.

The study also established that the coefficient for leverage was 0.102, meaning that leverage positively and significantly influenced the institutional efficiency of companies listed in the NSE. This agrees with Bothwell, Cooley and Hall (1984) who indicated that higher leveraged firms (with relatively high liabilities) are more profitable. Van Horne (2002) also argues that the advantage of debt in a world of corporate taxes is that interest payments are deductible as an expense. Previous studies revealed that managers cannot keep increasing the level of debt and that debt can also serve as a protection mechanism not to overinvest as cash should be paid to bondholders limiting the possibility of conducting wasteful activities and bondholders have a possibility to evaluate management (Pawlina, 2010). However, Aivazian et al. (2005) for Canada and Odit and Chittoo (2008) for Mauritius found that leverage is negatively related to investment.

The study also established that the coefficient for quality management was 0.125, meaning that quality management positively and significantly influenced the institutional efficiency of companies listed in the NSE. This agrees with Thuo (2014) who management quality positively and significantly influenced efficiency of commercial banks in Kenya. Njoroge (2013) who investigated the determinants of efficiency on savings and credit co-operative societies in Nairobi County also established that management quality positively and significantly influenced efficiency of the SACCOs.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter provides a summary, conclusion and recommendations of the main findings on the relationship between microeconomic variables and institutional efficiency of companies listed in the NSE.

#### **5.2 Summary**

Efficiency of a firm or an industry is very important as it shows the results achieved over a time period. Firm efficiency is dependent upon micro economic variables and macro-economic variables. Micro-economic variables are the internal firm specific variables. Management is able to control these variables. Firm efficiency can be influenced by factors that can be controlled by the firm, as well as by factors that are not under the control of such firms. Controllable factors include everything related to management of inputs and outputs or transforming inputs into outputs. The study sought to establish the relationship between micro-economic variables and institutional efficiency of companies listed in the NSE in Kenya. The study adopted a descriptive research design. The population of interest for this study was all the 60 companies listed on NSE in Kenya. Thus it will be a census survey. The study applied secondary data which is extracted from the firms' annual reports and financial statements for the five-year period commencing 2010 up to 2014. The data collected were therefore cleaned, coded and systematically organized in a manner that facilitates analysis using the Statistical Package for Social Sciences (SPSS). In order to test the relationship between the variables the inferential tests including the

regression analysis was used. The study found that the four variables contribute to 70.9% of institutional efficiency and that a unit increase in Capitalization leads to a 0.118 increase in institutional efficiency. From the study findings and discussion, the study concludes that microeconomic variables affect the level of institutional efficiency of companies listed in the NSE. The conclusion is that microeconomic variables had a positive and significant effect on institutional efficiency of companies listed in the NSE for the period of this study. The study recommends that companies listed in NSE should approve strategy and significant policies related to the management of liquidity risk under both normal and stressed conditions and review and approve these policies frequently as need arise. Also, it was recommended that a structure should be put in place to effectively execute financial strategies and also develop methodologies and policies to determine the level of earmarked liquid assets.

### **5.3 Conclusions**

The study concludes that firm size positively and significantly influence the institutional efficiency of companies listed in the NSE. This is in line with Agiomirgiannakis et al (2006) who found that firm size is positively related to a firm's ability to produce technologically complicated products which in turn leads to efficiency. Amato and Amato (2004) also found that the positive association between firm size and efficiency stems from implementing greater differentiation and specialization strategies, and should therefore lead to higher efficiency

The study also concludes that capitalization positively and significantly influence the institutional efficiency of companies listed in the NSE. This correlates to Garcia-Herrero et al. (2009) showed a positive impact of capital on company efficiency. On the other hand, studies of Hoffmann, (2011), showed a significant negative impact of

capital on company efficiency. The contradicting empirical evidence suggests that higher capital ratio leads to lower efficiency

The study further concludes that the coefficient for leverage was 0.102, meaning that leverage positively and significantly influenced the institutional efficiency of companies listed in the NSE. This agrees with Bothwell, Cooley and Hall (1984) who indicated that higher leveraged firms (with relatively high liabilities) are more profitable. Van Horne (2002) also argues that the advantage of debt in a world of corporate taxes is that interest payments are deductible as an expense. Previous studies revealed that managers cannot keep increasing the level of debt and that debt can also serve as a protection mechanism not to overinvest as cash should be paid to bondholders limiting the possibility of conducting wasteful activities and bondholders have a possibility to evaluate management (Pawlina, 2010)

The study finally concludes that the coefficient for quality management was 0.125, meaning that quality management positively and significantly influenced the institutional efficiency of companies listed in the NSE. The study also established that the coefficient for quality management was 0.125, meaning that quality management positively and significantly influenced the institutional efficiency of companies listed in the NSE. This agrees with Thuo (2014) who management quality positively and significantly influenced efficiency of commercial banks in Kenya. Njoroge (2013) who investigated the determinants of efficiency on savings and credit co-operative societies in Nairobi County also established that management quality positively and significantly influenced efficiency of the firms.

#### **5.4 Recommendations for Policy and Practice**

The study also recommends that local researchers and academicians should increasingly study the microeconomic variables to add on to the limited literature in the area. This will ensure that there will be adequate local literature that can be used to relate to local situation. Foreign studies may not be reliable to explain the case of the effect of microeconomic variables in Kenya. The study further recommends that there should be a policy set to standardize the presentation of financial statements commercial banks in Kenya. This will make it easier for all the parties interested in using the data from these statements. Further studies can also use primary data to collect data from the commercial banks in Kenya. The study also recommends that future studies should allocate more time to the data collection process and sponsors step in to support the studies. This will make it possible for researchers to study other factors that affect the operational efficiency of commercial banks in Kenya that the study did not address.

Finally, the study recommends that financial institutions should relate the microeconomic variables to their financial reports. This should indicate the appropriate effect of each microeconomic variable. This will make it easier for other researchers to collect and relate data on microeconomic variables.

#### **5.5 Limitations of the Study**

The main limitations of this study with regard to data availability, 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 companies listed in NSE, data computation was made even harder. In addition, time and resources allocated to this study could not allow the study to be conducted as deeply as possible in terms of other predictor variables for operational efficiency of commercial banks in Kenya. Finally,

the study had a draw back from most financial institutions which lacked proper reports that showed records of the benefits directly accrued from the microeconomic variables. This posed a challenge on data collection process.

Second, time and resources allocated to this study could not allow the study to be conducted as deeply as possible in terms of other predictor variables for institutional efficiency of companies listed in the NSE. Another challenge is limited data availability and the uncertain quality of the data used. The quality of the data may be a weakness of this study. It is not possible to tell from this research whether the results are simply due to the nature and quality of data used or whether it is the true picture of the situation. Actually the use of the data from the various sources like the KNBS is based on the assumption that the data are accurately captured.

On the other hand, the study considered the period between 2010 and 2014, a period of 5 years. Within this period many changes occurred in the stock market that the study did not account for such as share splits for some of the companies considered in the study. These unaccounted for issues may have in one way or another affected the outcomes of the study. However, this effect was not expected for the study since the occurrence of such cases is rare and none was recorded within the study period for the firms involved in the study, though one share split was observed in the market for a firm not involved in the study. Therefore, the study was limited to the study factors only.

Another limitation is developing a model which would enable a researcher to study the relationship between the various variables. Further, the model may not be reliable due to some shortcoming of the regression models. Due to the shortcomings of regression models, other models can be used to explain the various relationships

between the variables. When developing this model, there was a great need to define the dependent variables and independent variables. If the model is not correct, the process of analysis may not give the right results. In this case, multiple linear regressions was used since there were multiple variables which required to be studied.

### **5.6 Suggestions for Further Studies**

Since the study focused on the effect of microeconomic variables on institutional efficiency of the companies listed in NSE, further studies should be done on companies not listed in NSE to find out whether the study will give the same results.

This study was generalized to companies listed in NSE. Therefore, there is a need to narrow down to specific sectors to look at the effect of microeconomic variables in other sectors, for example manufacturing, agriculture, and construction among others.

The study recommends that further studies can be undertaken to establish the relationship between institutional efficiency and financial performance of companies listed in NSE in Kenya. Other studies can also be done on the effect of macroeconomic variables (external factors) and their effect on institutional efficiency of companies listed in NSE.



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## APPENDICES

### Appendix I: Companies listed at the NSE as at December 2014

<b>AGRICULTURAL</b>	
1	Eaagads Ltd
2	Kapchorua Tea Co. Ltd
3	Kakuzi
4	Limuru Tea Co. Ltd
5	Rea Vipingo Plantations Ltd
6	Sasini Ltd
7	Williamson Tea Kenya Ltd
<b>AUTOMOBILES AND ACCESSORIES</b>	
8	Car and General (K) Ltd
9	Sameer Africa Ltd
10	Marshalls (E.A.) Ltd
<b>BANKING</b>	
11	Barclays Bank Ltd
12	CFC Stanbic Holdings Ltd
13	IandM Holdings Ltd
14	Diamond Trust Bank Kenya Ltd
15	Housing Finance Co Ltd
16	Kenya Commercial Bank Ltd
17	National Bank of Kenya Ltd



18	NIC Bank Ltd Ord
19	Standard Chartered Bank Ltd
20	Equity Bank Ltd
21	The Co-operative Bank of Kenya Ltd
	<b>COMMERCIAL AND SERVICES</b>
22	Express Ltd
23	Kenya Airways Ltd
24	Nation Media Group
25	Standard Group Ltd
26	TPS Eastern Africa (Serena) Ltd
27	Scangroup Ltd
28	Uchumi Supermarket Ltd
29	Hutchings Biemer Ltd
30	Longhorn Kenya Ltd
31	Atlas Development and Support Services
	<b>CONSTRUCTION AND ALLIED</b>
32	Athi River Mining
33	Bamburi Cement Ltd
34	Crown Berger Ltd
35	E.A.Cables Ltd
36	E.A.Portland Cement Ltd
	<b>ENERGY AND PETROLEUM</b>
37	KenolKobil Ltd

38	Total Kenya Ltd
39	KenGen Ltd
40	Kenya Power and Lighting Co Ltd
41	Umeme Ltd
<b>INSURANCE</b>	
42	Jubilee Holdings Ltd
43	Pan Africa Insurance Holdings Ltd
44	Kenya Re-Insurance Corporation Ltd
45	Liberty Kenya Holdings Ltd
46	British-American Investments Company ( Kenya) Ltd
47	CIC Insurance Group Ltd
<b>INVESTMENT</b>	
48	Olympia Capital Holdings Ltd
49	Centum Investment Co Ltd
50	Home Afrika Ltd
51	Kurwitu Ventures
<b>INVESTMENT SERVICES</b>	
52	Nairobi Securities Exchange Ltd
<b>MANUFACTURING AND ALLIED</b>	
53	B.O.C Kenya Ltd
54	British American Tobacco Kenya Ltd
55	Carbacid Investments Ltd
56	East African Breweries Ltd

57	Mumias Sugar Co. Ltd
58	Unga Group Ltd
59	Eveready East Africa Ltd
60	Kenya Orchards Ltd
61	A.Baumann CO Ltd
62	Flame Tree Group Holdings Ltd

## Appendix II: Raw Data

	Year	Total assets	Size	Net income	Equity/c apital	Total debts	Leverage
EAAGADS LIMITED	2011	359922	5.55621	71,784	727875	24327 37.307	3.342
	2012	573356	5.75842	21,805	54666900 0	29448 83490	5.387
	2013	499561	5.69859	-59,215	82000350 0	14542 46687	1.773
	2014	445793	5.64913	-41,684	932,553,0 00	19956 48499	2.14
KAKUZI LTD	2014	3857454	6.58630	160,205	2,685,200	58053 084.18	21.62
	2013	3717543	6.57026	165,028	2,450,000	17908 990.4	7.31
	2012	3571700	6.55287	408,656	1,862,000	17409 413.25	9.35
	2011	3817320	6.58176	644,397	1,362,200	86045 95.118	6.317
KAPCHORU A TEA LTD	2014	1,929,161	6.28537	-22,785	535,944,0 00	81349 8142.8	1.518
	2013	2,078,475	6.31774	125,991	567,240,0 00	13258 92869	2.337
	2012	1,962,897	6.29290	78,392	473,352,0 00	13139 10601	2.776
	2011	1,570,203	6.19596	187,005	535,944,0 00	24355 24620	4.544
Limuru Tea Ltd	2014	338,600	5.52969	-331	12,396,52 3,500	76070 67142 5	6.136
	2013	343,007	5.53530	28,513	8,039,250 ,000	1.22E +11	15.17 7
	2012	320,023	5.50518	101,834	3,456,877 ,500	79755 48752	2.307
	2011	191,242	5.28158	40,484	402,000,0 00	20795 22282	5.173
REA VIPINGO	2014	3,203,131	6.50557	351,055	1,650,000 ,000	81681 86087	4.95
	2013	2,834,011	6.45240	444,811	1,650,000 ,000	80308 49250	4.867
	2012	2376618	6.37596	380,433	1,020,000 ,000	48796 25856	4.784
	2011	2288740	6.35960	467,196	885,000,0 00	41601 30537	4.701
SASINI TEA LTD	2014	14929577	7.17405	45,421	3,204,179 ,775	14528 53156 6	4.534

	2013	9054366	6.95686	91,689	3,033,138 ,150	13500 52560 1	4.451
	2012	8922980	6.95051	-124,113	2,497,207 ,725	10907 24068 2	4.368
	2011	9462027	6.97598	450,347	2,748,068 ,775	11774 21124 2	4.285
CAR AND GENERAL COMPANY LTD	2014	3857392	6.58629	-66,929	1,670,054 ,358	68774 02995	4.118
	2013	3668487	6.56449	401,189	1,433,463 ,323.95	57837 90711	4.035
	2012	3399651	6.53143	186,454	1,182,955 ,200	46745 68668	3.952
	2011	3125040	6.49486	96,948	1,224,706 ,560	47376 15672	3.868
Marshalls (E.A)Ltd	2014	603935	5.78099	-2,481	143,931,0 60	53281 8263.1	3.702
	2013	515116	5.71191	-110,029	178,474,5 14.40	64583 9418.8	3.619
	2012	567095	5.75366	-165,527	172,717,2 72	61062 9862.6	3.535
	2011	1076865	6.03216	181,501		67424 40781	
SAMEER AFRICA LTD	2014	3,857,392	6.58629	-66,929	1,670,054 ,358	54873 42492	3.286
	2013	3,668,487	6.56449	401,189	1,433,463 ,323.95	45906 55446	3.202
	2012	3,399,651	6.53143	186,454	1,182,955 ,200	36899 42453	3.119
	2011	3,125,040	6.49486	96,948	1,224,706 ,560	37182 37944	3.036
Barclays BANK Kenya Limited	2014	225,844	5.35381	8,387	90,180,09 7,600	2.59E +11	2.87
	2013	206,739	5.31542	7,623	95,612,63 3,600	2.66E +11	2.786
	2012	184,826	5.26676	8,741	85,290,81 5,200	2.31E +11	2.703
	2011	167,029	5.22279	8,073	70,881,54 4,800	1.86E +11	2.62
CFC STANBIC HOLDINGS	2014	180,998,98 5	8.25768	5,686,66 1	49,415,20 4,750	1.21E +11	2.453

LIMITED							
	2013	180,511,797	8.25651	5,127,156	35,183,625,782	83390 39906 3	2.37
	2012	143,212,155	8.15598	2,979,891	16,405,847,977	37518 75552 6	2.287
	2011	150,171,015	8.17659	1,639,157	10,947,368,440	24124 48672 7	2.204
Diamond Trust Bank	2014	211,539,412	8.32539	5,708,430	51,723,500,000	1.05E +11	2.037
	2013	166,520,351	8.22147	5,230,754	42,259,218,432	82573 48728 3	1.954
	2012	135,461,412	8.13182	4,067,978	25,311,511,040	47351 28870 6	1.871
	2011	107,765,064	8.03248	2,996,726	17,705,829,965	31649 29215 4	1.788
EQUITY BANK	2014	344,572,000	8.53728	17,151,000	185,138,851,000	8.47E +11	4.577
	2013	277,728,818	8.44362	13,278,000	113,860,393,365	3.17E +11	2.782
	2012	243,170,458	8.38591	12,080,255	87,940,954,225	94766 57932 8	1.078
	2011	196,293,896	8.29291	10,325,000	60,725,543,128	1.34E +11	2.209
KENYA COMMERCIAL BANK	2014	490,338,324	8.69050	15,878,978	172,437,140,544	2.75E +11	1.594
	2013	390,851,579	8.59201	12,426,674	141,004,758,447	3.59E +11	2.546
	2012	367,379,285	8.56511	12,203,531	88,367,625,591	1.27E +11	1.44
	2011	330,716,159	8.51946	10,981,046	50,023,372,728.60	1.02E +11	2.036
STANDARD CHARTERED BANK	2014	222,495,824	8.34732	10,436,180	103,259,277,676	1.11E +11	1.079
	2013	220,391,180	8.34319	9,262,921	93,984,492,256	3.83E +11	4.076
	2012	195,352,756	8.29082	8,069,533	72,652,485,790	1.91E +11	2.632
	2011	164,046,624	8.21497	5,836,821	45,932,341,280	1.65E +11	3.581
Express	2014	477,922	5.67936	-77,352	230,124,6	14815	6.438

Kenya Ltd					35	73237	
	2013	480,525	5.68172	229	138,074,781	252957141	1.832
	2012	495,609	5.69514	13,028	123,913,265	674331279.4	5.442
	2011	769,296	5.88609	-229,088	138,074,781	261066272.9	1.891
NATION MEDIA GROUP LTD	2014	11,944,300	7.07716	2,460,500	49,575,500,000	1.62E+11	3.273
	2013	11,444,200	7.05859	2,533,200	49,335,231,608	1.64E+11	3.323
	2012	10,677,400	7.02847	2,510,300	41,322,184,436	1.39E+11	3.374
	2011	7,975,200	6.90174	1,203,300	21,996,600,080	75328796345	3.425
SCANGROUP LTD	2014	13,284,104	7.12333	625,476	17,333,078,416.50	61111997176	3.526
	2013	12,744,583	7.10533	831,327	18,280,241,171.50	65376234821	3.576
	2012	8,353,595	6.92187	752,009	25,951,642,987	94124599364	3.627
	2011	8,489,938	6.92890	911,116	11,818,748,812	43463588671	3.678
TPS EASTERN AFRICA LIMITED	2014	15,939,177	7.20247	108,636	6,558,264,000	24781649213	3.779
	2013	16,136,097	7.20780	451,011	8,288,917,000	31740581435	3.829
	2012	13,357,694	7.12573	493,588	5,928,425,600	23001514468	3.88
	2011	13,131,840	7.11833	615,891	8,151,585,200	32039465223	3.93
Athi-River Mining Limited	2014	36,912,580	7.56717	1,493,393	40,860,187,500	1.65E+11	4.032
	2013	29,715,254	7.47298	1,348,803	44,574,750,000	1.82E+11	4.082
	2012	26,953,100	7.43061	1,245,63	22,039,73	91086	4.133

				8	7,500	16572 3	
	2011	20,515,940	7.31209	1,150,49 8	15,650,69 0,000	65473 16921 0	4.183
BAMBURI CEMENT LIMITED	2014	40,991,000	7.61269	3,903,00 0	50,451,33 9,225	2.16E +11	4.285
	2013	43,016,000	7.63363	3,673,00 0	76,221,44 7,750	3.30E +11	4.335
	2012	43038000	7.63385	4,882,00 0	67,147,46 5,875	2.94E +11	4.386
	2011	33502000	7.52507	5,859,00 0	45,369,90 9,375	2.01E +11	4.436
Crown Berger Limited	2014	3852814	6.58578	19,715	2,633,697 ,000	11950 47811 1	4.538
	2013	2945434	6.46915	213,843	1,779,525 ,000	81646 72261	4.588
	2012	2258263	6.35377	133,543	1,008,397 ,500	46776 61719	4.639
	2011	2215352	6.34544	129,002	486,403,5 00	22808 90691	4.689
EAST AFRICAN CABLES LTD	2014	7889496	6.89705	341,149	4,100,625 ,000	19643 94568 1	4.79
	2013	6840055	6.83506	398,202	4,239,843 ,750	20525 36040 8	4.841
	2012	5749429	6.75962	527,060	2,961,562 ,500	14486 94073 5	4.892
	2011	4993032	6.69836	314,730	2,670,468 ,750	13198 10775 5	4.942
KenolKobil Ltd	2014	23915166	7.37867	1,091,28 4	12,951,49 8,560	65319 87808 7	5.043
	2013	28121673	7.44904	558,419	13,908,14 3,340	70848 24477 4	5.094
	2012	32684166	7.51434	- 6,284,57 5	19,868,77 6,200	1.02E +11	5.145
	2011	38622619	7.58684	3,273,83 1	14,644,02 3,940	76078 49042 1	5.195
KENGEN	2014	250205524	8.39830	2,826,32	23,962,13	49213	2.054



				3	9,870.40	99399 5	
	2013	188673282	8.27571	5,224,70 4	33,305,17 6,058.40	58891 71103 9	1.768
	2012	163144873	8.21257	2,822,60 0	18,905,90 8,521.60	20946 10182 8	1.108
	2011	160993290	8.20681	2,080,12 1	29,787,79 7,728.80	1.03E +11	3.449
Kenya Power and Lighting Company	2014	220109352	8.34264	6,456,23 4	26,052,08 5,050.75	4.31E +11	16.53 9
	2013	183712535	8.26414	4,352,16 5	28,296,27 2,152.50	30380 49067 0	1.074
	2012	134131983	8.12753	4,617,13 6	29,662,29 9,084	51383 70408 0	1.732
	2011	119878993	8.07874	4,219,56 6	37,294,70 3,541	50528 31885 1	1.355
Jubilee Holdings Ltd	2014	74,505,374	7.87219	3,103,65 3	26,952,75 0,000	44553 38090 0	1.653
	2013	61,159,185	7.78646	2,502,81 7	19,344,09 4,750	55547 84478 5	2.872
	2012	47,257,540	7.67447	2,284,50 1	10,352,62 9,910	62250 98481	0.601
	2011	38,039,832	7.58024	1,910,39 0	8,439,750 ,000	19861 46622 9	2.353
PAN AFRICA INSURANC E HOLDINGS LIMITED	2014	32,174,251	7.50751	3,137,17 2	12,039,12 2,800	26004 03572 2	2.16
	2013	27,628,311	7.44135	2,792,46 6	9,659,296 ,200	14964 00780 6	1.549
	2012	23,173,248	7.36499	2,801,89 2	7,594,446 ,650	37799 62666 7	4.977
	2011	19,096,441	7.28095	1,914,58 4	4,380,000 ,000	76627 96860	1.749
Liberty Kenya	2014	72,450,354	7.86004	2,497,87 8	58,152,48 0,000	1.10E +11	1.89

Holdings Ltd							
	2013	31,452,190	7.49765	1,105,920	7,754,818,978.20	14094314137	1.817
	2012	27,372,100	7.43731	857,849	3,375,020,884.20	5890100594	1.745
	2011	23,895,777	7.37832	950,418	3,375,020,884.20	5646130916	1.673
BOC KENYA LIMITED	2014	2,308,320	6.36330	229,625	2,440,680,750	3730198798	1.528
	2013	2,633,093	6.42047	202,636	2,440,625,000	3553688464	1.456
	2012	1,989,541	6.29875	197,374	1,942,737,500	2688301615	1.384
	2011	1,816,803	6.25931	150,604	1,952,500,000	2560670565	1.311
Unga Group Ltd	2014	8,026,578	6.90453	382,767	3,009,352,693.50	3511641568	1.167
	2013	8,108,379	6.90893	264,773	2,574,037,524	2817599157	1.095
	2012	6,399,829	6.80617	348,195	5,261,635,527	5379157025	1.022
	2011	5,708,897	6.75655	441,043	681,362,874	647327899.4	0.95
Safaricom Limited	2014	134,600,946	8.12905	23,017,540	492,804,764,400	3.97E+11	0.805
	2013	128,856,157	8.11011	17,539,810	240,000,000,000	1.76E+11	0.733
	2012	121,899,677	8.08600	12,627,607	128,000,000,000	84595356391	0.661
	2011	113,854,762	8.05635	13,158,973	152,000,000,000	89469382286	0.589
BRITISH AMERICAN TOBACCO LTD	2014	18,253,510	7.26135	4,225,314	90,000,000,000	39963656504	0.444
	2013	16,985,923	7.23009	3,723,691	59,500,000,000	22119348908	0.372
	2012	15176495	7.18117	3,270,852	49,300,000,000	14763718096	0.299
	2011	13750545	7.13832	3,097,755	24,600,000,000	5588628832	0.227

Source: Data obtained from Nairobi Securities Exchange

Sector\Firm	Year	CRSE	Net Sales	Pre-Tax Profit	ROE
Rea Vipingo Ltd.	2014	214,222	214,066	60,234	0.1373
Sasini Tea and Coffee Ltd.	2014	1,929,050	759,722	331,612	0.1419
Kakuzi Ltd.	2014	212	558,890	210,932	0.6936
Marshalls E.A. Ltd.	2014	329,984	117,479	57,748	0.0604
Car and General Ltd.	2014	221,552	1,793,900	911,638	0.4791
Kenya Airways Ltd.	2014	37,081,000	5,664,000	1,827,573	0.0311
CMC Holdings Ltd.	2014	338,558	807,283	484,477	0.7156
Nation Media Group Ltd.	2014	89,300	1,617,400	1,176,689	0.6331
TPS (Serena) Ltd.	2014	1,943,771	520,002	382,930	0.1306
Standard Group Ltd.	2014	891,572	376,493	247,619	0.1421
Barclays Bank of Kenya Ltd.	2014	2,553,894	9,002,000	7,667,532	1.6789
Housing Finance Ltd.	2014	608,586	544,100	311,638	0.1671
Centum Investment Ltd.	2014	67,171	475,653	376,587	0.1943
Kenya Commercial Bank Ltd.	2014	760,334	5,113,456	3,300,361	0.5562
National Bank of Kenya Ltd.	2014	1,929,755	3,422,862	2,159,441	0.6093
Pan Africa Insurance Holdings Co. Ltd	2014	2,099,178	3,732,267	173,647	0.0401
Diamond Trust Bank of Kenya Ltd.	2014	1,085,191	3,041,672	1,929,862	1.2700
Jubilee Insurance Co. Ltd	2014	438,019	3,516,778	1,115,776	0.4825
Standard Chartered Bank Ltd.	2014	1,392,560	4,660,483	3,559,028	1.2685
NIC Bank Ltd.	2014	1,223,952	4,969,889	2,916,342	0.8979
Equity Bank Ltd.	2014	2,056,671	5,279,294	3,694,921	0.6168
Olympia Capital Holdings Ltd	2014	36,170	61,945	46,587	0.1101
Athi River Mining Ltd.	2014	4,658,399	948,714	559,028	0.0698
BOC Kenya Ltd.	2014	454,607	231,682	178,535	0.1227
British American Tobacco Kenya Ltd.	2014	1,248,055	2,108,964	1,694,921	0.2966
Carbacid Investments Ltd. .	2014	142,237	2,525,633	1,871,811	8.9652
E.A. Cables Ltd.	2014	635,519	726,444	497,823	0.2644
E.A. Breweries Ltd.	2014	2,746,441	11,989,258	8,416,342	0.6911
Sameer Africa Ltd.	2014	117,044	221,464	144,483	1.2344
Mumias Sugar Company Ltd.	2014	975,907	1,193,161	903,983	0.1216
Unga Group Ltd.	2014	334,142	260,439	120,662	0.0499
Bamburi Cement Ltd.	2014	6,227,000	9,596,000	7,236,005	0.6477
Crown berger (K) Ltd.	2014	97,860	139,818	83,582	0.0818
E.A Portland Cement Co. Ltd.	2014	4,426,723	1,881,678	920,873	0.1551
Kenya Power and	2014	2,461,017	4,782,433	3,990,543	0.0911

Lighting Co. Ltd.					
Total Kenya Ltd.	2014	3,978,000	733,699	533,596	0.0236
Eveready East Africa Ltd.	2014	469,496	741,568	316,281	0.3170
A. Baumann and Company	2014	5,935	15,799	-7,394	(0.1127)
Eaagads Ltd	2014	6,750	16,830	11,156	0.1701
Williamson Tea Kenya	2014	349,183	145,341	76,689	0.1450
KenyaOchards	2014	29,984	132,911	82,930	0.1832
Express Ltd	2014	389,913	225,916	118,920	0.1334
Kapchorua Tea Co. Ltd	2014	271,966	99,735	-87,619	(0.1831)
Limuru Tea	2014	11,693	38,731	15,520	0.5383
Rea Vipingo Ltd.	2013	202,358	227,219	110,516	0.1460
Sasini Tea and Coffee Ltd.	2013	1,717,778	1,266,406	935,202	0.4498
Kakuzi Ltd.	2013	604,515	390,189	247,861	0.2446
Marshalls E.A. Ltd.	2013	449,880	169,688	113,319	0.1169
Car and General Ltd.	2013	208,038	321,565	147,040	0.0907
Kenya Airways Ltd.	2013	3,679,400	5,513,000	2,159,610	0.0424
CMC Holdings Ltd.	2013	240,868	1,328,849	744,068	0.1035
Nation Media Group Ltd.	2013	131,200	1,910,300	1,771,591	0.7689
TPS (Serena) Ltd.	2013	1,738,714	330,014	276,587	0.1004
Standard Group Ltd.	2013	842,960	428,774	251,312	0.1489
Barclays Bank of Kenya Ltd.	2013	1,926,705	8,016,000	6,803,565	1.4493
Housing Finance Ltd.	2013	149,051	436,755	334,334	0.1894
Centum Investment Ltd.	2013	26,039	985,280	747,861	0.5899
Kenya Commercial Bank Ltd.	2013	559,835	4,843,356	3,658,583	0.6222
National Bank of Kenya Ltd.	2013	1,612,990	3,118,207	2,002,833	0.5828
Pan Africa Insurance Holdings Co. Ltd	2013	1,826,155	3,432,080	1,903,726	0.4450
Diamond Trust Bank of Kenya Ltd.	2013	959,309	2,745,951	2,073,700	1.4435
Jubilee Insurance Co. Ltd	2013	92,467	3,059,824	2,660,220	1.1354
Standard Chartered Bank Ltd.	2013	973,729	4,373,698	3,001,257	1.1621
NIC Bank Ltd.	2013	893,814	4,687,567	3,714,367	1.2712
Equity Bank Ltd.	2013	1,508,064	5,601,439	4,717,081	0.8482
Olympia Capital Holdings Ltd	2013	76,798	34,875	21,550	0.0520
Athi River Mining Ltd.	2013	2,382,004	705,450	686,169	0.1624
BOC Kenya Ltd.	2013	603,119	295,179	129,172	0.0806
British American Tobacco Kenya Ltd.	2013	1,013,524	2,416,913	1,718,047	0.3173
Carbacid Investments Ltd. .	2013	146,750	2,506,467	1,863,391	10.0692
E.A. Cables Ltd.	2013	488,078	669,927	503,618	0.3004
E.A. Breweries Ltd.	2013	2,269,487	12,316,332	9,083,267	0.8156

Sameer Africa Ltd.	2013	128,528	165,522	90,478	0.0411
Mumias Sugar Company Ltd.	2013	1,712,983	1,589,204	913,768	0.1788
Unga Group Ltd.	2013	259,438	564,016	324,277	0.1804
Bamburi Cement Ltd.	2013	2,170,000	4,889,000	2,322,788	0.2000
Crown berger (K) Ltd.	2013	96,002	77,781	23,645	0.0210
E.A Portland Cement Co. Ltd.	2013	650,221	715,889	512,909	0.1016
Kenya Power and Lighting Co. Ltd.	2013	1,412,457	2,738,309	1,101,894	0.0307
Total Kenya Ltd.	2013	902,908	1,031,368	950,843	0.1000
Eveready East Africa Ltd.	2013	86,765	27,855	22,107	0.0469
A. Baumann and Company	2013	58,511	94,479	42,138	0.5009
Eaagads Ltd	2013	38,511	42,960	22,811	0.2712
Williamson Tea Kenya	2013	80,201	143,984	77,216	0.0731
KenyaOchards	2013	49,880	116,725	61,107	0.1573
Express Ltd	2013	78,979	52,864	19,140	0.0215
Kapchorua Tea Co. Ltd	2013	43,165	103,081	67,612	0.1874
Limuru Tea	2013	11,399	15,234	9,875	0.4560
Rea Vipingo Ltd.	2012	60,026	167,785	113,381	0.2479
Sasini Tea and Coffee Ltd.	2012	61,433	70,723	33,019	0.0379
Kakuzi Ltd.	2012	27,784	270,330	143,525	0.1296
Marshalls E.A. Ltd.	2012	60,090	142,321	97,066	0.0808
Car and General Ltd.	2012	189,960	257,446	162,925	0.1410
Kenya Airways Ltd.	2012	4,108,400	5,975,000	4,155,862	0.0747
CMC Holdings Ltd.	2012	256,508	879,236	753,314	0.1431
Nation Media Group Ltd.	2012	267,200	1,601,600	1,125,316	0.5204
TPS (Serena) Ltd.	2012	177,465	617,380	510,201	0.1644
Standard Group Ltd.	2012	70,917	413,120	235,852	0.1671
Barclays Bank of Kenya Ltd.	2012	995,542	7,078,800	6,066,012	1.4617
Housing Finance Ltd.	2012	212,099	352,814	250,894	0.1506
Centum Investment Ltd.	2012	73,363	1,185,778	916,110	0.7808
Kenya Commercial Bank Ltd.	2012	889,498	3,598,781	2,325,291	0.4768
National Bank of Kenya Ltd.	2012	289,024	2,733,201	1,354,852	0.4041
Pan Africa Insurance Holdings Co. Ltd	2012	190,510	3,867,619	2,641,375	0.5918
Diamond Trust Bank of Kenya Ltd.	2012	912,895	2,002,037	1,335,713	1.0783
Jubilee Insurance Co. Ltd	2012	179,307	3,136,456	2,631,995	1.3409
Standard Chartered Bank Ltd.	2012	1,071,572	4,270,874	3,910,188	1.6827
NIC Bank Ltd.	2012	911,902	4,405,295	3,049,907	1.1110
Equity Bank Ltd.	2012	1,059,132	4,539,715	3,378,520	0.6759
Olympia Capital	2012	106,687	260,090	142,675	0.3590

Holdings Ltd					
Athi River Mining Ltd.	2012	166,635	620,640	485,887	0.1778
BOC Kenya Ltd.	2012	62,531	399,769	269,929	0.1850
British American Tobacco Kenya Ltd.	2012	1,032,190	2,049,596	1,859,438	0.4063
Carbacid Investments Ltd. .	2012	199,670	2,452,291	1,002,404	5.6045
E.A. Cables Ltd.	2012	671,922	597,486	383,748	0.1821
Sameer Africa Ltd.	2012	151,947	166,520	92,439	0.0417
Mumias Sugar Company Ltd.	2012	196,583	1,909,894	1,131,910	0.3162
Unga Group Ltd.	2012	50,571	156,665	117,890	0.0843
Bamburi Cement Ltd.	2012	2,422,000	5,443,000	3,101,068	0.5493
Crown berger (K) Ltd.	2012	102,678	140,293	75,474	0.1060
E.A Portland Cement Co. Ltd.	2012	389,622	1,112,625	956,679	0.1794
Kenya Power and Lighting Co. Ltd.	2012	722,646	2,648,691	1,833,229	0.0731
Total Kenya Ltd.	2012	384,343	781,935	403,938	0.0520
Eveready East Africa Ltd.	2012	101,757	179,505	115,141	0.1543
A. Baumann and Company	2012	16,667	13,059	5,473	0.1079
Eaagads Ltd	2012	4,428	28,921	15,738	0.2896
Williamson Tea Kenya	2012	62,681	214,067	133,850	0.1599
KenyaOchards	2012	60,905	124,699	93,436	0.2759
Express Ltd	2012	12,362	112,380	80,157	0.2110
Kapchorua Tea Co. Ltd	2012	23,937	20,545	-13,372	(0.0430)
Limuru Tea	2012	14,426	24,458	14,366	0.7212
Rea Vipingo Ltd.	2011	168,381	157,358	105,505	0.2546
Sasini Tea and Coffee Ltd.	2011	50,418	349,493	181,760	0.2272
Kakuzi Ltd.	2011	66,045	189,752	114,773	0.0916
Marshalls E.A. Ltd.	2011	60,861	534,850	317,352	0.2607
Car and General Ltd.	2011	160,461	176,815	117,246	0.1679
Kenya Airways Ltd.	2011	1,362,180	6,960,000	5,128,759	0.0986
CMC Holdings Ltd.	2011	409,723	559,036	322,549	0.0755
Nation Media Group Ltd.	2011	358,900	1,150,800	943,799	0.5257
TPS (Serena) Ltd.	2011	207,753	498,605	113,619	0.0415
Standard Group Ltd.	2011	173,964	304,507	176,959	0.2446
Barclays Bank of Kenya Ltd.	2011	910,558	6,475,000	3,143,217	0.8344
Housing Finance Ltd.	2011	29,597	278,684	120,218	0.0732
Centum Investment Ltd.	2011	48,604	696,489	416,396	0.4001
Kenya Commercial Bank Ltd.	2011	852,037	3,502,189	2,178,870	0.5156
National Bank of Kenya Ltd.	2011	105,798	2,663,204	1,189,176	0.3627
Pan Africa Insurance Holdings Co. Ltd	2011	925,096	3,850,217	2,510,937	0.7331

Diamond Trust Bank of Kenya Ltd.	2011	663,324	1,985,233	1,002,579	0.9606
Jubilee Insurance Co. Ltd	2011	76,708	3,146,248	2,197,452	1.1542
Standard Chartered Bank Ltd.	2011	947,619	4,307,263	3,728,611	1.7228
NIC Bank Ltd.	2011	953,807	4,468,275	2,494,259	0.9880
Equity Bank Ltd.	2011	926,279	4,629,292	2,360,177	0.5383
Olympia Capital Holdings Ltd	2011	106,687	231,960	103,870	0.2838
Athi River Mining Ltd.	2011	179,814	1,438,211	1,059,793	0.3680
BOC Kenya Ltd.	2011	69,191	333,705	150,200	0.1048
British American Tobacco Kenya Ltd.	2011	760,959	1,746,526	1,165,799	0.3255
Carbacid Investments Ltd. .	2011	240,643	2,181,358	1,380,313	8.0913
E.A. Cables Ltd.	2011	333,311	422,812	360,523	0.3270
E.A. Breweries Ltd.	2011	1,905,700	8,577,049	6,333,955	0.4014
Sameer Africa Ltd.	2011	20,183	114,865	92,599	0.0635
Mumias Sugar Company Ltd.	2011	215,541	2,219,889	1,554,636	0.3735
Unga Group Ltd.	2011	89,098	142,427	118,813	0.0853
Cement Ltd.	2011	2,319,000	3,838,000	1,317,900	0.2759
Crown berger (K) Ltd.	2011	11,648	80,350	67,931	0.0889
E.A Portland Cement Co. Ltd.	2011	457,733	924,364	800,793	0.1340
Kenya Power and Lighting Co. Ltd.	2011	604,355	2,497,983	1,732,381	0.0954
Total Kenya Ltd.	2011	310,448	677,194	332,881	0.0311
Eveready East Africa Ltd.	2011	82,900	234,036	163,418	0.3431
A. Baumann and Company	2011	16,188	49,991	-12,177	(0.2847)
Eaagads Ltd	2011	47,085	191,070	115,396	2.3233
Williamson Tea Kenya	2011	68,580	86,666	50,677	0.0557
KenyaOchards	2011	6,861	58,818	19,367	0.0673
Express Ltd	2011	13,370	102,508	91,456	0.1766
Kapchorua Tea Co. Ltd	2011	24,691	133,720	100,984	0.2879
Limuru Tea	2011	1,386	6,955	3,180	0.1665
Rea Vipingo Ltd.	2010	18,298	185,139	91,082	0.2138
Sasini Tea and Coffee Ltd.	2010	42,491	524,894	468,966	0.7154
Kakuzi Ltd.	2010	54,003	112,082	94,483	0.0819
Marshalls E.A. Ltd.	2010	5,211	61,850	45,378	0.0435
Car and General Ltd.	2010	119,619	283,010	121,085	0.2171
Kenya Airways Ltd.	2010	1,849,000	4,652,000	3,153,265	0.0971
CMC Holdings Ltd.	2010	369,782	461,680	211,903	0.0528
Nation Media Group Ltd.	2010	37,100	1,018,400	922,287	0.7711
TPS (Serena) Ltd.	2010	18,998	140,300	100,284	0.0381
Standard Group Ltd.	2010	86,335	118,051	81,102	0.1310
Barclays Bank of Kenya	2010	1,075,208	5,427,000	4,096,408	1.1586

Ltd.					
Housing Finance Ltd.	2010	175,937	283,041	122,679	0.0731
Centum Investment Ltd.	2010	182,198	373,999	278,817	0.2963
Kenya Commercial Bank Ltd.	2010	425,521	2,686,303	1,045,718	0.2632
National Bank of Kenya Ltd.	2010	109,763	1,750,764	914,309	0.2873
Pan Africa Insurance Holdings Co. Ltd	2010	769,865	2,815,235	1,635,032	0.5914
Diamond Trust Bank of Kenya Ltd.	2010	442,037	1,559,698	1,003,875	1.0121
Jubilee Insurance Co. Ltd	2010	814,209	2,944,162	2,216,419	1.1708
Standard Chartered Bank Ltd.	2010	786,381	3,008,627	2,332,929	1.2005
NIC Bank Ltd.	2010	985,804	3,073,092	2,563,617	1.0702
Equity Bank Ltd.	2010	907,664	3,137,556	2,767,707	0.6756
Olympia Capital Holdings Ltd	2010	14,275	48,706	22,559	0.0790
Athi River Mining Ltd.	2010	15,082	295,920	116,568	0.0575
BOC Kenya Ltd.	2010	57,480	291,257	180,180	0.1338
British American Tobacco Kenya Ltd.	2010	661,449	2,008,971	1,185,083	0.5036
Carbacid Investments Ltd. .	2010	184,305	1,578,437	1,061,073	6.2969
E.A. Cables Ltd.	2010	44,592	294,035	187,576	0.4051
E.A. Breweries Ltd.	2010	1,690,612	8,599,051	7,729,550	0.5372
Sameer Africa Ltd.	2010	146,024	294,253	175,225	0.1490
Mumias Sugar Company Ltd.	2010	180,885	1,843,381	1,173,941	0.3435
Unga Group Ltd.	2010	91,987	155,017	122,007	0.0699
Bamburi Cement Ltd.	2010	1,030,000	3,147,000	2,116,524	0.5225
Crown berger (K) Ltd.	2010	13,194	69,726	40,436	0.0661
E.A Portland Cement Co. Ltd.	2010	457,036	1,086,280	942,608	0.1725
Kenya Power and Lighting Co. Ltd.	2010	635,567	1,979,276	1,019,275	0.0602
Total Kenya Ltd.	2010	281,708	798,190	518,136	0.0842
Eveready East Africa Ltd.	2010	100,969	303,004	242,087	0.8329
A. Baumann and Company	2010	35,214	2,393	-11,228	(0.0926)
Eaagads Ltd	2010	3,646	12,868	8,891	0.2232
Williamson Tea Kenya	2010	69,859	139,754	85,255	0.0970
KenyaOchards	2010	52,131	108,963	94,260	0.3278
Express Ltd	2010	41,680	76,580	43,525	0.1198
Kapchorua Tea Co. Ltd	2010	2,503	37,277	21,451	0.0670
Limuru Tea	2010	5,565	4,490	-1,610	(0.0785)
Rea Vipingo Ltd.	2009	20,218	177,941	86,090	0.1901
Sasini Tea and Coffee Ltd.	2009	590,503	1,104,137	843,518	1.0385



Kakuzi Ltd.	2009	68,320	92,996	78,152	0.0741
Marshalls E.A. Ltd.	2009	7,329	22,256	16,224	0.0111
Car and General Ltd.	2009	29,436	44,006	15,247	0.0443
Kenya Airways Ltd.	2009	1,350,200	2,075,000	908,915	0.0433
CMC Holdings Ltd.	2009	44,829	381,875	114,160	0.0320
Nation Media Group Ltd.	2009	10,600	894,700	676,408	0.5672
TPS (Serena) Ltd.	2009	32,851	197,540	145,032	0.1506
Standard Group Ltd.	2009	13,322	451,908	360,284	0.5251
Barclays Bank of Kenya Ltd.	2009	974,141	5,391,000	3,002,466	0.8667
Housing Finance Ltd.	2009	24,842	195,022	164,256	0.1063
Centum Investment Ltd.	2009	60,496	348,451	225,951	0.2635
Kenya Commercial Bank Ltd.	2009	992,666	2,266,545	1,521,820	0.4004
National Bank of Kenya Ltd.	2009	256,302	1,296,963	726,854	0.3211
Pan Africa Insurance Holdings Co. Ltd	2009	130,666	2,332,852	1,634,288	0.6398
Diamond Trust Bank of Kenya Ltd.	2009	901,692	1,366,007	959,441	0.9900
Jubilee Insurance Co. Ltd	2009	734,051	2,399,163	1,528,892	0.8783
Standard Chartered Bank Ltd.	2009	866,417	2,432,319	1,015,781	0.5356
NIC Bank Ltd.	2009	987,685	2,465,475	1,988,202	0.9847
Equity Bank Ltd.	2009	903,127	3,498,634	2,719,814	0.7155
Olympia Capital Holdings Ltd	2009	21,394	35,150	22,862	0.0881
Athi River Mining Ltd.	2009	33,214	172,368	108,414	0.1099
BOC Kenya Ltd.	2009	46,116	220,980	160,268	0.1221
British American Tobacco Kenya Ltd.	2009	607,488	1,750,602	1,064,875	0.4511
Carbacid Investments Ltd. .	2009	205,670	1,925,884	1,202,670	7.6261
E.A. Cables Ltd.	2009	20,612	178,815	150,070	0.8567
E.A. Breweries Ltd.	2009	1,606,002	7,041,897	6,312,604	0.5009
Sameer Africa Ltd.	2009	113,583	400,473	260,360	0.2673
Mumias Sugar Company Ltd.	2009	192,127	1,138,550	958,819	0.2560
Unga Group Ltd.	2009	13,792	95,505	76,538	0.0339
Bamburi Cement Ltd.	2009	234,800	2,786,000	1,709,197	0.3951
Crown berger (K) Ltd.	2009	53,472	73,639	54,928	0.1126
E.A Portland Cement Co. Ltd.	2009	45,895	391,594	163,427	0.0288
Kenya Power and Lighting Co. Ltd.	2009	625,970	873,684	296,565	0.0200
Total Kenya Ltd.	2009	259,310	931,638	543,877	0.0903
Eveready East Africa Ltd.	2009	215,449	375,909	121,169	0.7196
A. Baumann and Company	2009	38,604	28,272	-5,528	(0.0497)

Eaagads Ltd	2009	3,208	12,760	9,551	0.2778
Williamson Tea Kenya	2009	69,839	123,870	63,283	0.0708
KenyaOchards	2009	7,298	87,830	55,912	0.1962
Express Ltd	2009	1,903	10,237	7,258	0.0177
Kapchorua Tea Co. Ltd	2009	25,149	56,292	30,811	0.1000
Limuru Tea	2009	1,630	13,898	9,560	0.4202

**Source: Data obtained from Nairobi Securities Exchange**

## EFFICIENCY

	2010	2011	2012	2013	2014
Eaagads Limited	0.878 70	0.963 97	0.829 47	0.981 98	1000
Kakuzi Limited	0.618 21	0.749 33	0.213 75	0.612 67	0.476 00
Kapchorua Tea Company Limited	0.657 58	0.896 93	0.482 29	0.928 97	0.961 00
Limuru Tea Company Limited	0.490 33	0.540 30	0.769 06	0.704 65	0.869 00
Rea Vipingo Plantations Limited	0.043 38	0.436 46	0.213 84	0.718 23	1000
Sasini Tea And Coffee Limited	0.874 81	0.927 33	0.537 95	0.785 17	0.643 00
Car And General (Kenya) Limited	0.430 82	0.682 37	0.105 92	0.645 68	0.609 00
Marshalls (EA) Limited	0.349 03	0.727 48	0.109 09	0.796 74	0.866 00
Sameer Africa Limited	0.319 19	0.712 75	0.087 87	0.793 88	0.875 00
Barclays Bank Of Kenya Limited	0.270 02	0.235 80	0.740 43	0.453 90	0.672 00
CFC Stanbic Bank	0.323 11	0.654 07	0.148 08	0.732 04	0.810 00
Co-operative Bank Of Kenya	0.194 98	0.443 62	0.502 72	0.721 81	1000
Diamond Trust Bank (Kenya) Limited	0.207 21	0.923 59	0.759 26	0.744 30	0.565 00
Equity Bank Limited	0.803 39	0.946 32	0.329 14	0.780 66	0.615 00
Housing Finance Company Limited	0.467 50	0.475 28	0.158 44	0.824 64	0.174 00
I andM Holdings Limited	0.358 91	0.294 52	0.475 88	0.896 23	0.663 00
Kenya Commercial Bank Limited	0.457 70	0.923 77	0.944 00	0.811 89	0.700 00
National Bank Of Kenya Limited	0.530 65	0.914 63	0.213 06	0.947 81	0.981 00
NIC Bank Limited	0.870 60	0.288 65	0.256 42	0.941 94	0.761 00
Standard Chartered Bank Kenya Limited	0.732 53	0.648 78	0.946 50	0.713 89	0.779 00
Express Kenya Limited	0.763 69	0.449 75	0.627 89	0.724 87	1000
Kenya Airways Limited	0.461 95	0.797 89	0.784 31	0.849 90	0.420 00
Longhorn Kenya Limited	0.571 12	0.426 43	0.789 62	0.832 32	0.422 00

Nation Media Group Limited	0.898 03	0.379 53	0.617 70	0.725 98	0.414 00
Scangroup Limited	0.609 30	0.481 92	0.051 04	0.432 59	1000
Standard Group Limited	0.797 50	0.458 88	0.121 19	0.950 94	0.443 00
TPS Eastern Africa Limited (Serena Hotels)	0.161 68	0.449 41	0.424 54	0.724 71	1000
Uchumi Supermarket Limited	0.363 71	0.401 55	0.924 31	0.700 78	1000
ARM Cement Limited	0.050 33	0.439 87	0.220 92	0.719 93	1000
Bamburi Cement Company Limited	0.938 56	0.807 39	0.715 99	0.629 70	0.452 00
Crown Paints Kenya Limited	0.763 74	0.301 00	0.122 74	0.936 50	0.572 00
East African Cables Limited	0.835 97	0.885 10	0.573 77	0.778 57	0.672 03
East African Portland Cement Company	0.505 81	0.855 12	0.388 06	0.761 65	0.668 18
KenolKobil Limited	0.867 90	0.558 46	0.766 74	0.899 96	0.664 34
Kenya Electricity Generating Company (Kengen)	0.610 84	0.835 68	0.210 80	0.748 08	0.660 49
The Kenya Power and Lighting Co. Limited	0.714 34	0.637 36	0.389 91	0.910 19	0.656 64
Total Kenya Limited	0.651 10	0.649 02	0.503 31	0.958 85	0.652 79
Umeme Limited	0.596 94	0.510 04	0.031 56	0.298 97	0.648 94
Britam Limited	0.800 41	0.916 08	0.621 96	0.868 35	0.645 09
CIC Insurance Limited	0.597 48	0.621 48	0.488 97	0.916 70	0.641 24
Jubilee Holdings Limited	0.833 81	0.500 81	0.115 01	0.866 20	0.637 39
Kenya Reinsurance Corporation Limited	0.906 22	0.609 87	0.264 01	0.862 27	0.633 54
Liberty Kenya Holdings Limited	0.401 06	0.326 33	0.568 20	0.218 22	0.629 70
Pan Africa Insurance Company Limited	0.432 64	0.869 54	0.541 81	0.747 69	0.625 85
Centum Investment Company (ICDCI) Limited	0.683 86	0.576 84	0.434 71	0.746 95	0.622 00
Home Afrika Limited	0.688 99	0.574 64	0.434 14	0.746 21	0.618 15
Olympia Capital Holdings Limited	0.694 12	0.572 44	0.433 58	0.745 47	0.614 30
Transcentury Limited	0.699	0.570	0.433	0.744	0.610

	25	25	01	72	45
Nairobi Securities Exchange	0.704 38	0.568 05	0.432 44	0.743 98	0.606 60
Boc Kenya Limited	0.709 51	0.565 86	0.431 88	0.743 24	0.602 75
British American Tobacco Kenya Limited	0.714 63	0.563 66	0.431 31	0.742 50	0.598 91
Carbacid Investments Limited	0.719 76	0.561 47	0.430 75	0.741 75	0.595 06
East African Breweries Limited	0.724 89	0.559 27	0.430 18	0.741 01	0.591 21
Eveready East Africa Limited	0.730 02	0.557 07	0.429 61	0.740 27	0.587 36
Mumias Sugar Company Limited	0.735 15	0.554 88	0.429 05	0.739 53	0.583 51
Unga Group Limited	0.740 28	0.552 68	0.428 48	0.738 78	0.579 66
Safaricom	0.745 40	0.550 49	0.427 92	0.738 04	0.575 81

**Source: Data obtained from Nairobi Securities Exchange**