# OWNERSHIP STRUCTURE AND PERFORMANCE OF NON-FINANCIAL INSTITUTIONS LISTED IN THE NAIROBI SECURITIES EXCHANGE

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# DECLARATION

I declare that this project is my original work and has not been presented for a degree in any other for consideration of certification.

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# DEDICATION

To the Almighty God, thank you Lord for your blessings upon my life. You have been my strength all through.

I dedicate this project to my dear husband Mr. Mathews Onyango, my parents Mr. Kepher Onditi Owuor and Mrs. Mary Achieng Onditi who have always valued education, and sacrificed their all to provide me with a good education. I also dedicate this project to my brothers and sisters, who have encouraged me to pursue greater heights in life.

# ABSTRACT

The discussion on the relationship between firm ownership and performance has not been concluded, despite the number of studies that have been conducted to establish the same. This study investigated the relationship between ownership structure and performance of non-financial institutions in the MIMS sector of the Nairobi Securities Exchange during the period 2005 - 2012. In the present study, the ownership structure was considered in terms of foreign and local, and subsidiary, associate and trade investment. The study used Return on Total Assets (ROTA) as the measure of firm performance. The data collected from the sample companies was analysed using regression analysis. Other factors such as firm's age and size were also taken into consideration during data collection and analysis. From the analysis it was found that 6 out of 8 years under study did not reveal any significant relationship between any of the ownership aspects analysed and firm performance, at a significance level of 5%. This means that 75% of the firms' performance was not in any way related to its ownership structure, whether local or foreign, subsidiary, associate or trade investment. Still, the 25% that showed significant statistical relationship had some trends of no significant relationships, for example in the year 2006 there was no difference in the performance of local and foreign companies, no difference in performance of associates and subsidiaries. These findings mean that overally; there is no significant relationship between firm ownership structure and performance. Firm ownership structure therefore does not need be taken into consideration in planning for and projecting firm performance, since it has no significant impact on firm performance.

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# LIST OF ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| **CMA** | Capital Markets Authority |
| **MIMS** | Main Investment Market Segment |
| **MBV** | Market Book Value |
| **NSE** | Nairobi Securities Exchange |
| **OLS** | Ordinary Least Squares |
| **ROA** | Return on Assets |
| **ROE** | Return on Equity |
| **SPSS** | Statistical Package for Social Sciences |
| **TCT** | Transaction Cost Theory |
| **YR** | Year |

# CHAPTER ONE: INTRODUCTION

## 1.1 Background of the Study

The concern for most companies, policy makers and economists is whether ownership structure affects corporate performance, and if so, how. The study into these issues dates back to Berle and Means (1932), who argue that the separation of ownership and control of modern corporations naturally reduces management incentives to maximize corporate efficiency. Ownership structure, as a mechanism in corporate governance to facilitate increased efficiency of a firm, has been believed to affect firm performance for many years. Jensen and Meckling (1976) developed these concerns into what is now known as "agency theory", which is characterized as "a theory of the corporate ownership structure" and the guiding framework for ownership-performance studies. Firm value is defined as a function of ownership structure as the latter is linked to corporate governance and it can have positive as well as negative impact upon corporate governance (Jiang, 2004). Consistent to the above are the findings of Lemmon and Lins (2001), who examined the relationship between the two variables through (Tobin-Q) and involved over 800 firms in eight East Asian countries. Their study found a positive relationship between ownership structure and firm performance. Shareholders and managers are making efforts to combine their interests to reduce agency costs. In a structure-conduct-performance framework, a set of conditions determines the ownership structure of the firm, which then determines the corporate behaviour and performance. The relationship between ownership structure and corporate performance is assumed to exist, because ownership concentration and owner identity (ownership mix) influence the incentives of each party within the firm, and thus influence the firm's ability to solve agency problems. However, the

relationship between ownership structure and firm performance remains blurred in previous studies. According the Economic Survey Report for Kenya (2015), all stock market markets indicators maintained the vibrant trend that started in mid-2013 but at a slower pace. The total number of shares traded increased by 7.4 per cent to 8.1 billion in 2014 compared to an increase of 38.7 per cent recorded in 2013. Total number of deals made in the equity market increased by 28.8 per cent to 548,991 in 2014 against the increase of 24.6 per cent in 2013. The value of shares traded grew by 38.5 per cent to KShs 216 billion in 2014 compared to a growth of 81.4 per cent in 2013. Total Bond turnover also increased from KShs 452 billion in 2013 to KShs 506 billion in 2014. Over the same period, the NSE 20-Share index rose by 3.8 per cent to 5,113 points. The number of licensed players in the industry increased from 93 in 2013 to 103 in 2014. This improved performance was attributed to improved business confidence in the market on account of economic recovery and adoption of best practice within capital markets. A study conducted by Mule, Mukras and Oginda (2013) indicates that in Kenya, a number of problems relating to the way companies are controlled and directed have been identified. The problem mentioned in the study range from errors, mistakes to outright fraud. With such an environment in the background, together with weak judicial system, the interest of both the minority shareholders could be compromised and managed to be skewed towards the interest of such block shareholders, subsequently compromising the performance of firms in Kenya (Mule et al. 2013).

The Principal-agent theory mentions the conflict between shareholders and management. The conflict is led by the different agendas of shareholders and managers, more specifically, the divergence between the control right and cash flow

right. In the recent decades, there has been no shortage of corporate scandals as a result of inefficient governance structures and perverted inventive schemes. The question of what may be the most efficient ownership structure is therefore very relevant. With the agency theory, separation of ownership and control gives rise to agency costs, which lead to lower profits for companies. This requires monitoring the activities of the managers which is costly to the companies, especially if the marginal cost of monitoring exceeds the marginal benefits of the improved performance. The interests of managers and shareholders normally differ, leading to considerable risk that the resources of a company will not be used to maximize shareholder profit. Another theory that is related to the agency theory and also relevant for this study is the Transaction Cost Theory (TCT). The Transaction Cost Theory is based on the work of Coase (1937) which explains the existence of firms as organizations that are able to undertake certain transactions at lower costs by comparing to the market until it expands to the point where the costs of organising an extra transaction within the firm become equal to the costs of carrying out the same transaction by means of an exchange on the open market or the costs of organising in another firm. Later on, Williamson (1971) and Alchian & Demsetz (1975) contributed to the TCT by introducing the market failures and firm inefficiency and came to the conclusion that there was need to work out the trade-off that characterizes firm and market organization as these vary with the attributes of transactions. Williamson (1979) describes three aspects of transactions: the frequency of the transaction, the uncertainty of the transaction and the type and degree of asset specificity. TCT is applied in corporate governance theories to explain principal-agent problems and ownership structure. Holmstrom & Milgrom (1991) used TCT to analyse the multidimensional tasks in the principal-agent model. Different instruments including

employment contracts, ownership assignment, private activities limitation, were analysed based on their cost and incentive benefit in solving the principal-agent problems. Stewardship theory, which has recently been introduced in management literature (Davis, Schoorman, & Donaldson, 1997; Donaldson & Davis, 1991; Lee & O'Neill, 2003), looks into principal-agent issues from a different perspective. According to stewardship theory, some executives are likely to pursue organizational interests even when they conflict with the executives' self interest (Donaldson et al., 1991). The theory defines psychological and situational factors that can lead executives to act less like self-interested agents and more like organizational stewards with whom it might be counterproductive for principals to use the mechanisms recommended by agency theory (Lee et al., 2003).

This study will focus non-financial institutions listed in the Nairobi Securities Exchange from the year 2005 to year 2012. Financial institutions act as intermediaries in financial markets by taking funds from surplus units and channelling to deficit units, or issuing securities and lending funds to deficit units. They include commercial banks, insurance firms and investment firms (Madura, 2012). They are therefore highly regulated by the central bank prudential on issues of liquidity, asset and capital holding, and provision for bad debts among other factors (Santos, 2001) to protect the interests of all the stakeholders in financial markets. Non financial institutions on the other hand are not highly regulated; hence provide the varying characteristics necessary for conducting a study. They do not take deposits or give credit; neither do they issue securities for lending to deficit units. As at 31$^{st}$ December 2014, the Main Investment Market Segment of the NSE had a total of 63 listed firms, out of which 21 were financial and 42 were non financial. A segment known as

Growth & Enterprise Market Segment introduced in the year 2014 had a total of 4 firms listed as at the close of the financial year (Daily Nation, January 06 2015).

### 1.1.1 Ownership Structure

Ownership structure is a technical concept on the pattern share ownership. There are different definitions and concepts of ownership structure. The Miller & Modigliani (MM) classical corporate finance theory that generally divides the capital of a company into equity and debt does not go into the detailed decomposition ownership stakes in the firm. In the wake of the deviation from the classical corporate finance, a notable theory by Jensen and Meckling (1976) made an attempt to present ownership structure theory. They state that the determining variables in ownership structures are the inside equity (held by managers), the outside equity, and debt. Ownership structure can be categorized into ownership concentration and ownership mix (owner identity). Adenikinju and Ayorinde (2003), define ownership concentration as the proportion of shares held by the top 10 shareholders. (Sanda et al., 2005) define ownership concentration as the proportion of a firm's shares owned by a number of the major shareholders. A block is defined as an entity owning more than 10 percent of the firm's equity. Some studies have been conducted to investigate the effect of ownership concentration on growth and risk. Ownership concentration can also be defined as a reaction to the various levels of legal protection of minority shareholders in different countries (Azam, Usmami and Abassi, 2011). In the same context, ownership concentration is measured by the fraction owned by the five largest shareholders or by the significant shareholders (Karaca & Ekşi, 2012; Obiyo & Lenee, 2011; Singh & Gaur, 2009). Ownership mix on the other hand refers to the composition of shareholders of the firms. In this case ownership includes institutional investors,

individual investors and foreign investors. The existence of owner identity effect is based on the argument that different owners may have different strategic goals and the controlling owner's goal preference would influence the operation and performance of the firm. The most frequently defined identities are dispersed (insider) ownership, family, institution and government.

### 1.1.2 Firm Performance

This depends on the value it creates for its shareholders. Shareholders are better off when the value of their shares is increased by the firm decision. Performance refers to the extent to which organization goals and objectives are achieved effectively and efficiently. Different stakeholders require different performance indicators to enable them make informed decisions. These can be either financial or non-financial. Shareholders will want to be certain about the viability, growth, profitability, return on investment and continued financial sustainability of the firm. Financial statements seek to evaluate the performance of management. These can be grouped as liquidity, profitability, risk, growth and market values (Reilly and Brown 1997). Return on asset (ROA) is used by Cronqvist and Nilsson (2002), while return on equity (ROE) is used by Han et al (1999) among others as measures of firms' performance.

### 1.1.3 Ownership Structure and Performance

Early studies, such as those conducted by Berle and Means (1932) on ownership structure and firm performance revealed a positive correlation between ownership concentration and performance, while others revealed an absence of relation between the two (Demsetz & Lehn, 1985; Demsetz, 1983). Demsetz and Lehn (1985) stated that ownership is always endogenously determined for the maximization of firm

performance as these benefits all owners. This does not however negate the importance of ownership concentration as Shleifer and Vishny (1997) claimed that ownership concentration coupled with legal protection forms one of the two key elements that determine corporate governance, which in turn affects firms' financial performance. Corporate governance mechanisms are developed to minimize agency costs that are related to the ownership and control separation (Fama & Jensen, 1983; Jensen & Meckling, 1976). Prior studies show that governance mechanisms enhance firm value to a certain degree (Weir, Laing & McKnight, 2002). Similarly, the distinction between ownership and management is common in today's contemporary public corporations. Some of them make use of performance-based incentive contracts to align owners interests with that of managers while others depend on the markets for managerial expertise and corporate control to stop managers from manipulating investments to their own interests (Sing & Sirmans, 2008). In the same context, the findings of Jensen and Meckling (1979) and Pfeffer and Slanick (1979) provided the first basis of assumptions. Consistent to the above are the findings of Lemmon and Lins (2001), who examined the relationship between the two variables through (Tobin-Q) and involved over 800 firms in eight East Asian countries. Their study found a positive relationship between ownership structure and firm performance.

### 1.1.4 Non-financial Institutions

Financial institutions act as intermediaries in financial markets by taking funds from surplus units and channelling to deficit units, or issuing securities and lending funds to deficit units. They include commercial banks, insurance firms and investment firms (Madura, 2012). Non financial institutions on the other hand do not take deposits or give credit; neither do they issue securities for lending to deficit units. As at 31st

December 2014, the Main Investment Market Segment of the NSE had a total of 63 listed firms, out of which 21 were financial and 42 were non financial. A segment known as Growth & Enterprise Market Segment introduced in the year 2014 had a total of 4 firms listed as at the close of the financial year (Daily Nation, January 06 2015). The sectors that are considered as non-financial in the NSE are agricultural sector, automobile & accessories sector, commercial & services sector, construction and allied sector, energy and petroleum sector, manufacturing and allied sector and telecommunication and technology sector (Daily Nation, January 06 2015).

## 1.2 Research Problem

Firm ownership structure has been an area of interest for many researchers, given the different structures that exist for different types of firms in the country. It is believed to have an impact on the performance of firms, mostly due to the varying nature of interests of the ownership groups. Several studies have been conducted to determine the relationship between firm ownership structure and performance. However, the literature on the topic is not conclusive and has two-way conclusions. Some researchers have found non-monotonic relationship between managerial ownership and firm performance (Morck et al, 1988). Others argue that it's the investment decisions that act as a transmission mechanism between ownership and value of the firm. Jensen and Meckling (1976) suggested that investments are affected by managerial ownership, which in turn affects the value of the firm. Al Matari, Al Swidi & Fadzil (2013) conducted a conceptual study with an aim of offering a comprehensive description of the relevant literature related to the association between the ownership structures, namely; ownership concentration, managerial ownership, government ownership, foreign ownership and institutional ownership; and firm

performance. The literature that they accessed revealed varying findings for different characteristics of ownership; 15 studies revealed a positive relationship between ownership concentration and firm performance, 6 revealed a negative relationship while 12 showed a lack of relationship between the two. For managerial ownership and firm performance, 18 studies revealed a positive relationship, 14 a negative relationship and 13 showed lack of any relationship. For government ownership and performance, 6 studies revealed a positive relationship, 1 study a negative relationship and another one lack of any relationship between the two. For literature reviewed on the relationship between foreign ownership and firm performance, 16 revealed a positive relationship while 4 revealed lack of relationship. The literature on institutional ownership and firm performance revealed a positive relationship in 12 studies, negative in 4 studies and lack of relationship in 7 studies. The review included studies conducted in developed countries such as the United States of America, United Kingdom, Japan, China and non- developed countries such as Nigeria, Pakistan among others. Kenya appears in only one study. This review of literature indicates the lack of conclusion on the relationship between ownership structure and firm performance across the globe. Even fewer studies have been carried out in Kenya to establish the effect of ownership structure on performance. Medline (2004), in her research on the relationship between ownership structure, governance and capital structure of a firm found that there was no relationship between ownership structure, governance and capital structure of firms listed in the NSE. Mwathi (2009) in her study on the relationship between bank ownership structure and financial performance noted that generally, the bank ownership structure had a moderate positive influence on its overall performance. Stephen (2009) found mixed results in her study conducted on the effect of ownership structure on the performance of non-banking firms listed in

the NSE. Mule et al., (2013) studied ownership concentration and financial performance of listed firms in Kenya. They found that ownership concentration of the top five largest shareholders and age of a firm are factors that undermine performance while profitability, growth in firm size and partially tangibility enhance performance. The studies mentioned above drew their study populations from their respective stock exchanges. Generally companies listed in the stock exchanges have similar characteristics, as they must fulfil certain uniform requirements them to qualify for listing. This makes stock exchanges suitable platforms for conducting studies on firms. In Kenya, the Nairobi Securities Exchange (NSE) is a stock market, which deals in the exchange of shares of publicly quoted companies, and government, corporate and municipal bonds among other instruments for money in Kenya. Due to the varying nature of findings, there has been no acceptable conclusion on whether ownership structure has an effect the profitability of a firm or not. This study will therefore will seek to answer the research question, ‘‘is there a relationship between ownership structure and the performance on non-financial institutions listed in the NSE?’’

### 1.3 Research Objective

The objective of this study is to establish the relationship between ownership structure and the financial performance of non-financial institutions listed in the Nairobi Securities Exchange.

### 1.4 Value of the study

The findings of this study will be relevant to different groups of people and institutions. Investment advisors will use the findings of this study to establish the

optimal ownership mix which maximizes firm performance. The findings of this study will also help shareholders who are the initial owners or founders of firms understand the extent to which ownership should be opened up to different categories of investors, while still maintaining maximum performance. Policy makers will also use the findings of this study when making decisions regarding minimum shareholding thresholds to protect the interest of different categories of investors, including the government of Kenya itself. This study will also provide a platform for further research in understanding the topic and other related areas of discussion.

# CHAPTER TWO: LITERATURE REVIEW

## 2.1 Introduction

This chapter explains the theories related to the research topic and describes the determinants of performance as given by other scholars. It also reviews the works of other researchers with respect to firm ownership structure and performance.

## 2.2 Theoretical Review

### 2.2.1 Agency Theory

The agency problem inherent in the separation of ownership and control of assets has been a topic of discussion for many years. Studies such as those by Berle and Means (1932) show the extent to which this separation has become manifest in firms throughout the world. Under this agency relationship, both the agents and the principals are assumed to be motivated solely by self-interest. As a result, when the principal delegates some decision making responsibility to the agents, agents often use this power to promote their own well-being by choosing such actions which may or may not be in the best interests of principals. Agency theory is concerned with the contractual relationship between two or more persons. Jensen and Meckling (1976) define agency relationship as a contract under which one or more person (principals) engages another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent. Jensen and Meckling identify managers as the agents, who are employed to work towards maximizing the returns to the share-holders, who are the principals. They assume that as agents do not own the corporations resources, they may commit moral-hazards merely to enhance

their own personal wealth at the cost of their principal.

### 2.2.2 Stewardship Theory

Stewardship theory, which has recently been introduced in management literature (Davis, Schoorman, & Donaldson, 1997; Donaldson & Davis, 1991), looks into principal-agent issues from a different perspective. According to stewardship theory, some executives are likely to pursue organizational interests even when they conflict with the executives' self interest (Donaldson et al., 1991). The theory defines psychological and situational factors that can lead executives to act less like self-interested agents and more like organizational stewards with whom it might be counterproductive for principals to use the mechanisms recommended by agency theory (Lee et al., 2003).

### 2.2.3 Transaction Cost Theory (TCT)

The Transaction Cost Theory is based on the work of Coase (1937) which explains the existence of firms as organizations that are able to undertake certain transactions at lower costs by comparing to the market until it expands to the point where the costs of organising an extra transaction within the firm become equal to the costs of carrying out the same transaction by means of an exchange on the open market or the costs of organising in another firm. Later Williamson (1971) and Alchian & Demsetz (1975) contributed to the TCT by introducing the market failures and firm inefficiency and came to the conclusion that there was need to work out the trade-off that characterizes firm and market organization as these vary with the attributes of transactions. Williamson (1979) describes three aspects of transactions: the frequency of the transaction, the uncertainty of the transaction and the type and degree of asset

specificity. TCT is applied in corporate governance theories to explain principal-agent problems and ownership structure. Holmstrom & Milgrom (1991) used TCT to analyse the multidimensional tasks in the principal-agent model. Different instruments including employment contracts, ownership assignment, private activities limitation, were analysed based on their cost and incentive benefit in solving the principal-agent problems. The optimal ownership structure is one that minimizes the overall loss in surplus due to investment distortions instead of maximizing the total net benefits.

## 2.3 Determinants of performance

Performance is a set of financial and nonfinancial indicators which offer information on the degree of achievement of objectives and results (Lebans & Euske 2006; Kaplan & Norton, 1992). Firm performance is usually measured by profitability. Profitability is determined by matching revenues against the associated costs. The only costs placed against revenue, are those which have a contribution in the generation of such revenue. A number of factors affect the profitability of an enterprise.

Many researchers have studied firm specific and macro-economic determinants from different perspectives. Studies that deal with internal determinants exploit variables such as size, tangibility, growth and debt to equity ratio. There is a positive significant relationship between size and profitability (Akhavein, Berger, and Humphrey, 1997; Smirlock, 1985). Leverage is positively correlated with firm size (Rajan and Zingales, 1995; John, 1999; Booth et al., 2001). The degree to which various financial, legal and other factors such as corruption affect profitability is strongly related to firm size (Bhutta and Hasan, 2013). The growth opportunities are measured in terms of the fraction of firm's value represented by assets in place; the smaller the proportion of firm's value narrated by assets-in-place, the larger the firm's growth opportunities

(Myers, 1977). The firms with growth opportunities have moderately more development projects, new product lines, acquisitions of other companies and repair and replacement of existing assets. Moreover, growth opportunities and firm size are positively related to profitability (Abor, 2005). There is a relationship between profitability and inflation (Perry, 1992). He concluded that the effect of inflation on firm profitability depends on whether a firm's operating expenses and its wages increase more rapidly than inflation.

## 2.4 Empirical Review

The debate on ownership structure and firm performance was brought to the attention of scholars by Berle and Means (1932). They found an inverse correlation between the diffuseness of shareholdings and firm performance. However, Demsetz and Lehn (1985) have challenged the argument of Berle and Means (1932), arguing that corporate ownership structure differs systematically to maximize the value of the firm. They found that ownership structure and accounting profit rates have no significant relationship with each other. Their results suggested that ownership and control separation is not evidenced. More recent studies have also given mixed results. Croswel, Taylor and Saywell (1997) conducted a study on 349 firms in Australia and found a curvilinear relationship between insider ownership and corporate performance. Holderness et al. (1999) found that low levels of managerial ownership increase firm value but at higher levels of managerial ownership firm value decreases. The results of these single–equation studies were interpreted as the evidence of managerial entrenchment beyond some threshold of insider ownership.

Singh and Gaur (2009) in their study on business group affiliation, firm governance

and firm performance, studied 813 firms from both China and India using multiple regression to analyse ROA, ROE and ROS and found a positive relationship between ownership concentration and performance. Karaca and Eski (2012) in their study on 50 manufacturing firms listed in the Istanbul Stock Exchange from 2005 to 2005 using panel regression on ROA and also found a positive relationship between ownership concentration and performance. Obiyo and Lenee (2011) also found a positive relationship between ownership concentration and firm performance. Their study on corporate governance and firm performance in Nigeria involved 10 firms from 2004 to 2008. Leung and Horwitz (2010) studied 506 non-financial firms listed on Hong Kong Stock Exchange between 1997 and 1998. They found a positive correlation between managerial ownership and firm performance using panel regression method of analysis. Other studies have revealed a negative relationship between ownership structure and firm performance. For example, Millet-Reyes and Zhao (2010) found a negative relationship between ownership structure and firm performance, from their study on 665 non-financial firms in France from year 2000 to year 2004, using multiple regression analysis with ROA, Tobin's Q and Operating Cash Flow. Meca and Ballesta (2011) found a negative relationship between ownership concentration and firm performance in their study on 254 non-financial firms listed in Madrid Stock Exchange from 1999 to 2002, using panel regression on Tobin's-Q. Shahabudin and Javid (2011) concluded that there is a negative relationship between managerial ownership and firm performance after studying 60 nonfinancial manufacturing firms in Pakistan. They analysed ROA, ROE and Tobin's Q using 2SLS regression. Irina and Nadezhda (2009) also found a negative relationship between ownership structure and firm performance in their study on the relationship between corporate governance and company performance. They used a

sample of 270 companies in Germany from the year 2000 to 2006, using regression analysis with ROA and Tobin's Q.

On the contrary, other researchers have concluded that there is absolutely no relationship between any of the firm ownership structure variables and firm performance. Shan and McIver (2011) studied 540 non-financial firms listed in Hong Kong Stock Exchange from 2001 to 2005 using ordinary least squares with Tobin's Q and found that there was no relationship between ownership concentration and firm performance. Tzegba and Elzi-Herbert (2011) also found no relationship between ownership concentration and firm performance after studying 73 firms listed in Nigeria Stock Exchange from the year 2001 to 2007. They used OLS and Market Price per Share and Earnings Per Share. Mohd (2011) studied 162 non-financial firms in Malaysia from 2006 to 2008, using multiple regression and ROA. He concluded that there is no relationship between managerial ownership and firm performance. Nuryanah and Islam (2011) also found no relationship between managerial ownership and firm performance, from a study on 46 financial firms listed in Indonesia from the year 2002 to 2004.

In Kenya Medline (2004), in her research on the relationship between ownership structure, governance and capital structure of a firm found that there was no relationship between ownership structure, governance and capital structure of firms listed in the NSE. Mwathi (2009) in her study on the relationship between bank ownership structure and financial performance noted that generally, the bank ownership structure had a moderate positive influence on its overall performance. Stephen (2009) found mixed results in her study conducted on the effect of ownership structure on the performance of non-banking firms listed in the NSE, owing to the

fact that firms listed in NSE have complied with the 25% threshold of individual ownership. From the analysis it was found that in average foreigners owned 22.1%, Individuals 23.6% and Institutions 54.5%. Mule et al., (2013) studied ownership concentration and financial performance of listed firms in Kenya. They found that ownership concentration of the top five largest shareholders and age of a firm are factors that undermine performance while profitability, growth in firm size and partially tangibility enhance performance.

The studies mentioned above show lack of an agreement on the relationship between ownership structure (variables) and firm performance, whether positive, negative or does not exist.

# CHAPTER THREE: RESEARCH METHODOLOGY

## 3.1 Introduction

This chapter describes the study design and explains the research procedures to be followed. It describes the target population and the sampling design, description of the research tools, data collection and data analysis procedures.

## 3.2 Research Design

This study used panel data from firms listed in the NSE for each year, from the year 2005 to year 2012. The companies in the financial sector were excluded from the study to remove any anomalies associated with this sector which is highly regulated by the Central Bank Prudential on issues of liquidity, asset and capital holding, and provision for bad debts among other factors (Santos, 2001). The measure of financial performance used was Return on Total Assets (ROTA). This research used both quantitative and qualitative approaches in addressing the research problem.

## 3.3 Target Population

The target population consisted of all the firms consistently listed in the Main Investment Market Segment (MIMS) of the NSE excluding financial institutions for a period of 8 years (2005-2012). The 42 non-financial institutions listed in the MIMS of the NSE, formed the target population. The years chosen for the study were considered due to the availability of data. The target firms in this category were those that had material data available so that they could effectively contribute to decision making.

## 3.4 Sampling and Sampling Design

Census survey was used in this study. Of all the non financial firms listed in the NSE, only those that have been consistently listed for the period of study without suspension and had material data for analysis were considered for the study. Firms that were suspended for a significant number of years were also not considered in the study.

## 3.5 Data Collection

Secondary data was collected from the NSE and the Capital Markets Authority (CMA) for the period of study, 2005 to 2012. Variables found in the audited financial statements including the statements of financial position at year end and statements of comprehensive income that form ROTA were used and analysed with regression analysis to generate the required research information. The NSE and CMA have reliable data which can be easily accessed, hence the preferred source of the secondary data.

## 3.6 Data analysis.

Data obtained from the NSE and CMA was analysed using Statistical Package for Social Sciences. Regression analysis was used to establish the association between the computed financial ratios. The information generated is presented by use of tables.

The model below was used in measuring performance, as the study conceptualizes that

firm ownership has some effects on firms listed in the NSE:

$$\mathbf{Y=a + b_1x_1+b_2x_2+b_3x_3….}$$

Where: Y= performance variables. α =Y-intercept of the regression equation. $b_1$, $b_2$, $b_3$ are the slope of the regression $x_1$,$x_2$,$x_3$ are the dependent variables

**Analytical model:** To establish the effects of ownership structure on firms' performance listed in NSE, the study will apply the regression model below:

$$\mathbf{Y\ (\ \textit{performance}) = \beta_0 + \beta_1\ Ows_1 \textit{i,t,} + \beta_2 Ows_2 \textit{i,t} + \beta_3\ age\ \textit{i,t}\ , + \beta 4\ size\ \textit{i,t} + \varepsilon\ \textit{i,t}\ ,}$$

Where:

Y = Return on Total Assets

$\beta_0$ =Y-intercept of the regression equation

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ = are the slope of the regression

$Ows_1 i,t$ =Shareholding type (Subsidiary, Associate or For Investment)

$Ows_2 i,t,$ =Shareholding type (foreign or local)

Fo *i,t,* = Foreign ownership

Firms Size, age =Control variables

ε = error term

The formula for calculating ROTA are given below:

$$\text{ROTA} = \frac{\text{Profit after tax}}{\text{Total Assets}}$$

Results obtained from the data analysis procedures was tested for statistical significance to determine whether the results obtained truly held at a given confidence level. There are various levels of confidence, (α), which are $\alpha = 0.05$, $\alpha = 0.01$ and $\alpha = 0.001$ (Mugenda & Mugenda, 1999). A significance level of 0.01 means that a researcher is 99% confident that the difference between test groups are due to an independent variable and not chance. Significance level of 0.05 was used in this study.

# CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

## 4.1 Introduction

The objective of this study is to establish the relationship between ownership structure, and the financial performance of non-financial institutions listed in the Nairobi Securities Exchange. This chapter presents data analysis by explaining the variables and their relationship as established by the data analysis tool, the categories of ownership and their effect on performance. It also looks at how other factors such as firm size and age relate to firm performance.

Firm ownership is defined at two levels, namely whether a listed company is local or foreign and at the second level, whether the listed company is a trade investment, a subsidiary or an associate company. The measure of performance is the return on total assets. The study covered the period 2005 to 2012 because complete data was available for that period.

## 4.2 Descriptive Statistics

The study included 35 non-financial firms over the period 2005 to 2012.

**TABLE 4. 1: Descriptive Statistics - Local and Foreign Companies**

| Variable | OwnLF | N | Mean | StDev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| ROTA | 0 | 72 | 0.1911 | 0.1528 | -0.1172 | 0.659 |
| | 1 | 202 | 0.0765 | 0.4818 | -6.5148 | 0.6407 |
| OwnStr | 0 | 72 | 46.61 | 16.48 | 12.5 | 88.24 |
| | 1 | 204 | 46.44 | 18.63 | 10.1 | 91.16 |
| LnTAssets | 0 | 77 | 15.057 | 3.091 | 0 | 18.619 |
| | 1 | 211 | 14.524 | 2.924 | 0 | 18.91 |

Key: Ownership Structure- 0 = Foreign company; 1 = Local company. LnTAssets = Log of Total Assets; ROTA = Return on total assets

As indicated in Table 4.1 above, the panel data indicates that 73.7% of the companies were local while the remaining 26.3% were foreign owned. The mean value of return

on total assets for observations of 72 foreign owned companies was 0.1911 with a standard deviation of 0.1528 and minimum and maximum values of -0.1172 and 0.659 respectively. The positive return on assets indicates that the companies were on average profitable although some companies were operating at a loss as reflected in the negative minimum observed value of return on total assets. The mean value of return on total assets for observations of 202 local companies was 0.0765 with a standard deviation of 0.4818 and minimum and maximum values of -6.5148 and 0.6407 respectively. The positive return on assets indicates that the local companies were on average profitable although some companies were operating at a loss as reflected in the negative minimum observed value of return on total assets. The low values of standard deviation in both scenarios imply the low variability of the return of total assets for both ownership types. The local companies had a higher mean as compared to the foreign companies, implying that during the period of study, local companies performed relatively better than the foreign companies.

**TABLE 4. 2: Descriptive Statistics – Trade Investment, Associate Company and Subsidiary**

| Variable | OwnStrCa | N | Mean | StDev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| ROTA | 1 | 129 | 0.15 | 0.15 | -0.27 | 0.64 |
| | 2 | 130 | 0.11 | 0.12 | -0.36 | 0.66 |
| | 3 | 15 | -0.33 | 1.71 | -6.52 | 0.23 |
| OwnStr | 1 | 129 | 35.32 | 8.96 | 20.00 | 48.56 |
| | 2 | 130 | 61.51 | 11.86 | 40.00 | 91.16 |
| | 3 | 15 | 14.82 | 2.52 | 10.10 | 19.83 |
| LnTAssets | 1 | 129 | 14.60 | 2.02 | 9.64 | 18.91 |
| | 2 | 130 | 15.38 | 1.74 | 10.79 | 18.83 |
| | 3 | 15 | 14.93 | 0.77 | 13.84 | 16.30 |

Key: Owneship Structure 1 = Associate company; 2 = Subsidiary company; 3 = Trade investment. LnTAssets = Log of Total Assets; ROTA = Return on total assets

As indicated in Table 4.2 above, the panel data indicates that the highest number of companies (47.4%) was subsidiaries, followed by associates (47.1%) and the least were trade investments (5.5%) . The mean value of return on total assets for observations of 129 associate companies was 0.15, subsidiaries 0.11 and trade investments -0.33 with a standard deviation of 0.15, 0.12 and 1.71 respectively. This implies that associates had the highest average return on total assets, followed by subsidiaries, while trade investments had negative returns on total assets. The trade investments also recorded the highest variability on ROTA, indicated by the highest standard deviation of 1.71. The negative returns for the trade investments are further indicated by the highest negative minimum of 6.52 as compared to 0.27 and 0.36 for associate and subsidiaries respectively.

## 4.3 Performance and Ownership

In the first regression, we test the difference between the local and foreign companies. Performance is measured in return on total assets (ROTA). We analyze the ownership category which as mentioned above has two potential possibilities, local or foreign; and this required creating a dummy variable to indicate if the company belonged to one of these two categories. Specifically, we created an ownership indicator that was a binary variable to indicate if an observation belongs to one of these: ownership = 1 if company is local company or ownership = 0 if company is foreign. This enabled us to convert ownership structure into a dummy variable that allow for the discrimination of performance of sampled firms based on whether it is local or foreign. Then we regressed ownership structure on performance using the model:

Performance (ROTA) = $\beta_o+\beta_1$ownership+e…….eq. 1

Traditionally $\beta_1$ will represent a slope which represents how much will dependent variables (ROTA) change for every unit change in independent variable (ownership). In this case the unit change goes from zero to one, so beta one ($\beta_1$) will represent the change in ownership when ownership turns from a zero to one, or from a foreign company to local company which is exactly what we want to test. We seek answer to the question: What is the change in performance (return) when an investor shifts his or her investments from a local company to a foreign company or vice versa? or what is the predicted performance (ROTA) for a foreign company?

E (Performance (ROTA)/Foreign=0) = $\beta_0+\beta_1*0=\beta_0$……eq.2

Therefore the intercept $\beta_0$will represent the expected return of foreign company when ownership is zero. What happens when the company is local, in which case the predicted performance for a local firm will be:

E (performance/ownership=1) =$\beta_0+\beta_1*1$ =$\beta_0+\beta_1$

Therefore, $\beta_1$ is the difference between the two categories and it tells us the added or subtracted ROTA that a local firm reports relative to a foreign firm.

The next step was a formal test based on the estimated value of $B_1$:

-If $\beta_1>0$ then then we conclude that local companies outperform foreign companies.

-If $\beta_1=0$ then they are similar and it does not matter whether a company is local or foreign.

-If $\beta_1<0$ then we conclude that the foreign companies outperform local companies.

We would be interested in estimating $\beta_0$ and $\beta_1$ from the data we collected. The output from the regression model is presented for the year 2005 is presented below. The output is in five parts, analysis of variance, model summary, coefficients, regression

equation and VIF. With respect to the analysis of variance; it tests the power of the regression as a whole. The p-value for the regression model in the analysis of variance table (0.000) shows if the model estimated by the regression procedure is significant at an α-level of 0.05. This indicates that at least one coefficient is different from zero. The model summary tells us whether the regression model has adequate predictive ability. The p-values for the estimated coefficients tell us the predictive ability of the individual coefficients. VIF test multicollinearity. The VIFs are all close to 1, which indicates that the predictors are not correlated, VIF values greater than 5-10 suggest that the regression coefficients are poorly estimated due to severe multicollinearity.

**TABLE 4. 3: Analysis results for Year 2005**

Analysis of Variance

| Source | DF | AdjSS | Adj MS | F-Value | P-Value |
|---|---|---|---|---|---|
| Regression | 1 | 0.6920 | 0.6920 | 0.50 | 0.485 |
| OwnLF | 1 | 0.6920 | 0.6920 | 0.50 | 0.485 |
| Error | 31 | 42.9706 | 1.3861 | | |
| Total | 32 | 43.6626 | | | |

Model Summary

| S | R-sq | R-sq(adj) | R-sq(pred) |
|---|---|---|---|
| 1.17735 | 1.58% | 0.00% | 0.00% |

Coefficients

| Term | Coef | SECoef | T-Value | P-Value | VIF |
|---|---|---|---|---|---|
| Constant | 0.159 | 0.392 | 0.41 | 0.688 | |
| OwnLF | | | | | |
| 1 | -0.325 | 0.460 | -0.71 | 0.485 | 1.00 |

Regression Equation

ROTA = 0.159 + 0.0 OwnLF_0 - 0.325 OwnLF_1

In the above table we have an intercept of 0.159 and a coefficient for local companies (OwnLF=1) is -0.325. This tells us that the co performance of local companies is lower by a factor of 0.325 when compared to foreign companies. The next question was whether the difference is statistically significant, i.e. is it significantly different from

zero? The t-value of -0.71 and p-value of 0.485 which is greater than α=0.05 mean that the coefficient of 0.325 is not different from zero. What would have been the interpretation if the coefficient was statistically significant? The constant ($\beta_0$) is 0.159 and ($\beta_1$) = -0.325. This imply that the ROTA (performance) of foreign firm is 0.159 and that the ROTA (performance) of a local firm is $\beta_0+\beta_1$= 0.159+-0.325 or -0.166.However given that the difference of -0.166 is not statistically significant we conclude that in 2005 the performance of foreign companies were not different from those of local companies.

### 4.3.1 Performance and Ownership Structure

Listed firms sampled were the classified as to whether the listed company is a trade investment, a subsidiary or an associate company. The regression below test the difference in performance between trade investment, associate and subsidiary is statistically significant. We used model below to test the difference.

*E*(Performance/ ownership structure) = $\beta_0+\beta_1$ associate+$\beta_2$ subsidiary+$\beta_3$ trade investments

The expected (*E*) performance for each ownership structure is as follows:

Associate = $\beta_0$

Subsidiary = $\beta_0+\beta_2$

Trade investment= $\beta_0+\beta_3$

```
Analysis of Variance

Source      DF  Adj SS   Adj MS  F-Value  P-Value
Regression   2   21.58  10.7912    14.66    0.000
OwnStrCa   2   21.58  10.7912    14.66    0.000
Error       30   22.08   0.7360
Total       32   43.66


Model Summary

       S    R-sq  R-sq(adj)  R-sq(pred)
0.857910  49.43%     46.06%       0.00%
```

```
Coefficients

Term         Coef  SECoef  T-Value  P-Value   VIF
Constant    0.177   0.238     0.74    0.463
OwnStrCa
  2        -0.085   0.312    -0.27    0.788  1.08
  3        -3.434   0.652    -5.27    0.000  1.08


Regression Equation

ROTA = 0.177 + 0.0 OwnStrCa_1 - 0.085 OwnStrCa_2 - 3.434 OwnStrCa_3
```

Under the analysis of variance the F-Value is 14.66 and p-value is 0.000, so that the regression is significant. In that regression ownership structure has an F-Value of 14.66 and F-Value of 0.000 and is significant at $\alpha$=0.005.

The expected return from associate company is 0.177. The difference in performance between a subsidiary and associate is -0.085, while the difference in ROTA between an associate and trade investment is -3.434. The difference in ROTA between a subsidiary and trade investment is (-0.085- (-3.434) or 3.439. The difference between associate subsidiary is -0.085-0.177 or -0.262, but this difference is not statistically significant, the p-value of coefficient (-0.085) is 0.788 at $\alpha$ = 0.05. The conclusion is that in 2005, there was a significant difference between associate companies and trade investment.

### 4.3.2 Performance, Ownership and Ownership Structure

The next regression analysis sought an answer to the questions: If the company a local company or foreign and how is the categorization related to the performance. Is the company an associate subsidiary or trade investment and how is that related to performance? These questions are now addressed together in one regression. The model and the results of the regression for the year 2005 are presented below:

Model:*E* (performance/ ownership/ownership structure)=$\beta_0+\beta_1$ ownership+$\beta_2$ ownership structure

```
Analysis of Variance

Source          DF   Adj SS   AdjMS  F-Value  P-Value
Regression       3  23.7117   7.9039    11.49    0.000
OwnLF         1     2.1294    2.1294     3.10    0.089
OwnStrCa2  23.0197 11.5098    16.73    0.000
Error           29  19.9509   0.6880
  Lack-of-Fit    2  19.1660   9.5830    329.65    0.000
  Pure Error    27   0.7849   0.0291
Total           32  43.6626


Model Summary

       S    R-sq  R-sq(adj)  R-sq(pred)
0.829435  54.31%     49.58%       0.00%


Coefficients

Term         Coef  SECoef  T-Value  P-Value   VIF
Constant    0.620   0.341     1.82    0.079
OwnLF
  1        -0.576   0.327    -1.76    0.089  1.02
OwnStrCa
  2        -0.112   0.302    -0.37    0.714  1.09
  3        -3.589   0.636    -5.64    0.000  1.11


Regression Equation

ROTA = 0.620 + 0.0 OwnLF_0 - 0.576 OwnLF_1 + 0.0 OwnStrCa_1 -
 0.112 OwnStrCa_2
       - 3.589 OwnStrCa_3
```

The overall regression F-Value of 11.49 and is large, and with a p = 0.000 and this indicates that the regression has some information, specifically that at least one coefficient is different from zero. Furthermore the analysis of the variance table indicates that the linear relationship-p between performance and aspect of ownership structure is significant (p= 0.000 at $\alpha$ = 0.005). The VIF are low and this indicates absence of multicollinearity. The R-sq value show that regression model explain 54.31% of the variance in performance (ROTA), indicating that the model fit the data well.

The analysis of the variance shows that the regression has F-Value of 11.49 and p-value of 0.000 and is therefore regression statistically significant. If look at the parts of regression ownership (OWNLF) has an F-Value of 3.10 and p-value of 0.089 and therefore not statistically significant at $\alpha = 0.05$, while ownership structure (OwnStrCa) has a he f value of 16.73 and a p-value of 0.000 and therefore statistically significant at $\alpha = 0.05$.

The second part of our analysis show coefficient of ownership (OwnLF) and ownership structure (OwnStrca). If we examine ownership (-0.0576) it has a t value of -1.76 and p value of 0.089 and it is not significant. Suppose it was significant what would -0.576 mean? We would expect the ROTA of the local companies on average to be lower than that of foreign companies by -0.576.

If we look at the ownership structure we have the categories subsidiary and trade investment with a co efficient of -0.112 and -3.589 respectively. For the subsidiary the p-value of 0.714 is not significant, but trade investment has a t-value of -5.64 and with a p-value of 0.000 is statistically significant.

### 4.3.3 Performance Firm Size, Age and Ownership

The next stage of analysis included firm size, age and ownership as predictors of performance along with ownership. Size is measured as log of total assets and age is the period in which a firm has been in operation. The model is:

*E* (Performance/ownership) = $\beta_0+\beta_1$LnTAssets$+\beta_2$ Age + $\beta_3$OwnLF such that if ownership (OwnLF) is the value of zero (0) when performance is:

E (performance) = $\beta_0+\beta_1$LnTAssets + $\beta_2$ Age and this is the performance of foreign companies if we control for size and age. LnTAssets is log of total assets (as a measure of size) and YearInO is the age of the company, such that:

E (performance/ownership) = $\beta_0+\beta$1LnTAssets$+\beta_2$YearInO$+\beta_3$OwnLF

Therefore the expected performance if the company is foreign (0) is:

E (performance/ownership) = $\beta_0+\beta_1$LTAssets+$\beta_2$YearInO. The results of the regression analysis are presented below.

Analysis of Variance

| Source | DF | Adj SS | AdjMS | F-Value | P-Value |
|---|---|---|---|---|---|
| Regression | 3 | 2.1797 | 0.72655 | 0.51 | 0.680 |
| LnTAssets | 1 | 0.0247 | 0.02467 | 0.02 | 0.896 |
| YearInO | 1 | 1.4813 | 1.48135 | 1.04 | 0.317 |
| OwnLF | 1 | 0.3850 | 0.38496 | 0.27 | 0.608 |
| Error | 29 | 41.4830 | 1.43045 | | |
| Total | 32 | 43.6626 | | | |

Model Summary

| S | R-sq | R-sq(adj) | R-sq(pred) |
|---|---|---|---|
| 1.19601 | 4.99% | 0.00% | 0.00% |

Coefficients

| Term | Coef | SECoef | T-Value | P-Value | VIF |
|---|---|---|---|---|---|
| Constant | -0.35 | 1.99 | -0.17 | 0.863 | |
| LnTAssets | -0.016 | 0.125 | -0.13 | 0.896 | 1.03 |
| YearInO | 0.01016 | 0.00999 | 1.02 | 0.317 | 1.04 |
| OwnLF | | | | | |
| 1 | -0.249 | 0.480 | -0.52 | 0.608 | 1.05 |

Regression Equation

OwnLF

0 ROTA = -0.35 - 0.016 LnTAssets + 0.01016 YearInO

1 ROTA = -0.60 - 0.016 LnTAssets + 0.01016 YearInO

The analysis of variance show that the relationship between firm size (LnTAssets), age (YearInO) and ownership is not significant (F-Value 0.51, p-value 0.680 at $\alpha$=0.05). Therefore the overall regression has no information value. The VIF's are low and suggest absence of severe multicollinearity.

Looking at each part of that regression under analysis of variance, firm size (LnTAssets) with F-Value 0.02 and p-value = 0.896) is insignificant. Age of company (YearInO –F-Value 1.04 and p-value 0.317) is insignificant and ownership (OwnLF-F-Value 0.27; p-value 0.608) is also statistically insignificant. The R-Square shows that the regression model explains only 4.99 percent of the variance in performance

(ROTA) and therefore has no predictive power.

The second part of the analysis is the co-efficient for firm size, age and ownership. The coefficient for firm size is -0.016 (t-value=0.13, p-value 0.896) is statistically insignificant; the coefficient of age of the company is 0.01016 (t-value=company is 0.01016 (t-value =1.02, p-value=0.317) is statistically insignificant and ownership has a co efficient of -0.249 (t-value = -0.52, p-value= 0.608 is statistically insignificant) therefore none of the co efficient is useful in predicting performance.

The two regression equations for local (1) and foreign(0) are presented below indicating that the performance of local firms tend to be lower than that of foreign firms (though the difference is not statistically significant).

### 4.3.4 Performance, Company Size, Age and Ownership Structure

The model tested here is the effect of ownership structure after controlling for the size and age of the company. The model is:

E (performance/ownership structure ) = $\beta_0$+$\beta_1$ size+$\beta_2$ age +$\beta_3$ ownership structure

Analysis of Variance

| Source | DF | Adj SS | AdjMS | F-Value | P-Value |
|---|---|---|---|---|---|
| Regression | 4 | 22.3677 | 5.5919 | 7.35 | 0.000 |
| LnTAssets | 1 | 0.3724 | 0.3724 | 0.49 | 0.490 |
| YearInO | 1 | 0.3783 | 0.3783 | 0.50 | 0.486 |
| OwnStrCa | 2 | 20.5730 | 10.2865 | 13.53 | 0.000 |
| Error | 28 | 21.2950 | 0.7605 | | |
| Total | 32 | 43.6626 | | | |

Model Summary

| S | R-sq | R-sq(adj) | R-sq(pred) |
|---|---|---|---|
| 0.872086 | 51.23% | 44.26% | 0.00% |

Coefficients

| Term | Coef | SECoef | T-Value | P-Value | VIF |
|---|---|---|---|---|---|
| Constant | -1.06 | 1.38 | -0.77 | 0.449 | |
| LnTAssets | 0.0658 | 0.0940 | 0.70 | 0.490 | 1.09 |
| YearInO | 0.00530 | 0.00752 | 0.71 | 0.486 | 1.10 |
| OwnStrCa | | | | | |
| 2 | -0.206 | 0.339 | -0.61 | 0.548 | 1.24 |
| 3 | -3.475 | 0.677 | -5.13 | 0.000 | 1.13 |

```
Regression Equation

OwnStrCa
1         ROTA = -1.06 + 0.0658 LnTAssets + 0.00530 YearInO

2         ROTA = -1.27 + 0.0658 LnTAssets + 0.00530 YearInO

3         ROTA = -4.53 + 0.0658 LnTAssets + 0.00530 YearInO
```

The results of the regression analysis are as presented below. The analysis of the variance table indicates that the linear relationship between the company size, age ownership structure and performance is significant at α=0.05 (F value 7.35 and p value 0.000). The ownership structure is significant (F-Value= 13.53; p-value=0.000 at α = 0.05) and therefore performance differ depending on whether a firm is associate subsidiary or a trade investment.

Looking at coefficients, the regression co-efficient for company size (LnTAssets) of 0.0658 (t-value=0.70 and p-value=0.000) and age in business (YearInO) of 0.00530 (t-value 0.71, p-value 0.86) are both insignificant at α=0.05.

The difference in performance between an associate company (1) and subsidiary (2) (-0.206) but is insignificant (t=0.61, p=0.548); but the difference in performance between an associate company and a company classified as trade investment is significant (t value=5.13, p-value=0.000), even after controlling for the size and age of sampled firms.

### 4.3.5 Performance, Company Size, Age, Ownership and Ownership Structure

The final regression for 2005 looks at influence of all the independent variables on the dependent variable (performance). The model to be tested is:

*E (*performance/ownership/ownership structure) = $\beta_0+\beta_1$ size+$\beta_2$ age+$\beta_3$ ownership+$\beta_4$ ownership structure

In this case we use two categorical variables, ownership and ownership structure and this resulted into six regression equations (see below).

```
Analysis of Variance

Source       DF   Adj SS   AdjMS  F-Value  P-Value
Regression    5  24.0374   4.8075     6.61    0.000
LnTAssets     1   0.1950   0.1950     0.27    0.609
YearInO       1   0.1248   0.1248     0.17    0.682
OwnLF         1   1.6697   1.6697     2.30    0.141
OwnStrCa      2  21.8577  10.9289    15.04    0.000
Error        27  19.6253   0.7269
Total        32  43.6626


Model Summary

       S    R-sq   R-sq(adj)  R-sq(pred)
 0.852562  55.05%     46.73%       0.00%


Coefficients

Term          Coef  SECoef  T-Value  P-Value   VIF
Constant     -0.27    1.44    -0.19    0.851
LnTAssets   0.0480  0.0926     0.52    0.609  1.11
YearInO    0.00310 0.00749     0.41    0.682  1.15
OwnLF
  1         -0.525   0.346    -1.52    0.141  1.08
OwnStrCa
  2         -0.189   0.332    -0.57    0.573  1.24
  3         -3.612   0.668    -5.41    0.000  1.15


Regression Equation

OwnLFOwnStrCa
0      1         ROTA = -0.27 + 0.0480 LnTAssets + 0.00310 YearInO

0      2         ROTA = -0.46 + 0.0480 LnTAssets + 0.00310 YearInO

0      3         ROTA = -3.89 + 0.0480 LnTAssets + 0.00310 YearInO

1      1         ROTA = -0.80 + 0.0480 LnTAssets + 0.00310 YearInO

1      2         ROTA = -0.99 + 0.0480 LnTAssets + 0.00310 YearInO

1      3         ROTA = -4.41 + 0.0480 LnTAssets + 0.00310 YearInO
```

The analysis of variance table indicate that the linear relationship between company size, age, ownership and ownership structure and performance is significant (F-Value=6.61; p-value= 0.0001) at $\alpha$=0.05. The R-square shows that regression model

explains 55.05% of variations, though the drop in r-square to 0.00 percent is a challenge to validity of the model.

In the coefficients section, the co-efficient in regression presented show that the size of the company and age of the company are statistically insignificant and therefore not useful in predicting performance. The data tell us that size and age of the company are not useful in predicting performance. In term of categorical variable ownership the co efficient when the company is local, suggest the inferior performance by local firms relative to foreign companies (-0.525) though the difference is not statistically significant at $\alpha$=0.05 (t-value= -1.52, p-value= 0.141). In terms of ownership structure there is not much difference between a subsidiary value and associate company, though the indication is that subsidiary company outperform a subsidiary. However there is a significant difference between associate and trade investment (t-value= -5.41, p-value= 0.000).

The test of the analysis for the period 2006 to 2012 are summarised in tables 4.4 to 4.10 in the appendix section of this paper. The results for each table are discussed below.

## 4.4 Analysis of Variance and Coefficients for Year 2006 (Table 4.5)

The difference in the performance of local companies and foreign companies was not statistically significant, with a p-value of 0.13 at $\alpha$ =0.05 significance level. Under the analysis of variance, the F-Value is 0.71 and p-value is 0.501, so the regression is not significant at $\alpha$ =0.05. The difference in performance between associate and subsidiary was statistically insignificant with a p-value of 0.521, and the difference in the performance between associate and trade investment was also not statistically significant with a p-value of 0.283. The firm size (LnTAssets) with F-Value of 0.03

and p-value of 0.863 is insignificant. Age of company (YearInO) with an F-Value 1.00 and p-value0.325 is insignificant and ownership (OwnLF) with an F-Value 2.90 and p-value 0.099, is also statistically insignificant. The analysis of variance indicate that the relationship between the company size, age, ownership structure and performance is not statistically significant at $\alpha$ =0.05 (F-Value 0.42 and p-value 0.796). The difference in performance of an associate company and subsidiary is insignificant (t-value of -0.52 and p-value of 0.609), and the performance between subsidiary and trade investment is also insignificant (t-value -1.07 and p-value 0.295) even after controlling for the size and age of sampled firms. The final regression looks at the influence of all independent variables on performance. The analysis of variables indicates that the linear relationship between all the variables and performance is not significant (F-Value = 1.22, p-value =0.327). The R-sq shows that the regression model explains 17.85% of the variation.

## 4.5 Analysis of Variance and Coefficients for Year 2007 (Table 4.6)

The difference in the performance of local companies and foreign companies was not statistically significant (p-value of 0.408) at $\alpha$ =0.05 significance level. The difference in performance between associate and subsidiary was statistically insignificant with a p-value of 0.320, and the difference in the performance between associate and trade investment was also not statistically significant with a p-value of 0.505. The firm size (LnTAssets) with F-Value of 0.03 and p-value of 0.867 is insignificant. Age of company (YearInO), with an F-Value of 1.28 and p-value 0.267, is insignificant and ownership (OwnLF) with an F-Value of 1.06 and p-value of 0.311, is also statistically insignificant. The analysis of variance indicate that the relationship between the company size, age, ownership structure and performance is not statistically significant

at α =0.05 (F-Value 0.54 and p-value 0.710). The difference in performance of an associate company and subsidiary is insignificant (t-value of -0.87 and p-value of 0.392), and the performance between subsidiary and trade investment is also insignificant (t-value -0.86 and p-value 0.394) even after controlling for the size and age of sampled firms. The final regression looks at the influence of all independent variables on performance. The analysis of variables indicates that the linear relationship between all the variables and performance is not significant (F-Value = 0.66, p-value =0.654). The R-sq shows that the regression model explains 10.26% of the variation.

## 4.6 Analysis of Variance and Coefficients for Year 2008 (Table 4.7)

The difference in the performance of local companies and foreign companies was not statistically significant (p-value of 0.065) at α =0.05 significance level. The difference in performance between associate and subsidiary was statistically insignificant with a p-value of 0.814, and the difference in the performance between associate and trade investment was also not statistically significant with a p-value of 0.664. The firm size (LnTAssets) with F-Value of 0.55 and p-value of 0.466 is insignificant. Age of company (YearInO) with an F-Value of 0.20 and p-value of 0.656, is insignificant and ownership (OwnLF) with an F-Value 3.17; p-value of 0.085, is also statistically insignificant. The analysis of variance indicate that the relationship between the company size, age, ownership structure and performance is not statistically significant at α =0.05 (F-Value of 0.37 and p-value of 0.826). The difference in performance of an associate company and subsidiary is insignificant (t-value of -0.48 and p-value of 0.638), and the performance between subsidiary and trade investment is also insignificant (t-value -0.59 and p-value 0.557) even after controlling for the size and

age of sampled firms. The final regression looks at the influence of all independent variables on performance. The analysis of variables indicates that the linear relationship between all the variables and performance is not significant (F-Value = 0.99, p-value =0.443). The R-sq shows that the regression model explains 14.54% of the variation.

## 4.7 Analysis of Variance and Coefficients for Year 2009 (Table 4.8)

The difference in the performance of local companies and foreign companies was not statistically significant (p-value of 0.099) at $\alpha$ =0.05 significance level. The difference in performance between associate and subsidiary was statistically insignificant with a p-value of 0.791, and the difference in the performance between associate and trade investment was also not statistically significant with a p-value of 0.649. The firm size (LnTAssets) with F-Value of 0.74 and p-value of 0.397 is insignificant. Age of company (YearInO) with an F-Value of 0.51 and p-value of 0.480, is insignificant and ownership (OwnLF) with an F-Value of 2.98 and p-value of 0.094, is also statistically insignificant. The analysis of variance indicate that the relationship between the company size, age, ownership structure and performance is not statistically significant at $\alpha$ =0.05 (F-Value 0.46 and p-value 0.767). The difference in performance of an associate company and subsidiary is insignificant (t-value of -0.38 and p-value of 0.706), and the performance between subsidiary and trade investment is also insignificant (t-value 0.77 and p-value 0.449) even after controlling for the size and age of sampled firms. The final regression looks at the influence of all independent variables on performance. The analysis of variables indicates that the linear relationship between all the variables and performance is not significant (F-Value =

0.99, p-value =0.439). The R-sq shows that the regression model explains 14.62% of the variation.

## 4.8 Analysis of Variance and Coefficients for Year 2010 (Table 4.9)

The difference in the performance of local companies and foreign companies was not statistically significant (p-value of 0.054) at α =0.05 significance level. The difference in performance between associate and subsidiary was statistically insignificant with a p-value of 0.615, and the difference in the performance between associate and trade investment was also not statistically significant with a p-value of 0.716. The firm size (LnTAssets) with F-Value of 2.07 and p-value of 0.160 is insignificant. Age of company (YearInO) with an F-Value of 0.76 and p-value of 0.390, is insignificant and ownership (OwnLF) with an F-Value of 4.45 and p-value of 0.043, is statistically significant. The analysis of variance indicates that the relationship between the company size, age, ownership structure and performance is not statistically significant at α =0.05 (F-Value 0.85 and p-value 0.506). The difference in performance of an associate company and subsidiary is insignificant (t-value of -0.78 and p-value of 0.440), and the performance between subsidiary and trade investment is also insignificant (t-value 0.71 and p-value 0.484) even after controlling for the size and age of sampled firms. The final regression looks at the influence of all independent variables on performance. The analysis of variables indicates that the linear relationship between all the variables and performance is not significant (F-Value = 1.62, p-value =0.188). The R-sq shows that the regression model explains 22.41% of the variation.

## 4.9 Analysis of Variance and Coefficients for Year 2011 (Table 4.10)

The difference in the performance of local companies and foreign companies was not statistically significant (p-value of 0.338) at α =0.05 significance level. The difference in performance between associate and subsidiary was statistically insignificant with a p-value of 0.478, and the difference in the performance between associate and trade investment was also not statistically significant with a p-value of 0.772. The firm size (LnTAssets) with F-Value of 2.10 and p-value of 0.158 is insignificant. Age of company (YearInO) with an F-Value of 0.42 and p-value of 0.522 is insignificant and ownership (OwnLF) with an F-Value of 1.18 and p-value of 0.285 is statistically significant. The analysis of variance indicates that the relationship between the company size, age, ownership structure and performance is not statistically significant at α =0.05 (F-Value 0.62 and p-value 0.651). The difference in performance of an associate company and subsidiary is insignificant (t-value of -0.53 and p-value of 0.598), and the performance between subsidiary and trade investment is also insignificant (t-value -0.55 and p-value 0.587) even after controlling for the size and age of sampled firms. The final regression looks at the influence of all independent variables on performance. The analysis of variables indicates that the linear relationship between all the variables and performance is not significant (F-Value = 0.68, p-value =0.641). The R-sq shows that the regression model explains 10.86% of the variation.

## 4.10 Analysis of Variance and Coefficients for Year 2012 (Table 4.11)

The difference in the performance of local companies and foreign companies was statistically significant (p-value of 0.003) at α =0.05 significance level. The difference

in performance between associate and subsidiary was statistically insignificant with a p-value of 0.464, and the difference in the performance between associate and trade investment was also not statistically significant with a p-value of 0.988. The firm size (LnTAssets) with F-Value of 3.56 and p-value of 0.069 is insignificant. Age of company (YearInO) with an F-Value 0.41 and p-value of 0.529, is insignificant and ownership (OwnLF) with an F-Value of 12.44 and p-value of 0.001 was statistically significant. The analysis of variance indicates that the relationship between the company size, age, ownership structure and performance is not statistically significant at $\alpha$ =0.05 (F-Value 0.48 and p-value 0.752). The difference in performance of an associate company and subsidiary is insignificant (t-value of -0.66 and p-value of 0.517), and the performance between subsidiary and trade investment is also insignificant (t-value -0.12 and p-value 0.907) even after controlling for the size and age of sampled firms. The final regression looks at the influence of all independent variables on performance. The analysis of variables indicates that the linear relationship between all the variables and performance is statistically significant (F-Value = 2.91, p-value =0.031). The R-sq shows that the regression model explains 34.22% of the variation.

## 4.11 Summary of analysis

The table below shows a summary of the relationship between different aspects of ownership and firm performance. **NS** indicates Not Significant, while **S** indicates Significant. Out of the 8 years studied, on 2 years revealed some level of statistically significant relationship between ownership (ownership aspect) and firm performance. It shows that 75% of the firms' performance has no significant relationship with any of the ownership structure aspect, such as local or foreign, and subsidiary, associate or

trade investment. This implies that overall; there is no significant relationship between firm ownership structure and performance. These findings are consistent with the findings of some researchers who also found no statistically significant relationship between firm ownership structure and performance. However, some researchers found significant effect of ownership structure on firm performance, meaning that these findings are contrary to the findings of a section of researchers who concluded that a significant relationship exists between the two.

**TABLE 4. 4: Summary of significance levels**

| YR | Local & foreign | Associates & subsidiaries | Associates & trade investments | Firm size, age & ownership | Sample controlled for size & age | | All variables |
|---|---|---|---|---|---|---|---|
| | | | | | Associates & Subsidiaries | Associates & Trade Investments | |
| 2005 | NS | NS | S | S | NS | S | S |
| 2006 | NS | NS | NS | NS | NS | NS | NS |
| 2007 | NS | NS | NS | NS | NS | NS | NS |
| 2008 | NS | NS | NS | NS | NS | NS | NS |
| 2009 | NS | NS | NS | NS | NS | NS | NS |
| 2010 | NS | NS | NS | NS | NS | NS | NS |
| 2011 | NS | NS | NS | NS | NS | NS | NS |
| 2012 | S | NS | NS | NS | NS | NS | S |

(Source: Author)

# CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

## 5.1 Introduction

This chapter presents the main findings and makes conclusions and recommendations based on the findings of the study. The objective of this paper was to establish the relationship between the ownership structure and performance of non-financial institutions listed in the Nairobi Securities Exchange.

## 5.2 Summary of findings and conclusion

This study specifically it examined the effect of local and foreign ownership, and effect of subsidiaries, associates and trade investments of firm performance. Return on total assets was used as the performance measurement. Based on the analysis in Chapter 4, 6 out of 8 years under study did not reveal any significant relationship between any of the ownership aspects analysed and firm performance, at a significance level of 5%. This means that 75% of the firms' performance is not in any way related to its ownership structure, whether local or foreign, subsidiary, associate or trade investment. Still, the 25% that showed significant statistical relationship had some trends of no significant relationships, for example in the year 2006 there was no difference in the performance of local and foreign companies, no difference in performance of associates and subsidiaries (both when controlled and not controlled for firm size and age) and there was also no significant relationship between firm size, age, ownership and firm performance.

## 5.3 Limitations of the study

This study used sample data from the NSE (Main Investment Market Segment). Firms listed in the NSE are selected based on a criteria set the CMA, which implies that all the firms must have some common characteristics. The firms are usually the best performers in the country hence the study suffers a sample selection bias. The study could not include the financial institutions listed in the NSE, due to the fact that they are highly regulated. This left a smaller sample to be used in the study.

The study used on one measurement of financial performance in achieving its objective. This may have limited the possible outcome of the research, by focusing on return on total assets only, while there are other several measurements, both financial and non-financial.

## 5.4 Recommendations for further research

The findings of this study add to the discussion on the relationship between firm ownership and performance, and the lack of a significant relationship implies that there is need to conduct further studies that would move the discussion towards a conclusion. Firm performance is critical for shareholders and stakeholders of the firms; hence any factor that might affect it needs to be adequately known and understood in order to put in place measures that might enhance firm performance. This study therefore recommends more research to be done over a longer period of time, and also to include financial institutions, which despite being highly regulated, have some variations in ownership structures and subsequently performance levels.

The study also used ROTA as a measurement of performance; further studies need to be conducted using the other numerous measures of financial performance, and the non-financial performance indicators.

## 5.5 Conclusions

The study achieved its main objective, since it was able to study the relationship between ownership structure and performance of non-financial institutions listed in the Main Investment Market Segment of the Nairobi Securities Exchange. It took into account other determinants of firm performance such as age and size, which enhanced the validity of the findings. The findings indicate that firm ownership structure does have any influence on firm performance.

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# APPENDICES

## Appendix I: Firms Listed in Nairobi Securities Exchange

### A. AGRICULTURAL

1. Eaagads Ltd
2. Kapchorua Tea Co. Ltd
3. Kakuzi
4. The Limuru Tea Co. Ltd
5. Rea Vipingo Plantations Ltd
6. Sasini Ltd
7. Williamson Tea Kenya Ltd

### B. COMMERCIAL AND SERVICES

8. Express Ltd
9. Kenya Airways Ltd
10. Nation Media Group
11. Standard Group Ltd
12. TPS Eastern Africa (Serena) Ltd
13. Scangroup Ltd
14. Uchumi Supermarket Ltd
15. Hutchings Biemer Ltd (Suspended)
16. Longhorn Kenya Ltd

### C. TELECOMMUNICATION AND TECHNOLOGY

17. Safaricom Ltd

### D. AUTOMOBILES AND ACCESSORIES

18. Car and General (K) Ltd

19. CMC Holdings Ltd (Suspended)

20. Sameer Africa Ltd

21. Marshalls (E.A.) Ltd

**E. BANKING**

22. Barclays Bank Ltd Ord 0.50

23. CFC Stanbic Holdings Ltd

24. I&M Holdings Ltd

25. Diamond Trust Bank Kenya Ltd

26. Housing Finance Co Ltd

27. Kenya Commercial Bank Ltd

28. National Bank of Kenya Ltd

29. NIC Bank Ltd

30. Standard Chartered Bank Ltd

31. Equity Bank Ltd

32. The Co-operative Bank of Kenya Ltd

**F. INSURANCE**

33. Jubilee Holdings Ltd

34. Pan Africa Insurance Holdings Ltd

35. Kenya Re-Insurance Corporation Ltd

36. Liberty Kenya Holdings Ltd

37. British-American Investments Company ( Kenya) Ltd

38. CIC Insurance Group Ltd

**G. INVESTMENT**

39. Olympia Capital Holdings ltd

40. Centum Investment Co Ltd

41. Trans-Century Ltd

**H. MANUFACTURING AND ALLIED**

42. B.O.C Kenya Ltd

43. British American Tobacco Kenya Ltd

44. Carbacid Investments Ltd

45. East African Breweries Ltd

46. Mumias Sugar Co. Ltd

47. Unga Group Ltd

48. Eveready East Africa Ltd

49. Kenya Orchards Ltd

50. A.Baumann Co. Ltd

**I. CONSTRUCTION AND ALLIED**

51. Athi River Mining Cement Ltd

52. Bamburi Cement Ltd

53. Crown Berger Ltd

54. E.A.Cables Ltd

55. E.A.Portland Cement Ltd

**J. ENERGY AND PETROLEUM**

56. Kenol Kobil Ltd

57. Total Kenya Ltd

58. KenGen Ltd

59. Kenya Power & Lighting Co. Ltd

60. Umeme Ltd

## K. INVESTMENT SERVICES

61. Nairobi Securities exchange

## GROWTH AND ENTERPRISE MARKET SEGMENT (GEMS)

1. Atlas Development & Support Services Ltd
2. Flame Tree Group Holdings Ltd
3. Home Afrika Ltd
4. Kurwitu Ventures Ltd

# Appendix II: Tables of Analysis of Variance and Coefficients

## TABLE 4. 5: Analysis of Variance and Coefficients for the year 2006

| YEAR 2006 | ANALYSIS OF VARIANCE | | | | | | COEFFICIENTS | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Source | DF | F-Value | P-Value | S/NS | R-sq(adj) | Term | Coef | T-Value | P-Value | S/NS |
| *E* (performance/ownership =1) = $\beta_0 + \beta_{Owneship}$ | Regression | 1 | 2.42 | 0.130 | NS | 4.1% | Constant | 0.178 | 4.37 | 0.000 | S |
| ROTA = 0.1775 + 0.0 OwnLF_0 - 0.0736 OwnLF_1 | OwnLF | 1 | 2.42 | 0.130 | NS | | OwnLF(1) | -0.07 | -1.6 | 0.130 | NS |
| *E*(Performance/ Owneship Stucture = $\beta_0+\beta_1$ associate+$\beta_2$ subsidiary+$\beta_3$ trade investments | Regression | 2 | 0.71 | 0.501 | NS | 46.1% | Constant | 0.142 | 4.52 | 0.000 | S |
| | OwnStrCa | 2 | 0.71 | 0.501 | NS | | OwnStrCa | | | | |
| | | | | | | | 2 | -0.03 | -0.7 | 0.521 | NS |
| | | | | | | | 3 | -0.14 | -1.1 | 0.283 | NS |
| *E* (performance/ ownership/ownership structure**)** = $\beta_0 + \beta_1$ ownership + $\beta_2$ ownership structure | Regression | 3 | 1.78 | 0.172 | NS | 6.6% | Constant | 0.213 | 4.5 | 0.000 | S |
| Regression Equation | OwnLF | 1 | 3.8 | 0.061 | NS | | OwnLF | | | | |
| | OwnStrCa | 2 | 1.43 | 0.255 | NS | | 1 | -0.1 | -2 | 0.061 | NS |
| ROTA = 0.2131 + 0.0 OwnLF_0 - 0.0952 OwnLF_1 + 0.0 OwnStrCa_1 - 0.0270 OwnStrCa_2 | Total | 33 | | | | | OwnStrCa | | | | |
| - 0.213 OwnStrCa_3 | | | | | | | 2 | -0.03 | -0.6 | 0.524 | NS |
| | | | | | | | 3 | -0.21 | -1.7 | 0.110 | NS |
| *E* (performance/ownership) = $\beta_0 + \beta 1$LnTAssets + $\beta_2$YearInO+ $\beta_3$OwnLF | Regression | 3 | 1.13 | 0.352 | NS | 1.2% | Constant | 0.281 | 1.44 | 0.161 | NS |
| Regression Equation | LnTAssets | 1 | 0.03 | 0.863 | NS | | LnTAssets | -0 | -0.2 | 0.863 | NS |
| OwnLF | YearInO | 1 | 1 | 0.325 | NS | | YearInO | -0 | -1 | 0.325 | NS |
| 0 ROTA = -0.281 - 0.0021 LnTAssets - 0.000974 YearInO | OwnLF | 1 | 2.9 | 0.099 | NS | | OwnLF | | | | |
| 1 ROTA = -0.197 - 0.0021 LnTAssets - 0.000974 YearInO | Total | 33 | | | | | 1 | -0.08 | -1.7 | 0.099 | NS |
| | | | | | | | | | | | |
| E (performance /ownership structure ) = $\beta_0+\beta_1$ size+$\beta_2$ age +$\beta_3$ ownership structure | Regression | 4 | 0.42 | 0.796 | NS | 0.0% | Constant | 0.121 | 0.59 | 0.558 | NS |
| Regression Equation | LnTAssets | 1 | 0.07 | 0.789 | NS | | LnTAssets | 0.004 | 0.27 | 0.789 | NS |
| OwnStrCa | YearInO | 1 | 0.24 | 0.628 | NS | | YearInO | -0 | -0.5 | 0.628 | NS |
| 1 ROTA = 0.121 + 0.0037 LnTAssets -0.00051 YearInO | OwnStrCa | 2 | 0.61 | 0.553 | NS | | OwnStrCa | | | | |

## Continuation of TABLE 4. 6: Analysis of Variance and Coefficients for the year 2006

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 ROTA = 0.095 + 0.0037 LnTAssets -0.00051 YearInO | Total | 33 | | | | | 2 | -0.03 | -0.5 | 0.609 | NS |
| 3 ROTA = -0.024+ 0.0037 LnTAssets -0.00051 YearInO | | | | | | | 3 | -0.15 | -1.1 | 0.295 | NS |
| *E* (performance/ownership/ownership structure) = $\beta_0+\beta_1$ size+$\beta_2$ age+$\beta_3$ ownership+$\beta_4$ ownership structure | Regression | 5 | 1.22 | 0.327 | NS | 3.2% | Constant | 0.259 | 1.26 | 0.218 | NS |
| Regression Equation | LnTAssets | 1 | 0.01 | 0.914 | NS | | LnTAssets | 0.001 | 0.11 | 0.914 | NS |
| OwnLF OwnStrCa | YearInO | 1 | 0.91 | 0.350 | NS | | YearInO | -0 | -1 | 0.350 | NS |
| 0 1 ROTA = 0.259 + 0.0014 LnTAssets - 0.00097 YearInO | OwnLF | 1 | 4.24 | 0.049 | S | | OwnLF | | | | |
| 0 2 ROTA = 0.243 + 0.0014 LnTAssets - 0.00097 YearInO | OwnStrCa | 2 | 1.31 | 0.286 | NS | | 1 | -0.11 | -2.1 | 0.049 | S |
| 0 3 ROTA = 0.043 + 0.0014 LnTAssets - 0.00097 YearInO | Total | 33 | | | | | OwnStrCa | | | | |
| 1 1 ROTA = 0.154 + 0.0014 LnTAssets - 0.00097 YearInO | | | | | | | 2 | -0.02 | -0.3 | 0.749 | NS |
| 1 2 ROTA = 0.138 + 0.0014 LnTAssets - 0.00097 YearInO | | | | | | | 3 | -0.22 | -1.6 | 0.117 | NS |
| 1 3 ROTA = -0.062 + 0.0014 LnTAssets - 0.00097 YearInO | | | | | | | | | | | |

## TABLE 4. 7: Analysis of Variance and Coefficients for the year 2007

| **YEAR 2007** | **ANALYSIS OF VARIANCE** | | | | | | **COEFFICIENTS** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Source | DF | F-Value | P-Value | S/NS | R-sq(adj) | Term | Coef | T-Value | P-Value | S/NS |
| *E* (performance/ownership =1) = $\beta_0 + \beta_{Owneship}$ | Regression | 1 | 0.7 | 0.408 | NS | 4.1% | Constant | 0.148 | 3.88 | 0.000 | S |
| ROTA = 0.1479 + 0.0 OwnLF_0 - 0.371 OwnLF_1 | OwnLF | 1 | 0.7 | 0.408 | NS | | OwnLF(1) | -0.04 | -0.8 | 0.408 | NS |
| *E*(Performance/ Owneship Stucture = $\beta_0+\beta_1$ associate+$\beta_2$ subsidiary+$\beta_3$ trade investments | Regression | 2 | 0.61 | 0.550 | NS | 46.1% | Constant | 0.143 | 4.97 | 0.000 | S |
| | OwnStrCa | 2 | 0.61 | 0.550 | NS | | OwnStrCa | | | | |
| | | | | | | | 2 | -0.04 | -1 | 0.320 | NS |
| | | | | | | | 3 | -0.06 | -0.7 | 0.505 | NS |
| *E* (performance/ ownership/ownership structure**)** = $\beta_0 + \beta_1$ ownership + $\beta_2$ ownership structure | Regression | 3 | 0.66 | 0.581 | NS | 0.0% | Constant | 0.173 | 3.89 | 0.000 | S |
| Regression Equation | OwnLF | 1 | 0.78 | 0.384 | NS | | OwnLF | | | | |
| | OwnStrCa | 2 | 0.65 | 0.529 | NS | | 1 | -0.04 | -0.9 | 0.384 | NS |
| ROTA = 0.1732 + 0.0 OwnLF_0 - 0.0399 OwnLF_1 + 0.0 OwnStrCa_1 - 0.0400 OwnStrCa_2 | Total | 34 | | | | | OwnStrCa | | | | |
| - 0.0683 OwnStrCa_3 | | | | | | | 2 | -0.04 | -1 | 0.329 | NS |

**Continuation of TABLE 4. 8: Analysis of Variance and Coefficients for the year 2007**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 3 | -0.07 | -0.8 | 0.441 | NS |
| *E* (performance/ownership) = $\beta_0$ + $\beta$1LnTAssets + $\beta_2$YearInO+ $\beta_3$OwnLF | Regression | 3 | 0.66 | 0.584 | NS | 0.0% | Constant | 0.191 | 1.07 | 0.295 | NS |
| Regression Equation | LnTAssets | 1 | 0.03 | 0.867 | NS | | LnTAssets | 0.002 | 0.17 | 0.867 | NS |
| OwnLF | YearInO | 1 | 1.28 | 0.267 | NS | | YearInO | -0 | -1.1 | 0.267 | NS |
| 0 ROTA = 0.191 + 0.0019 LnTAssets -0.000963 YearInO | OwnLF | 1 | 1.06 | 0.311 | NS | | OwnLF | | | | |
| 1 ROTA = 0.143 + 0.0019 LnTAssets -0.000963 YearInO | Total | 34 | | | | | 1 | -0.05 | -1 | 0.311 | NS |
| | | | | | | | | | | | |
| E (performance /ownership structure ) = $\beta_0$+$\beta_1$ size+$\beta_2$ age +$\beta_3$ ownership structure | Regression | 4 | 0.54 | 0.710 | NS | 0.0% | Constant | 0.091 | 0.51 | 0.614 | NS |
| Regression Equation | LnTAssets | 1 | 0.33 | 0.573 | NS | | LnTAssets | 0.007 | 0.57 | 0.573 | NS |
| OwnStrCa | YearInO | 1 | 0.63 | 0.434 | NS | | YearInO | -0 | -0.8 | 0.434 | NS |
| 1 ROTA = 0.091 + 0.0068 LnTAssets - 0.000722 YearInO | OwnStrCa | 2 | 0.63 | 0.541 | NS | | OwnStrCa | | | | |
| 2 ROTA = 0.052 + 0.0068 LnTAssets - 0.000722 YearInO | Total | 34 | | | | | 2 | -0.04 | -0.9 | 0.392 | NS |
| 3 ROTA = 0.013 + 0.0068 LnTAssets - 0.000722 YearInO | | | | | | | 3 | -0.08 | -0.9 | 0.394 | NS |
| *E (*performance/ownership/ownership structure) = $\beta_0$+$\beta_1$ size+$\beta_2$ age+$\beta_3$ ownership+$\beta_4$ ownership structure | Regression | 5 | 0.66 | 0.654 | NS | 0.0% | Constant | 0.169 | 0.88 | 0.218 | NS |
| Regression Equation | LnTAssets | 1 | 0.19 | 0.666 | NS | | LnTAssets | 0.005 | 0.44 | 0.914 | NS |
| OwnLF OwnStrCa | YearInO | 1 | 1.13 | 0.296 | NS | | YearInO | -0 | -1.1 | 0.350 | NS |
| 0 1 ROTA = 0.169 + 0.0052 LnTAssets - 0.001004 YearInO | OwnLF | 1 | 1.16 | 0.291 | NS | | OwnLF | | | | |
| 0 2 ROTA = 0.136 + 0.0052 LnTAssets - 0.001004 YearInO | OwnStrCa | 2 | 0.69 | 0.510 | NS | | 1 | -0.05 | -1.1 | 0.291 | NS |
| 0 3 ROTA = 0.074 + 0.0052 LnTAssets - 0.001004 YearInO | Total | 34 | | | | | OwnStrCa | | | | |
| 1 1 ROTA = 0.117 + 0.0052 LnTAssets - 0.001004 YearInO | | | | | | | 2 | -0.03 | -0.7 | 0.478 | NS |
| 1 2 ROTA = 0.084 + 0.0052 LnTAssets - 0.001004 YearInO | | | | | | | 3 | -0.09 | -1 | 0.308 | NS |
| 1 3 ROTA = 0.023 + 0.0052 LnTAssets - 0.001004 YearInO | | | | | | | | | | | |

**TABLE 4. 9: Analysis of Variance and Coefficients for Year 2008**

| YEAR 2008 | ANALYSIS OF VARIANCE | | | | | | COEFFICIENTS | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Source | DF | F-Value | P-Value | S/NS | R-sq(adj) | Term | Coef | T-Value | P-Value | S/NS |
| *E* (performance/ownership =1) = $\beta_0 + \beta_{Owneship}$ | Regression | 1 | 3.64 | 0.065 | NS | 7.2% | Constant | 1.091 | 4.73 | 0.000 | S |
| ROTA = 0.1913 + 0.0 OwnLF_0 - 0.0895 OwnLF_1 | OwnLF | 1 | 3.64 | 0.065 | NS | | OwnLF(1) | -0.09 | -1.9 | 0.065 | NS |
| *E*(Performance/ Owneship Stucture = $\beta_0+\beta_1$ associate+$\beta_2$ subsidiary+$\beta_3$ trade investments | Regression | 2 | 0.11 | 0.899 | NS | 0.0% | Constant | 0.132 | 4.21 | 0.000 | S |
| | OwnStrCa | 2 | 0.11 | 0.899 | NS | | OwnStrCa | | | | |
| | | | | | | | 2 | -0.01 | -0.2 | 0.814 | NS |
| | | | | | | | 3 | -0.04 | -0.4 | 0.664 | NS |
| *E* (performance/ ownership/ownership structure**)** = $\beta_0 + \beta_1$ ownership + $\beta_2$ ownership structure | Regression | 3 | 1.34 | 0.280 | NS | 2.9% | Constant | 0.204 | 4.28 | 0.000 | S |
| Regression Equation | OwnLF | 1 | 3.78 | 0.061 | NS | | OwnLF | | | | |
| | OwnStrCa | 2 | 0.27 | 0.768 | NS | | 1 | -0.09 | -1.9 | 0.061 | NS |
| ROTA = 0.2041 + 0.0 OwnLF_0 - 0.0942 OwnLF_1 + 0.0 OwnStrCa_1 - 0.0121 OwnStrCa_2 | Total | 29 | | | | | OwnStrCa | | | | |
| - 0.0674 OwnStrCa_3 | | | | | | | 2 | -0.01 | -0.3 | 0.782 | NS |
| | | | | | | | 3 | -0.07 | -0.7 | 0.477 | NS |
| *E* (performance/ownership) = $\beta_0$ + β1LnTAssets + $\beta_2$YearInO+ $\beta_3$OwnLF | Regression | 3 | 1.43 | 0.252 | NS | 3.7% | Constant | 0.089 | 0.47 | 0.643 | NS |
| Regression Equation | LnTAssets | 1 | 0.55 | 0.466 | NS | | LnTAssets | 0.008 | 0.74 | 0.466 | NS |
| OwnLF | YearInO | 1 | 0.2 | 0.656 | NS | | YearInO | -0 | -0.5 | 0.656 | NS |
| 0 ROTA = 0.089 + 0.0083 LnTAssets - 0.000387 YearInO | OwnLF | 1 | 3.17 | 3.170 | NS | | OwnLF | | | | |
| 1 ROTA = 0.003 + 0.0083 LnTAssets - 0.000387 YearInO | Total | 34 | | | | | 1 | -0.09 | -1.8 | 0.085 | NS |
| | | | | | | | | | | | |
| E (performance /ownership structure ) = $\beta_0+\beta_1$ size+$\beta_2$ age +$\beta_3$ ownership structure | Regression | 4 | 0.37 | 0.826 | NS | 0.0% | Constant | -0.04 | -0.2 | 0.832 | NS |
| Regression Equation | LnTAssets | 1 | 1.11 | 0.300 | NS | | LnTAssets | 0.013 | 1.05 | 0.300 | NS |
| OwnStrCa | YearInO | 1 | 0.07 | 0.788 | NS | | YearInO | -0 | -0.3 | 0.788 | NS |
| 1 ROTA = -0.042 + 0.0132 LnTAssets - 0.000262 YearInO | OwnStrCa | 2 | 0.24 | 0.785 | NS | | OwnStrCa | | | | |
| 2 ROTA = -0.066 + 0.0132 LnTAssets - 0.000262 YearInO | Total | 34 | | | | | 2 | -0.02 | -0.5 | 0.638 | NS |
| 3 ROTA = -0.102 + 0.0132 LnTAssets - 0.000262 YearInO | | | | | | | 3 | -0.06 | -0.6 | 0.557 | NS |

## Continuation of TABLE 4. 10: Analysis of Variance and Coefficients for Year 2008

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *E* (performance/ownership/ownership structure) = $\beta_0+\beta_1$ size+$\beta_2$ age+$\beta_3$ ownership+$\beta_4$ ownership structure | | | Regression | 5 | 0.99 | 0.443 | NS | 0.0% | Constant | 0.085 | 0.42 | 0.680 | NS |
| Regression Equation | | | LnTAssets | 1 | 0.67 | 0.418 | NS | | LnTAssets | 0.01 | 0.82 | 0.418 | NS |
| OwnLF | OwnStrCa | | YearInO | 1 | 0.24 | 0.630 | NS | | YearInO | -0 | -0.5 | 0.630 | NS |
| 0 | 1 | ROTA = 0.085 + 0.0100 LnTAssets - 0.000456 YearInO | OwnLF | 1 | 3.33 | 0.078 | NS | | OwnLF | | | | |
| 0 | 2 | ROTA = 0.066 + 0.0100 LnTAssets - 0.000456 YearInO | OwnStrCa | 2 | 0.4 | 0.673 | NS | | 1 | -0.09 | -1.8 | 0.078 | NS |
| 0 | 3 | ROTA = 0.001 + 0.0100 LnTAssets - 0.000456 YearInO | Total | 34 | | | | | OwnStrCa | | | | |
| 1 | 1 | ROTA = -0.006 + 0.0100 LnTAssets - 0.000456 YearInO | | | | | | | 2 | -0.02 | -0.4 | 0.698 | NS |
| 1 | 2 | ROTA = -0.025 + 0.0100 LnTAssets - 0.000456 YearInO | | | | | | | 3 | -0.08 | -0.9 | 0.394 | NS |
| 1 | 3 | ROTA = -0.090 + 0.0100 LnTAssets - 0.000456 YearInO | | | | | | | | | | | |

## TABLE 4. 11: Analysis of Variance and Coefficients for Year 2009

| **YEAR 2009** | **ANALYSIS OF VARIANCE** | | | | | | **COEFFICIENTS** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Source | DF | F-Value | P-Value | S/NS | R-sq(adj) | Term | Coef | T-Value | P-Value | S/NS |
| *E* (performance/ownership =1) = $\beta_0 + \beta_{Owneship}$ | Regression | 1 | 2.89 | 0.099 | NS | 5.3% | Constant | 0.185 | 5.05 | 0.000 | S |
| ROTA = 0.1853 + 0.0 OwnLF_0 - 0.0724 OwnLF_1 | OwnLF | 1 | 2.89 | 0.099 | NS | | OwnLF(1) | -0.07 | -1.7 | 0.099 | NS |
| *E*(Performance/ Owneship Stucture = $\beta_0+\beta_1$ associate+$\beta_2$ subsidiary+$\beta_3$ trade investments | Regression | 2 | 0.16 | 0.849 | NS | 0.0% | Constant | 0.135 | 4.93 | 0.000 | S |
| | OwnStrCa | 2 | 0.16 | 0.849 | NS | | OwnStrCa | | | | |
| | | | | | | | 2 | -0.01 | -0.3 | 0.791 | NS |
| | | | | | | | 3 | 0.055 | 0.46 | 0.649 | NS |
| *E* (performance/ ownership/ownership structure**)** = $\beta_0 + \beta_1$ ownership + $\beta_2$ ownership structure | Regression | 3 | 1.1 | 0.365 | NS | 0.8% | Constant | 0.189 | 4.58 | 0.000 | S |
| Regression Equation | OwnLF | 1 | 2.94 | 0.096 | NS | | OwnLF | | | | |
| | OwnStrCa | 2 | 0.26 | 0.769 | NS | | 1 | -0.08 | -1.7 | 0.096 | NS |
| ROTA = 0.1891 + 0.0 OwnLF_0 - 0.0751 OwnLF_1 + 0.0 OwnStrCa_1 - 0.0085 OwnStrCa_2 | Total | 30 | | | | | OwnStrCa | | | | |
| + 0.076 OwnStrCa_3 | | | | | | | 2 | -0.01 | -0.2 | 0.827 | NS |
| | | | | | | | 3 | 0.076 | 0.65 | 0.521 | NS |

## Continuation of TABLE 4. 12: Analysis of Variance and Coefficients for Year 2009

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *E* (performance/ownership) = $\beta_0$ + $\beta$1LnTAssets + $\beta_2$YearInO+ $\beta_3$OwnLF | Regression | 3 | 1.39 | 0.265 | NS | 3.3% | Constant | 0.281 | 1.66 | 0.106 | NS |
| Regression Equation | LnTAssets | 1 | 0.74 | 0.397 | NS | | LnTAssets | -0.01 | -0.9 | 0.397 | NS |
| OwnLF | YearInO | 1 | 0.51 | 0.480 | NS | | YearInO | 6E-04 | 0.71 | 0.480 | NS |
| 0 ROTA = 0.281 - 0.00850 LnTAssets + 0.000553 YearInO | OwnLF | 1 | 2.98 | 0.094 | NS | | OwnLF | | | | |
| 1 ROTA = 0.205 - 0.00850 LnTAssets + 0.000553 YearInO | Total | 34 | | | | | 1 | -0.08 | -1.7 | 0.094 | NS |
| | | | | | | | | | | | |
| E (performance /ownership structure ) = $\beta_0$+$\beta_1$ size+$\beta_2$ age +$\beta_3$ ownership structure | Regression | 4 | 0.46 | 0.767 | NS | 0.0% | Constant | 0.138 | 0.77 | 0.446 | NS |
| Regression Equation | LnTAssets | 1 | 0.15 | 0.705 | NS | | LnTAssets | -0 | -0.4 | 0.705 | NS |
| OwnStrCa | YearInO | 1 | 1.17 | 0.287 | NS | | YearInO | 1E-03 | 1.08 | 0.287 | NS |
| 1 ROTA = 0.138 - 0.0042 LnTAssets + 0.000976 YearInO | OwnStrCa | 2 | 0.38 | 0.687 | NS | | OwnStrCa | | | | |
| 2 ROTA = 0.121 - 0.0042 LnTAssets + 0.000976 YearInO | Total | 34 | | | | | 2 | -0.02 | -0.4 | 0.706 | NS |
| 3 ROTA = 0.235 - 0.0042 LnTAssets + 0.000976 YearInO | | | | | | | 3 | 0.097 | 77 | 0.449 | NS |
| *E* (performance/ownership/ownership structure) = $\beta_0$+$\beta_1$ size+$\beta_2$ age+$\beta_3$ ownership+$\beta_4$ ownership structure | Regression | 5 | 0.99 | 0.439 | NS | 0.0% | Constant | 0.239 | 1.31 | 0.202 | NS |
| Regression Equation | LnTAssets | 1 | 0.41 | 0.527 | NS | | LnTAssets | -0.01 | -0.6 | 0.527 | NS |
| OwnLF OwnStrCa | YearInO | 1 | 1.02 | 0.322 | NS | | YearInO | 9E-04 | 1.01 | 0.322 | NS |
| 0 1 ROTA = 0.239 - 0.0069 LnTAssets + 0.000880 YearInO | OwnLF | 1 | 3.01 | 0.093 | NS | | OwnLF | | | | |
| 0 2 ROTA = 0.228 - 0.0069 LnTAssets + 0.000880 YearInO | OwnStrCa | 2 | 0.47 | 0.629 | NS | | 1 | -0.08 | -1.7 | 0.093 | NS |
| 0 3 ROTA = 0.353 - 0.0069 LnTAssets + 0.000880 YearInO | Total | 34 | | | | | OwnStrCa | | | | |
| 1 1 ROTA = 0.161 - 0.0069 LnTAssets + 0.000880 YearInO | | | | | | | 2 | -0.01 | -0.2 | 0.810 | NS |
| 1 2 ROTA = 0.151 - 0.0069 LnTAssets + 0.000880 YearInO | | | | | | | 3 | 0.114 | 0.93 | 0.361 | NS |
| 1 3 ROTA = 0.275 - 0.0069 LnTAssets + 0.000880 YearInO | | | | | | | | | | | |

## TABLE 4.13: Analysis of Variance and Coefficients for Year 2010

| YEAR 2010 | ANALYSIS OF VARIANCE | | | | | | COEFFICIENTS | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Source | DF | F-Value | P-Value | S/NS | R-sq(adj) | Term | Coef | T-Value | P-Value | S/NS |
| *E* (performance/ownership =1) = $\beta_0 + \beta_{Owneship}$ | Regression | 1 | 3.99 | 0.054 | NS | 8.3% | Constant | 0.213 | 4.73 | 0.000 | S |
| ROTA = 0.2134 + 0.0 OwnLF_0 - 0.1051 OwnLF_1 | OwnLF | 1 | 3.99 | 0.054 | NS | | OwnLF(1) | -0.11 | -2 | 0.054 | NS |
| *E*(Performance/ Owneship Stucture = $\beta_0+\beta_1$ associate+$\beta_2$ subsidiary+$\beta_3$ trade investments | Regression | 2 | 0.23 | 0.793 | NS | 0.0% | Constant | 0.147 | 4.18 | 0.000 | S |
| | OwnStrCa | 2 | 0.23 | 0.793 | NS | | OwnStrCa | | | | |
| | | | | | | | 2 | -0.03 | -0.5 | 0.615 | NS |
| | | | | | | | 3 | 0.055 | 0.37 | 0.716 | NS |
| *E* (performance/ ownership/ownership structure**)** = $\beta_0 + \beta_1$ ownership + $\beta_2$ ownership structure | Regression | 3 | 1.49 | 0.236 | NS | 4.3% | Constant | 0.223 | 4.38 | 0.000 | S |
| Regression Equation | OwnLF | 1 | 3.97 | 0.056 | NS | | OwnLF | | | | |
| | OwnStrCa | 2 | 0.33 | 0.722 | NS | | 1 | -0.11 | -2 | 0.056 | NS |
| ROTA = 0.226 + 0.0 OwnLF_0 - 0.1078 OwnLF_1 + 0.0 OwnStrCa_1 - 0.0209 OwnStrCa_2 | Total | 33 | | | | | OwnStrCa | | | | |
| + 0.086 OwnStrCa_3 | | | | | | | 2 | -0.02 | -0.4 | 0.668 | NS |
| | | | | | | | 3 | 0.086 | 0.6 | 0.551 | NS |
| *E* (performance/ownership) = $\beta_0 + \beta 1$LnTAssets + $\beta_2$YearInO+ $\beta_3$OwnLF | Regression | 3 | 2.33 | 0.094 | NS | 10.8% | Constant | 0.442 | 2.08 | 0.046 | S |
| Regression Equation | LnTAssets | 1 | 2.07 | 0.160 | NS | | LnTAssets | -0.02 | -1.4 | 0.160 | NS |
| OwnLF | YearInO | 1 | 0.76 | 0.390 | NS | | YearInO | 8E-04 | 0.87 | 0.390 | NS |
| 0 ROTA = 0.442 - 0.0180 LnTAssets + 0.000822 YearInO | OwnLF | 1 | 4.45 | 0.043 | S | | OwnLF | | | | |
| 1 ROTA = 0.331 - 0.0180 LnTAssets + 0.000822 YearInO | Total | 33 | | | | | 1 | -0.11 | -2.1 | 0.043 | S |
| | | | | | | | | | | | |
| E (performance /ownership structure ) = $\beta_0+\beta_1$ size+$\beta_2$ age +$\beta_3$ ownership structure | Regression | 4 | 0.85 | 0.506 | NS | 0.0% | Constant | 0.237 | 1.07 | 0.295 | NS |
| Regression Equation | LnTAssets | 1 | 0.77 | 0.388 | NS | | LnTAssets | -0.01 | -0.9 | 0.388 | NS |
| OwnStrCa | YearInO | 1 | 1.87 | 0.182 | NS | | YearInO | 0.002 | 1.37 | 0.182 | NS |
| 1 ROTA = 0.237 - 0.0118 LnTAssets + 0.00154 YearInO | OwnStrCa | 2 | 0.58 | 0.567 | NS | | OwnStrCa | | | | |
| 2 ROTA = 0.196 - 0.0118 LnTAssets + 0.00154 YearInO | Total | 33 | | | | | 2 | -0.04 | -0.8 | 0.440 | NS |
| 3 ROTA = 0.347 - 0.0118 LnTAssets + 0.00154 YearInO | | | | | | | 3 | 0.11 | 0.71 | 0.484 | NS |

## Continuation of TABLE 4.14: Analysis of Variance and Coefficients for Year 2010

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *E (*performance/ownership/ownership structure) = $\beta_0+\beta_1$ size+$\beta_2$ age+$\beta_3$ ownership+$\beta_4$ ownership structure | | | Regression | 5 | 1.62 | 0.188 | NS | 3.2% | Constant | 0.379 | 1.71 | 0.098 | NS |
| Regression Equation | | | LnTAssets | 1 | 1.41 | 0.245 | NS | | LnTAssets | -0.02 | -1.2 | 0.245 | NS |
| OwnLF | OwnStrCa | | YearInO | 1 | 1.61 | 0.215 | NS | | YearInO | 0.001 | 1.27 | 0.215 | NS |
| 0 | 1 | ROTA = 0.379 - 0.0153 LnTAssets + 0.00136 YearInO | OwnLF | 1 | 4.31 | 0.047 | S | | OwnLF | | | | |
| 0 | 2 | ROTA = 0.347 - 0.0153 LnTAssets + 0.00136 YearInO | OwnStrCa | 2 | 0.63 | 0.540 | NS | | 1 | -0.11 | -2.1 | 0.047 | S |
| 0 | 3 | ROTA = 0.511 - 0.0153 LnTAssets + 0.00136 YearInO | Total | 33 | | | | | OwnStrCa | | | | |
| 1 | 1 | ROTA = 0.268 - 0.0153 LnTAssets + 0.00136 YearInO | | | | | | | 2 | -0.03 | -0.6 | 0.530 | NS |
| 1 | 2 | ROTA = 0.236 - 0.0153 LnTAssets + 0.00136 YearInO | | | | | | | 3 | 0.132 | 0.9 | 0.377 | NS |
| 1 | 3 | ROTA = 0.400 - 0.0153 LnTAssets + 0.00136 YearInO | | | | | | | | | | | |

## TABLE 4.15: Analysis of Variance and Coefficients for Year 2011

| **YEAR 2011** | **ANALYSIS OF VARIANCE** | | | | | | **COEFFICIENTS** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Source | DF | F-Value | P-Value | S/NS | R-sq(adj) | Term | Coef | T-Value | P-Value | S/NS |
| E (performance/ownership =1) = β0 + βOwneship | Regression | 1 | 0.76 | 0.389 | NS | 0.0% | Constant | 0.181 | 4.24 | 0.000 | S |
| ROTA = 0.1814 + 0.0 OwnLF_0 - 0.0435 OwnLF_1 | OwnLF | 1 | 0.76 | 0.389 | NS | | OwnLF(1) | -0.04 | -0.9 | 0.389 | NS |
| E(Performance/ Owneship Stucture = β0+β1 associate+β2 subsidiary+β3 trade investments | Regression | 2 | 0.26 | 0.771 | NS | 0.0% | Constant | 0.166 | 5.09 | 0.000 | S |
| | OwnStrCa | 2 | 0.26 | 0.771 | NS | | OwnStrCa | | | | |
| | | | | | | | 2 | -0.03 | -0.7 | 0.478 | NS |
| | | | | | | | 3 | -0.02 | -0.3 | 0.772 | NS |
| E (performance/ ownership/ownership structure) = β0 + β1 ownership + β2 ownership structure | Regression | 3 | 0.39 | 0.759 | NS | 0.0% | Constant | 0.196 | 4.02 | 0.000 | S |
| Regression Equation | OwnLF | 1 | 0.66 | 0.423 | NS | | OwnLF | | | | |
| | OwnStrCa | 2 | 0.23 | 0.798 | NS | | 1 | -0.04 | -0.8 | 0.423 | NS |
| ROTA = 0.1664 + 0.0 OwnStrCa_1 - 0.0337 OwnStrCa_2 | Total | 33 | | | | | OwnStrCa | | | | |
| - 0.0240 OwnStrCa_3 | | | | | | | 2 | -0.03 | -0.7 | 0.507 | NS |
| | | | | | | | 3 | -0.01 | -0.1 | 0.899 | NS |

## Continuation of TABLE 4.16: Analysis of Variance and Coefficients for Year 2011

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| E (performance/ownership) = β0 + β1LnTAssets + β2YearInO+ β3OwnLF | Regression | 3 | 1.09 | 0.367 | NS | 0.9% | Constant | 0.484 | 2.46 | 0.020 | S |
| Regression Equation | LnTAssets | 1 | 1.1 | 0.158 | NS | | LnTAssets | -0.02 | -1.5 | 0.158 | NS |
| OwnLF | YearInO | 1 | 0.42 | 0.522 | NS | | YearInO | -0 | -0.7 | 0.522 | NS |
| 0 ROTA = 0.484 - 0.0167 LnTAssets - 0.000608 YearInO | OwnLF | 1 | 1.18 | 0.285 | NS | | OwnLF | | | | |
| 1 ROTA = 0.430 - 0.0167 LnTAssets - 0.000608 YearInO | Total | 33 | | | | | 1 | -0.05 | -1.1 | 0.285 | NS |
| E (performance /ownership structure ) = β0+β1 size+β2 age +β3 ownership structure | Regression | 4 | 0.62 | 0.651 | NS | 0.0% | Constant | 0.44 | 2.22 | 0.035 | S |
| Regression Equation | LnTAssets | 1 | 1.74 | 0.198 | NS | | LnTAssets | -0.02 | -1.3 | 0.198 | NS |
| OwnStrCa | YearInO | 1 | 0.27 | 0.605 | NS | | YearInO | -0 | -0.5 | 0.605 | NS |
| 1 ROTA = 0.440 - 0.0156 LnTAssets - 0.00056 YearInO | OwnStrCa | 2 | 0.25 | 0.781 | NS | | OwnStrCa | | | | |
| 2 ROTA = 0.414 - 0.0156 LnTAssets - 0.00056 YearInO | Total | 33 | | | | | 2 | -0.03 | -0.5 | 0.598 | NS |
| 3 ROTA = 0.393 - 0.0156 LnTAssets - 0.00056 YearInO | | | | | | | 3 | -0.05 | -0.6 | 0.587 | NS |
| E (performance/ownership/ownership structure) = β0+β1 size+β2 age+β3 ownership+β4 ownership structure | Regression | 5 | 0.68 | 0.641 | S | 0.0% | Constant | 0.495 | 2.4 | 0.024 | S |
| Regression Equation | LnTAssets | 1 | 1.99 | 0.169 | NS | | LnTAssets | -0.02 | -1.4 | 0.169 | NS |
| OwnLF OwnStrCa | YearInO | 1 | 0.29 | 0.593 | NS | | YearInO | -0 | -0.5 | 0.593 | NS |
| 0 1 ROTA = 0.495 - 0.0168 LnTAssets - 0.00058 YearInO | OwnLF | 1 | 0.93 | 0.342 | NS | | OwnLF | | | | |
| 0 2 ROTA = 0.472 - 0.0168 LnTAssets - 0.00058 YearInO | OwnStrCa | 2 | 0.16 | 0.855 | S | | 1 | -0.05 | -1 | 0.342 | NS |
| 0 3 ROTA = 0.462 - 0.0168 LnTAssets - 0.00058 YearInO | Total | 33 | | | | | OwnStrCa | | | | |
| 1 1 ROTA = 0.444 - 0.0168 LnTAssets - 0.00058 YearInO | | | | | | | 2 | -0.02 | -0.5 | 0.637 | NS |
| 1 2 ROTA = 0.421 - 0.0168 LnTAssets - 0.00058 YearInO | | | | | | | 3 | -0.03 | -0.4 | 0.710 | NS |
| 1 3 ROTA = 0.411 - 0.0168 LnTAssets - 0.00058 YearInO | | | | | | | | | | | |

**TABLE 4.17: Analysis of Variance and Coefficients for the year 2012**

| YEAR 2012 | ANALYSIS OF VARIANCE | | | | | | COEFFICIENTS | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Source | DF | F-Value | P-Value | S/NS | R-sq(adj) | Term | Coef | T-Value | P-Value | S/NS |
| E (performance/ownership =1) = β0 + βOwneship | Regression | 1 | 10.02 | 0.003 | S | 21.5% | Constant | 0.273 | 5.47 | 0.000 | S |
| ROTA = 0.2728 + 0.0 OwnLF_0 - 0.1839 OwnLF_1 | OwnLF | 1 | 10.02 | 0.003 | S | | OwnLF(1) | -0.18 | -3.2 | 0.003 | S |
| E(Performance/ Owneship Stucture = β0+β1 associate+β2 subsidiary+β3 trade investments | Regression | 2 | 0.3 | 0.742 | NS | 0.0% | Constant | 0.158 | 3.66 | 0.001 | S |
| | OwnStrCa | 2 | 0.3 | 0.742 | NS | | OwnStrCa | | | | |
| | | | | | | | 2 | -0.05 | -0.7 | 0.464 | NS |
| | | | | | | | 3 | 0.002 | 0.01 | 0.988 | NS |
| E (performance/ ownership/ownership structure) = β0 + β1 ownership + β2 ownership structure | Regression | 3 | 3.66 | 0.023 | S | 19.5% | Constant | 0.289 | 5.17 | 0.000 | S |
| Regression Equation | OwnLF | 1 | 10.19 | 0.003 | S | | OwnLF | | | | |
| | OwnStrCa | 2 | 0.6 | 0.000 | S | | 1 | -0.19 | -3.2 | 0.003 | S |
| ROTA = 0.2893 + 0.0 OwnLF_0 - 0.576 OwnLF_1 + 0.0 OwnStrCa_1 - 0.0372 OwnStrCa_2 | Total | 33 | | | | | OwnStrCa | | | | |
| 0.0614 OwnStrCa_3 | | | | | | | 2 | -0.04 | -0.7 | 0.500 | NS |
| | | | | | | | 3 | 0.061 | 0.63 | 0.532 | NS |
| E (performance/ownership) = β0 + β1LnTAssets + β2YearInO+ β3OwnLF | Regression | 3 | 4.86 | 0.007 | S | 0.0% | Constant | 0.713 | 3.14 | 0.004 | S |
| Regression Equation | LnTAssets | 1 | 3.56 | 0.069 | NS | | LnTAssets | -0.02 | -1.9 | 0.069 | NS |
| OwnLF | YearInO | 1 | 0.41 | 0.529 | NS | | YearInO | -0 | -0.6 | 0.529 | NS |
| 0 ROTA = -0.713- 0.0249 LnTAssets - 0.00068 YearInO | OwnLF | 1 | 12.44 | 0.001 | S | | OwnLF | | | | |
| 1 ROTA = -0.713- 0.0249 LnTAssets - 0.00068 YearInO | Total | 33 | | | | | 1 | -0.2 | -3.5 | 0.001 | S |
| | | | | | | | | | | | |
| E (performance /ownership structure ) = β0+β1 size+β2 age +β3 ownership structure | Regression | 4 | 0.48 | 0.752 | NS | 0.0% | Constant | 0.448 | 1.69 | 0.102 | NS |
| Regression Equation | LnTAssets | 1 | 1.32 | 0.261 | NS | | LnTAssets | -0.02 | -1.2 | 0.261 | NS |
| OwnStrCa | YearInO | 1 | 0.02 | 0.901 | NS | | YearInO | -0 | -0.1 | 0.901 | NS |

**Continuation of TABLE 4.18: Analysis of Variance and Coefficients for the Year 2012**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ROTA = 0.448 - 0.0181 LnTAssets - 0.00018 YearInO | OwnStrCa | 2 | 0.22 | 0.807 | NS | | OwnStrCa | | | | |
| 2 | ROTA = 0.405 - 0.0181 LnTAssets - 0.00018 YearInO | Total | 33 | | | | | 2 | -0.04 | -0.7 | 0.517 | NS |
| 3 | ROTA = 0.434 - 0.0181 LnTAssets - 0.00018 YearInO | | | | | | | 3 | -0.01 | -0.1 | 0.907 | NS |
| E (performance/ownership/ownership structure) = β0+β1 size+β2 age+β3 ownership+β4 ownership structure | | Regression | 5 | 2.91 | 0.031 | S | | Constant | 0.686 | 2.9 | 0.007 | S |
| Regression Equation | | LnTAssets | 1 | 3.15 | 0.087 | NS | | LnTAssets | -0.02 | -1.8 | 0.087 | NS |
| OwnLF OwnStrCa | | YearInO | 1 | 0.05 | 0.830 | NS | | YearInO | -0 | -0.2 | 0.830 | NS |
| 0 1 | ROTA = 0.686 - 0.0240 LnTAssets - 0.00026 YearInO | OwnLF | 1 | 11.94 | 0.002 | S | | OwnLF | | | | |
| 0 2 | ROTA = 0.654 - 0.0240 LnTAssets - 0.00026 YearInO | OwnStrCa | 2 | 0.32 | 0.726 | NS | | 1 | -0.2 | -3.5 | 0.002 | S |
| 0 3 | ROTA = 0.730 - 0.0240 LnTAssets - 0.00026 YearInO | Total | 33 | | | | | OwnStrCa | | | | |
| 1 1 | ROTA = 0.481 - 0.0240 LnTAssets - 0.00026 YearInO | | | | | | | 2 | -0.03 | -0.6 | 0.570 | NS |
| 1 2 | ROTA = 0.449 - 0.0240 LnTAssets - 0.00026 YearInO | | | | | | | 3 | 0.045 | 0.45 | 0.656 | NS |
| 1 3 | ROTA = 0.525 - 0.0240 LnTAssets - 0.00026 YearInO | | | | | | | | | | | |

# Appendix II: Variables for Years 2005 to 2012 used in Data Analysis

| Name of Company | YrInCo | OwnLF | Industry | YR | TASSETS | EQBV | BtM | EBtTA | ROTA | ROE | RPS | OwnStr | OwnStrCa | LnTAssets | YearInO |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BAMBURI CEMENT LTD | 1951 | 1 | 2 | 2012 | 43038 | 30861 | 0.46 | 0.167 | 0.173 | 0.073 | 0.466 | 36.3 | 1 | 10.66984 | 64 |
| CMC HOLDINGS LTD | 1948 | 0 | 3 | 2012 | 12957113 | 5736158 | 0.76 | 0.018 | 0.000 | 0.014 | 0.000 | 24.73 | 1 | 16.37716 | 67 |
| EAST AFRICAN BREWERIES LTD | 1922 | 0 | 2 | 2012 | 54584316 | 8715880 | 0.05 | 0.279 | 0.363 | 0.062 | 0.692 | 42.82 | 1 | 17.81526 | 93 |
| EVEREADY HOLDINGS LTD | 1967 | 0 | 2 | 2012 | 1150729 | 349489 | 1.58 | 0.060 | 0.592 | 0.318 | -0.268 | 35.12 | 1 | 13.95591 | 48 |
| MARSHALLS(EAST AFRICA) LTD | 1947 | 1 | 3 | 2012 | 567095 | 392129 | 2.26 | -0.292 | -0.118 | -0.954 | 0.401 | 71.57 | 2 | 13.24828 | 68 |
| MUMIAS SUGAR COMPANY LIMITED | 1971 | 1 | 2 | 2012 | 27401113 | 15723686 | 0.74 | 0.064 | 0.070 | 0.094 | 0.624 | 20 | 1 | 17.12609 | 44 |
| NATION MEDIA GROUP | 1922 | 0 | 3 | 2012 | 10677400 | 7323500 | 0.21 | 0.328 | 0.298 | 0.072 | 0.550 | 44.66 | 1 | 16.18364 | 93 |
| REA VIPINGO LTD | 1995 | 1 | 1 | 2012 | 1187307 | 670654 | 0.66 | 0.468 | 0.491 | 0.373 | 0.157 | 42.47 | 1 | 13.9872 | 20 |
| UNILEVER TEA KENYA LTD | 1925 | 0 | 1 | 2012 | | | | | | | | | | | 90 |
| A BAUMANN & COMPANY LTD | 1926 | 1 | 3 | 2012 | | | | | | | | | | | 89 |
| ACCESS KENYA GROUP | 2000 | 1 | 3 | 2012 | 2265714 | 1247379 | 1.30 | 0.093 | 0.157 | 0.157 | -0.224 | 17.3 | 3 | 14.6334 | 15 |
| ARM CEMENT LIMITED | 1973 | 1 | 2 | 2012 | 26953100 | 7013771 | 0.32 | 0.066 | 0.084 | 0.057 | 0.506 | 28 | 1 | 17.10961 | 42 |
| BOC | 1940 | 0 | 2 | 2012 | 1989541 | 1454811 | 0.75 | 0.144 | 0.116 | 0.102 | 0.347 | 65.4 | 2 | 14.50341 | 75 |
| BRITISH AMERICAN TOBBACO | 1952 | 0 | 2 | 2012 | 13182500 | 7097917 | 0.14 | 0.361 | 0.387 | 0.066 | 0.520 | 60 | 2 | 16.3944 | 63 |
| CAR AND GENERAL | 1936 | 1 | 3 | 2012 | 2143154 | 2143154 | 2.31 | 0.165 | 0.288 | 0.287 | 0.176 | 32.5 | 1 | 14.57779 | 79 |
| CARBACID INVESTMENT COMPANY | 1961 | 1 | 2 | 2012 | 2012816 | 1652770 | 0.39 | 0.266 | 0.233 | 0.092 | 0.380 | 15 | 3 | 14.51505 | 54 |
| CROWN PAINT LIMITED | 1958 | 1 | 2 | 2012 | 2258263 | 1176202 | 1.17 | 0.099 | 0.125 | 0.132 | 0.216 | 48.06 | 1 | 14.63011 | 57 |
| EAST AFRICAN CABLES LTD | 1965 | 1 | 2 | 2012 | 6248642 | 2925029 | 9.88 | 0.121 | 0.124 | 1.763 | 0.642 | 68.38 | 2 | 15.64787 | 50 |
| EAST AFRICAN PORTLAND CEMENT LTD | 1930 | 1 | 2 | 2012 | 14091005 | 4831624 | 0.89 | -0.060 | -0.040 | -0.152 | 0.715 | 52 | 2 | 16.46105 | 85 |
| EXPRESS KENYA LTD | 1918 | 1 | 3 | 2012 | 495614 | 198287 | 1.60 | -0.027 | 0.033 | 0.105 | 0.584 | 60.43 | 2 | 13.11355 | 97 |
| KAKUZI LIMITED | 1927 | 1 | 1 | **2012** | 3571700 | 2801225 | 1.98 | 0.134 | 0.108 | 0.290 | 0.308 | 26.06 | 1 | 15.08855 | 88 |
| KAPCHORUA TEA COMPANY | 1948 | 1 | 1 | **2012** | 1962897 | 1133635 | 2.39 | 0.057 | 0.050 | 0.165 | 0.569 | 50.56 | 2 | 14.48993 | 67 |
| KENOL KOBIL(KENYA OIL CMPANY LIMITED | 1959 | 1 | 2 | 2012 | 32684166 | 6445725 | 0.32 | -0.274 | -0.205 | -0.315 | 0.657 | 24.91 | 1 | 17.3024 | 56 |
| KENYA AIRWAYS | 1977 | 1 | 3 | 2012 | 77432 | 23023 | 3.58 | 0.028 | 0.045 | 0.258 | 0.361 | 26 | 1 | 11.25716 | 38 |
| KENYA ELECTRICITY GENERATING CO. | 1954 | 1 | 2 | 2012 | 163145000 | 70179554 | 3.71 | 0.025 | 0.034 | 0.149 | -0.154 | 44.66 | 1 | 18.91015 | 61 |

## Continuation of Variables for Years 2005 to 2012 used in Data Analysis

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KENYA POWER & LIGHTING COMPANY LTD | 1922 | 1 | 2 | 2012 | 134131983 | 21490334 | 1.28 | 0.063 | 0.058 | 0.275 | 1.199 | 50.08 | 2 | 18.71433 | 93 |
| LIMURU TEA COMPANY LTD | 1925 | 0 | 1 | 2012 | 320023 | 242233 | 0.47 | 0.458 | 0.458 | 0.197 | 0.379 | 52 | 2 | 12.67615 | 90 |
| SAFARICOM LTD | 1997 | 0 | 3 | 2012 | 121899677 | 72081696 | 0.56 | 0.142 | 0.172 | 0.099 | 0.087 | 40 | 2 | 18.61871 | 18 |
| SAMEER AFRICA LTD | 1969 | 1 | 2 | 2012 | 3359651 | 2326723 | 2.01 | 0.089 | 0.100 | 0.164 | 0.169 | 57.24 | 2 | 15.02735 | 46 |
| SASINI TEA & COFFEE LTD | 1952 | 1 | 1 | 2012 | 8922980 | 6762172 | 2.71 | -0.010 | -0.011 | -0.050 | 0.307 | 41.84 | 1 | 16.00414 | 63 |
| SCANGROUP | 1999 | 1 | 3 | 2012 | 8646961 | 4899630 | | | | | | 27.5 | | 15.97272 | 16 |
| STANDARD GROUP LIMITED | 1919 | 1 | 3 | 2012 | 3501548 | 1838902 | 0.91 | 0.076 | 0.121 | 0.091 | 0.851 | 69.11 | 2 | 15.06872 | 96 |
| TOTAL KENYA Ltd. | 1955 | 1 | 2 | **2012** | 32980604 | 14192676 | 1.63 | -0.002 | 0.044 | -0.023 | 0.166 | 91.16 | 2 | 17.31143 | 60 |
| TPS SERENA | 1970 | 0 | 3 | 2012 | 13484076 | 8181410 | 1.38 | 0.054 | 0.068 | 0.083 | 0.169 | 32.44 | 1 | 16.41702 | 45 |
| UCHUMI | 1975 | 1 | 3 | 2012 | 4941888 | 2657810 | 0.63 | 0.082 | 0.087 | 0.065 | -0.981 | 13.4 | 3 | 15.41326 | 40 |
| UNGA GROUP LTD | 1908 | 1 | 2 | 2012 | 6410259 | 3989218 | 4.18 | 0.080 | 0.082 | 0.365 | 0.599 | 50.93 | 2 | 15.67341 | 107 |
| WILLIAMSON TEA COMPANY LTD | 1950 | 1 | 1 | 2012 | 8243227 | 4945056 | 2.46 | 0.141 | 0.088 | 0.424 | 0.296 | 51.46 | 2 | 15.9249 | 65 |
| BAMBURI CEMENT LTD | 1951 | 1 | 2 | 2011 | 35502 | 24174 | 0.53 | 0.238 | 0.249 | 0.129 | 0.560 | 35.3 | 1 | 10.47734 | 64 |
| CMC HOLDINGS LTD | 1948 | 0 | 3 | 2011 | 14579112 | 5145429 | 0.68 | -0.014 | 0.000 | -0.024 | 0.000 | 24.73 | 1 | 16.4951 | 67 |
| EAST AFRICAN BREWERIES LTD | 1922 | 0 | 2 | 2011 | 49519364 | 26755181 | 0.17 | 0.248 | 0.244 | 0.059 | 0.209 | 42.82 | 1 | 17.71787 | 93 |
| EVEREADY HOLDINGS LTD | 1967 | 0 | 2 | 2011 | 1010864 | 279405 | 1.06 | -0.171 | 0.043 | 0.472 | -0.160 | 35.12 | 1 | 13.82632 | 48 |
| MARSHALLS( EAST AFRICA) LTD | 1947 | 1 | 3 | 2011 | 1076865 | 403068 | 1.98 | 0.169 | 0.240 | 0.891 | -0.148 | 71.57 | 2 | 13.88956 | 68 |
| MUMIAS SUGAR COMPANY LIMITED | 1971 | 1 | 2 | 2011 | 23176516 | 14476007 | 0.29 | 0.114 | 0.076 | 0.039 | -0.552 | 20 | 1 | 16.95865 | 44 |
| NATION MEDIA GROUP | 1922 | 0 | 3 | 2011 | 8816300 | 6122400 | 0.28 | 0.319 | 0.335 | 0.091 | 0.632 | 44.66 | 1 | 15.99211 | 93 |
| REA VIPINGO LTD | 1995 | 1 | 1 | 2011 | 1185893 | 623484 | 0.70 | 0.572 | 0.593 | 0.528 | 0.227 | 41.47 | 1 | 13.98601 | 20 |
| UNILEVER TEA KENYA LTD | 1925 | 0 | 1 | 2011 | | | | | | | | | | | 90 |
| A BAUMANN & COMPANY LTD | 1926 | 1 | 3 | 2011 | | | | | | | | | | | 89 |
| ACCESS KENYA GROUP | 2000 | 1 | 3 | 2011 | 2415111 | 1096002 | 1.02 | 0.054 | 0.107 | 0.102 | -0.101 | 17.3 | 3 | 14.69726 | 15 |
| ARM CEMENT LIMITED | 1973 | 1 | 2 | 2011 | 20515940 | 5998657 | 0.38 | 0.066 | 0.080 | 0.074 | 0.421 | 45.87 | 1 | 16.83671 | 42 |
| BOC | 1940 | 0 | 2 | 2011 | 1816803 | 1328551 | 0.68 | 0.118 | 0.104 | 0.077 | 0.063 | 65.4 | 2 | 14.41259 | 75 |
| BRITISH AMERICAN TOBBACO | 1952 | 0 | 2 | 2011 | 13740045 | 6412067 | 0.26 | 0.326 | 0.339 | 0.126 | 1.132 | 60 | 2 | 16.43583 | 63 |

## Continuation of Variables for Years 2005 to 2012 used in Data Analysis

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAR AND GENERAL | 1936 | 1 | 3 | 2011 | 1920322 | 1920322 | 3.79 | 0.223 | 0.320 | 0.570 | 0.854 | 32.5 | 1 | 14.468 | 79 |
| CARBACID INVESTMENT COMPANY | 1961 | 1 | 2 | 2011 | 1739985 | 1467365 | 0.47 | 0.215 | 0.194 | 0.097 | 0.421 | 15 | 3 | 14.36939 | 54 |
| CROWN PAINT LIMITED | 1958 | 1 | 2 | 2011 | 2215352 | 1052420 | 2.16 | 0.091 | 0.108 | 0.265 | 1.134 | 48.06 | 1 | 14.61092 | 57 |
| EAST AFRICAN CABLES LTD | 1965 | 1 | 2 | 2011 | 4993032 | 2273832 | 8.51 | 0.093 | 0.116 | 1.179 | 0.583 | 68.38 | 2 | 15.42355 | 50 |
| EAST AFRICAN PORTLAND CEMENT LTD | 1930 | 1 | 2 | 2011 | 13530070 | 5707418 | 0.79 | -0.009 | 0.001 | 0.000 | -0.244 | 52 | 2 | 16.42043 | 85 |
| EXPRESS KENYA LTD | 1918 | 1 | 3 | 2011 | 766797 | 170558 | 1.24 | -0.290 | -0.088 | -1.659 | -0.103 | 60.43 | 2 | 13.54998 | 97 |
| KAKUZI LIMITED | 1927 | 1 | 1 | **2011** | 3817320 | 2756765 | 2.02 | 0.170 | 0.165 | 0.473 | 0.090 | 26.06 | 1 | 15.15506 | 88 |
| KAPCHORUA TEA COMPANY | 1948 | 1 | 1 | **2011** | 1570203 | 976397 | 2.17 | 0.171 | 0.172 | 0.416 | 0.117 | 50.56 | 2 | 14.26672 | 67 |
| KENOL KOBIL(KENYA OIL CMPANY LIMITED | 1959 | 1 | 2 | 2011 | 45974304 | 11650461 | 0.80 | 0.107 | 0.146 | 0.224 | 0.405 | 24.91 | 1 | 17.64359 | 56 |
| KENYA AIRWAYS | 1977 | 1 | 3 | 2011 | 78743 | 23090 | 1.55 | 0.064 | 0.081 | 0.241 | -0.521 | 26 | 1 | 11.27394 | 38 |
| KENYA ELECTRICITY GENERATING CO. | 1954 | 1 | 2 | 2011 | 160993034 | 69418587 | 2.33 | 0.023 | 0.035 | 0.070 | -0.328 | 44.66 | 1 | 18.89687 | 61 |
| KENYA POWER & LIGHTING COMPANY LTD | 1922 | 1 | 2 | 2011 | 121171515 | 17564372 | 0.75 | 0.052 | 0.058 | 0.180 | -0.253 | 50.08 | 2 | 18.61272 | 93 |
| LIMURU TEA COMPANY LTD | 1925 | 0 | 1 | 2011 | 191242 | 149710 | 0.37 | 0.313 | 0.313 | 0.101 | 0.306 | 52 | 2 | 12.16129 | 90 |
| SAFARICOM LTD | 1997 | 0 | 3 | 2011 | 113854762 | 64454091 | 0.42 | 0.161 | 0.176 | 0.087 | -0.105 | 40 | 2 | 18.55043 | 18 |
| SAMEER AFRICA LTD | 1969 | 1 | 2 | 2011 | 3125040 | 2249788 | 1.84 | 0.048 | 0.083 | 0.079 | -0.011 | 57.24 | 2 | 14.95496 | 46 |
| SASINI TEA & COFFEE LTD | 1952 | 1 | 1 | 2011 | 9462027 | 6529382 | 2.38 | 0.107 | 0.110 | 0.164 | -0.025 | 41.84 | 1 | 16.0628 | 63 |
| SCANGROUP | 1999 | 1 | 3 | 2011 | 8489938 | 4354909 | | | | | | 27.5 | | 15.95439 | 16 |
| STANDARD GROUP LIMITED | 1919 | 1 | 3 | 2011 | 3512257 | 1405846 | 0.76 | 0.042 | 0.100 | 0.125 | 0.110 | 69.11 | 2 | 15.07177 | 96 |
| TOTAL KENYA Ltd. | 1955 | 1 | 2 | **2011** | 35198166 | 9194818 | 2.09 | 0.002 | 0.047 | -0.016 | 0.980 | 90.16 | 2 | 17.3765 | 60 |
| TPS SERENA | 1970 | 0 | 3 | 2011 | 13131840 | 8046824 | 0.99 | 0.065 | 0.077 | 0.076 | -0.249 | 32.44 | 1 | 16.39055 | 45 |
| UCHUMI | 1975 | 1 | 3 | 2011 | 4084720 | 2279165 | 0.75 | 0.126 | 0.127 | 0.129 | 0.068 | 13.4 | 3 | 15.22276 | 40 |
| UNGA GROUP LTD | 1908 | 1 | 2 | 2011 | 5708897 | 3744951 | 4.95 | 0.111 | 0.113 | 0.583 | 0.335 | 50.93 | 2 | 15.55754 | 107 |
| WILLIAMSON TEA COMPANY LTD | 1950 | 1 | 1 | 2011 | 6032743 | 4271228 | 2.64 | 0.214 | 0.216 | 0.546 | 0.311 | 51.46 | 2 | 15.61271 | 65 |
| BAMBURI CEMENT LTD | 1951 | 1 | 2 | 2010 | 33306 | 21626 | 0.32 | 0.227 | 0.230 | 0.078 | -0.294 | 34.3 | 1 | 10.41349 | 64 |
| CMC HOLDINGS LTD | 1948 | 0 | 3 | 2010 | 14667707 | 5454979 | 0.72 | 0.040 | 0.000 | 0.054 | 0.019 | 24.73 | 1 | 16.50116 | 67 |
| EAST AFRICAN BREWERIES LTD | 1922 | 0 | 2 | 2010 | 38218440 | 23810195 | 0.17 | 0.329 | 0.324 | 0.062 | 0.126 | 42.82 | 1 | 17.45883 | 93 |

## Continuation of Variables for Years 2005 to 2012 used in Data Analysis

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EVEREADY HOLDINGS LTD | 1967 | 0 | 2 | 2010 | 1195824 | 403399 | 1.10 | 0.012 | 0.061 | 0.024 | -0.286 | 35.12 | 1 | 13.99435 | 48 |
| MARSHALLS( EAST AFRICA) LTD | 1947 | 1 | 3 | 2010 | 1126208 | 132513 | 0.48 | -0.306 | -0.223 | -1.261 | -0.255 | 70.57 | 2 | 13.93437 | 68 |
| MUMIAS SUGAR COMPANY LIMITED | 1971 | 1 | 2 | 2010 | 18334110 | 10999852 | 0.12 | 0.119 | 0.140 | 0.017 | -0.456 | 20 | 1 | 16.72427 | 44 |
| NATION MEDIA GROUP | 1922 | 0 | 3 | 2010 | 7975200 | 5422100 | 0.21 | 0.269 | 0.269 | 0.059 | -0.123 | 44.66 | 1 | 15.89185 | 93 |
| REA VIPINGO LTD | 1995 | 1 | 1 | 2010 | 1707016 | 989099 | 0.92 | 0.061 | 0.072 | 0.063 | -0.131 | 40.47 | 1 | 14.35026 | 20 |
| UNILEVER TEA KENYA LTD | 1925 | 0 | 1 | 2010 | | | | | | | | | | | 90 |
| A BAUMANN & COMPANY LTD | 1926 | 1 | 3 | 2010 | | | | | | | | | | | 89 |
| ACCESS KENYA GROUP | 2000 | 1 | 3 | 2010 | 1615151 | 1028343 | 0.37 | -0.003 | 0.201 | -0.002 | -0.619 | 17.26 | 3 | 14.29494 | 15 |
| ARM CEMENT LIMITED | 1973 | 1 | 2 | 2010 | 16564900 | 4945425 | 0.27 | 0.067 | 0.081 | 0.059 | -0.127 | 45.87 | 1 | 16.6228 | 42 |
| BOC | 1940 | 0 | 2 | 2010 | 2019810 | 1521385 | 0.59 | 0.057 | 0.041 | 0.031 | -0.171 | 65.38 | 2 | 14.51851 | 75 |
| BRITISH AMERICAN TOBBACO | 1952 | 0 | 2 | 2010 | 11121561 | 5114312 | 0.19 | 0.245 | 0.264 | 0.065 | -0.024 | 60 | 2 | 16.2244 | 63 |
| CAR AND GENERAL | 1936 | 1 | 3 | 2010 | 1555905 | 1555905 | 1.49 | 0.212 | 0.294 | 0.228 | -0.499 | 32.5 | 1 | 14.25757 | 79 |
| CARBACID INVESTMENT COMPANY | 1961 | 1 | 2 | 2010 | 1512166 | 1293757 | 0.24 | 0.290 | 0.261 | 0.058 | -0.381 | 20.89 | 1 | 14.22905 | 54 |
| CROWN PAINT LIMITED | 1958 | 1 | 2 | 2010 | 1972337 | 902345 | 1.06 | 0.086 | 0.100 | 0.107 | -0.396 | 48.06 | 1 | 14.49473 | 57 |
| EAST AFRICAN CABLES LTD | 1965 | 1 | 2 | 2010 | 4518445 | 2246309 | 6.83 | 0.057 | 0.067 | 0.559 | 0.427 | 68.38 | 2 | 15.32368 | 50 |
| EAST AFRICAN PORTLAND CEMENT LTD | 1930 | 1 | 2 | 2010 | 12037565 | 5707201 | 0.55 | -0.028 | 0.016 | -0.028 | -0.304 | 52 | 2 | 16.30354 | 85 |
| EXPRESS KENYA LTD | 1918 | 1 | 3 | 2010 | 1341699 | 384384 | 1.39 | -0.011 | 0.077 | -0.102 | -0.500 | 60.43 | 2 | 14.10945 | 97 |
| KAKUZI LIMITED | 1927 | 1 | 1 | **2010** | 3218590 | 2210504 | 1.38 | 0.174 | 0.169 | 0.243 | -0.117 | 26.06 | 1 | 14.98445 | 88 |
| KAPCHORUA TEA COMPANY | 1948 | 1 | 1 | **2010** | 1498931 | 818732 | 1.43 | 0.133 | 0.134 | 0.244 | -0.170 | 49.56 | 2 | 14.22026 | 67 |
| KENOL KOBIL(KENYA OIL CMPANY LIMITED | 1959 | 1 | 2 | 2010 | 30372909 | 12705512 | 0.86 | 0.088 | 0.093 | 0.121 | 0.047 | 24.91 | 1 | 17.22906 | 56 |
| KENYA AIRWAYS | 1977 | 1 | 3 | 2010 | 73263 | 19923 | 0.72 | 0.036 | 0.057 | 0.073 | -0.446 | 26 | 1 | 11.20181 | 38 |
| KENYA ELECTRICITY GENERATING CO. | 1954 | 1 | 2 | 2010 | 150566886 | 70530868 | 1.88 | 0.017 | 0.012 | 0.087 | -0.178 | 70 | 2 | 18.82992 | 61 |
| KENYA POWER & LIGHTING COMPANY LTD | 1922 | 1 | 2 | 2010 | 80213470 | 11197896 | 8.28 | 0.070 | 0.074 | 2.747 | 16.839 | 51 | 2 | 18.2002 | 93 |
| LIMURU TEA COMPANY LTD | 1925 | 0 | 1 | 2010 | 158305 | 119327 | 0.33 | 0.659 | 0.659 | 0.208 | 0.142 | 52 | 2 | 11.97228 | 90 |
| SAFARICOM LTD | 1997 | 0 | 3 | 2010 | 104120850 | 62295118 | 0.28 | 0.201 | 0.225 | 0.068 | -0.279 | 40 | 2 | 18.46106 | 18 |
| SAMEER AFRICA LTD | 1969 | 1 | 2 | 2010 | 2845307 | 2168142 | 1.01 | 0.022 | 0.041 | 0.027 | -0.429 | 57.24 | 2 | 14.86118 | 46 |

## Continuation of Variables for Years 2005 to 2012 used in Data Analysis

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SASINI TEA & COFFEE LTD | 1952 | 1 | 1 | 2010 | 9099464 | 5661822 | 1.87 | 0.152 | 0.160 | 0.328 | -0.056 | 41.84 | 1 | 16.02373 | 63 |
| SCANGROUP | 1999 | 1 | 3 | 2010 | 8009431 | 3577805 | 0.25 | 0.105 | 0.104 | 0.044 | 0.518 | 27.5 | 1 | 15.89613 | 16 |
| STANDARD GROUP LIMITED | 1919 | 1 | 3 | 2010 | 3306000 | 1215605 | 0.36 | 0.085 | 0.169 | 0.135 | -0.427 | 69.2 | 2 | 15.01125 | 96 |
| TOTAL KENYA Ltd. | 1955 | 1 | 2 | **2010** | 30395677 | 9579853 | 1.11 | 0.046 | 0.077 | 0.106 | -0.455 | 89.16 | 2 | 17.22981 | 60 |
| TPS SERENA | 1970 | 0 | 3 | 2010 | 11923137 | 7496385 | 0.74 | 0.058 | 0.076 | 0.051 | -0.179 | 32.44 | 1 | 16.29399 | 45 |
| UCHUMI | 1975 | 1 | 3 | 2010 | | | | | | | | | | | 40 |
| UNGA GROUP LTD | 1908 | 1 | 2 | 2010 | 5064420 | 3364703 | 3.63 | 0.060 | 0.069 | 0.255 | -0.143 | 50.93 | 2 | 15.43775 | 107 |
| WILLIAMSON TEA COMPANY LTD | 1950 | 1 | 1 | 2010 | 5328706 | 3470481 | 1.79 | 0.230 | 0.232 | 0.453 | -0.135 | 51.46 | 2 | 15.48862 | 65 |
| BAMBURI CEMENT LTD | 1951 | 1 | 2 | 2009 | 32112 | 20941 | 0.37 | 0.299 | 0.299 | 0.123 | 0.234 | 33.3 | 1 | 10.37699 | 64 |
| CMC HOLDINGS LTD | 1948 | 0 | 3 | 2009 | 13293168 | 5273147 | 0.90 | 0.061 | 0.000 | 0.093 | 0.330 | 24.73 | 1 | 16.40276 | 67 |
| EAST AFRICAN BREWERIES LTD | 1922 | 0 | 2 | 2009 | 34546993 | 22448523 | 0.20 | 0.333 | 0.314 | 0.072 | 0.304 | 42.82 | 1 | 17.35783 | 93 |
| EVEREADY HOLDINGS LTD | 1967 | 0 | 2 | 2009 | 997612 | 394696 | 0.63 | 0.042 | 0.068 | 0.045 | -0.417 | 35.12 | 1 | 13.81312 | 48 |
| MARSHALLS( EAST AFRICA) LTD | 1947 | 1 | 3 | 2009 | 1433970 | 477234 | 1.38 | -0.124 | -0.016 | -0.340 | -0.208 | 69.57 | 2 | 14.17596 | 68 |
| MUMIAS SUGAR COMPANY LIMITED | 1971 | 1 | 2 | 2009 | 17475715 | 10039469 | 0.33 | 0.068 | 0.079 | 0.053 | 2.058 | 38.04 | 1 | 16.67632 | 44 |
| NATION MEDIA GROUP | 1922 | 0 | 3 | 2009 | 6572400 | 4713700 | 0.28 | 0.246 | 0.254 | 0.067 | 0.593 | 44.73 | 1 | 15.69839 | 93 |
| REA VIPINGO LTD | 1995 | 1 | 1 | 2009 | 1414084 | 975450 | 1.46 | 0.151 | 0.164 | 0.224 | 0.658 | 39.47 | 1 | 14.16199 | 20 |
| UNILEVER TEA KENYA LTD | 1925 | 0 | 1 | 2009 | | | | | | | | | | #NUM! | 90 |
| A BAUMANN & COMPANY LTD | 1926 | 1 | 3 | 2009 | 95920 | 26504 | 1.02 | -0.081 | -0.078 | -0.299 | 0.380 | 20 | 1 | 11.47127 | 89 |
| ACCESS KENYA GROUP | 2000 | 1 | 3 | 2009 | 1771307 | 1154136 | 0.27 | 0.103 | 0.190 | 0.043 | -0.319 | 16.96 | 3 | 14.38723 | 15 |
| ARM CEMENT LIMITED | 1973 | 1 | 2 | 2009 | 12414091 | 4128930 | 0.38 | 0.076 | 0.082 | 0.059 | 0.662 | 45.44 | 1 | 16.33434 | 42 |
| BOC | 1940 | 0 | 2 | 2009 | 1988401 | 1533794 | 0.52 | 0.117 | 0.094 | 0.053 | -0.075 | 65.38 | 2 | 14.50284 | 75 |
| BRITISH AMERICAN TOBBACO | 1952 | 0 | 2 | 2009 | 10553206 | 4672076 | 0.26 | 0.200 | 0.210 | 0.083 | 0.600 | 60 | 2 | 16.17194 | 63 |
| CAR AND GENERAL | 1936 | 1 | 3 | 2009 | 1307802 | 1307802 | 1.40 | 0.214 | 0.329 | 0.212 | 0.135 | 32.5 | 1 | 14.08386 | 79 |
| CARBACID INVESTMENT COMPANY | 1961 | 1 | 2 | 2009 | 1376380 | 1167594 | 1.00 | 0.267 | 0.247 | 0.220 | 0.524 | 22.61 | 1 | 14.13497 | 54 |
| CROWN PAINT LIMITED | 1958 | 1 | 2 | 2009 | 1858452 | 836943 | 1.47 | 0.075 | 0.101 | 0.152 | 0.552 | 48.06 | 1 | 14.43525 | 57 |
| EAST AFRICAN CABLES LTD | 1965 | 1 | 2 | 2009 | 3543383 | 1660780 | 4.05 | 0.149 | 0.154 | 0.722 | 0.296 | 68.38 | 2 | 15.08059 | 50 |
| EAST AFRICAN PORTLAND CEMENT LTD | 1930 | 1 | 2 | 2009 | 12035965 | 6102252 | 0.97 | 0.156 | 0.233 | 0.291 | 0.661 | 52 | 2 | 16.30341 | 85 |
| EXPRESS KENYA LTD | 1918 | 1 | 3 | 2009 | 1304116 | 412453 | 1.45 | 0.020 | 0.081 | 0.053 | -0.031 | 60.43 | 2 | 14.08104 | 97 |

## Continuation of Variables for Years 2005 to 2012 used in Data Analysis

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KAKUZI LIMITED | 1927 | 1 | 1 | **2009** | 2873255 | 1964609 | 3.16 | 0.195 | 0.201 | 0.627 | 1.646 | 26.06 | 1 | 14.87096 | 88 |
| KAPCHORUA TEA COMPANY | 1948 | 1 | 1 | **2009** | 1167797 | 689260 | 2.59 | 0.085 | 0.090 | 0.263 | 1.184 | 48.56 | 1 | 13.97063 | 67 |
| KENOL KOBIL(KENYA OIL CMPANY LIMITED | 1959 | 1 | 2 | 2009 | 29435336 | 11454628 | 1.56 | 0.066 | 0.086 | 0.176 | 1.065 | 50.07 | 2 | 17.19771 | 56 |
| KENYA AIRWAYS | 1977 | 1 | 3 | 2009 | 74931 | 17176 | 1.88 | -0.076 | -0.054 | -0.448 | 2.038 | 26 | 1 | 11.22432 | 38 |
| KENYA ELECTRICITY GENERATING CO. | 1954 | 1 | 2 | 2009 | 112945160 | 66980112 | 2.09 | 0.040 | 0.047 | 0.065 | 0.210 | 70 | 2 | 18.54241 | 61 |
| KENYA POWER & LIGHTING COMPANY LTD | 1922 | 1 | 2 | 2009 | 70648425 | 9225954 | 8.01 | 0.068 | 0.080 | 2.801 | 0.725 | 51 | 2 | 18.07323 | 93 |
| LIMURU TEA COMPANY LTD | 1925 | 0 | 1 | 2009 | 84794 | 55963 | 0.15 | 0.457 | 0.457 | 0.074 | 0.008 | 52 | 2 | 11.34798 | 90 |
| SAFARICOM LTD | 1997 | 0 | 3 | 2009 | 91682324 | 51147080 | 0.43 | 0.167 | 0.178 | 0.088 | 0.883 | 40 | 2 | 18.33384 | 18 |
| SAMEER AFRICA LTD | 1969 | 1 | 2 | 2009 | 3005374 | 2282567 | 1.64 | 0.074 | 0.089 | 0.114 | 0.640 | 57.23 | 2 | 14.91591 | 46 |
| SASINI TEA & COFFEE LTD | 1952 | 1 | 1 | 2009 | 7998233 | 4717305 | 3.42 | 0.095 | 0.100 | 0.386 | 1.264 | 41.84 | 1 | 15.89473 | 63 |
| SCANGROUP | 1999 | 1 | 3 | 2009 | 3933148 | 2366222 | 0.42 | 0.141 | 0.139 | 0.071 | 1.613 | 27.5 | 1 | 15.18495 | 16 |
| STANDARD GROUP LIMITED | 1919 | 1 | 3 | 2009 | 3003966 | 971800 | 0.35 | 0.088 | 0.159 | 0.135 | 0.239 | 69.22 | 2 | 14.91544 | 96 |
| TOTAL KENYA Ltd. | 1955 | 1 | 2 | **2009** | 31528196 | 8962191 | 1.01 | 0.023 | 0.040 | 0.054 | 0.008 | 88.16 | 2 | 17.26639 | 60 |
| TPS SERENA | 1970 | 0 | 3 | 2009 | 7020389 | 4088583 | 0.61 | 0.074 | 0.092 | 0.057 | 0.542 | 32.44 | 1 | 15.76433 | 45 |
| UCHUMI | 1975 | 1 | 3 | 2009 | | | | | | | | | | | 40 |
| UNGA GROUP LTD | 1908 | 1 | 2 | 2009 | 5564541 | 3146387 | 4.16 | 0.047 | 0.054 | 0.245 | 0.225 | 50.93 | 2 | 15.53193 | 107 |
| WILLIAMSON TEA COMPANY LTD | 1950 | 1 | 1 | 2009 | 3921165 | 2629461 | 6.39 | 0.037 | 0.042 | 0.267 | 3.787 | 51.46 | 2 | 15.1819 | 65 |
| BAMBURI CEMENT LTD | 1951 | 1 | 2 | 2008 | 28215 | 16602 | 0.28 | 0.173 | 0.179 | 0.057 | -0.038 | 32.3 | 1 | 10.24761 | 64 |
| CMC HOLDINGS LTD | 1948 | 0 | 3 | 2008 | 12023494 | 4834894 | 0.44 | 0.111 | 0.000 | 0.084 | -0.446 | 12.5 | 3 | 16.30237 | 67 |
| EAST AFRICAN BREWERIES LTD | 1922 | 0 | 2 | 2008 | 32451159 | 21543843 | 0.14 | 0.380 | 0.360 | 0.058 | -0.231 | 42.82 | 1 | 17.29525 | 93 |
| EVEREADY HOLDINGS LTD | 1967 | 0 | 2 | 2008 | 837329 | 366425 | 0.67 | 0.033 | 0.090 | 0.033 | 0.154 | 35.12 | 1 | 13.63797 | 48 |
| MARSHALLS( EAST AFRICA) LTD | 1947 | 1 | 3 | 2008 | 1210100 | 241078 | 0.89 | -0.140 | -0.088 | -0.626 | 0.273 | 68.57 | 2 | 14.00621 | 68 |
| MUMIAS SUGAR COMPANY LIMITED | 1971 | 1 | 2 | 2008 | 14152576 | 9041497 | 0.11 | 0.112 | 0.118 | 0.015 | -0.613 | 38.04 | 1 | 16.46541 | 44 |
| NATION MEDIA GROUP | 1922 | 0 | 3 | 2008 | 6618700 | 4314600 | 0.21 | 0.289 | 0.293 | 0.063 | -0.153 | 44.73 | 1 | 15.70541 | 93 |
| REA VIPINGO LTD | 1995 | 1 | 1 | 2008 | 1631964 | 875166 | 0.86 | 0.139 | 0.154 | 0.165 | -0.335 | 38.47 | 1 | 14.30529 | 20 |
| UNILEVER TEA KENYA LTD | 1925 | 0 | 1 | 2008 | | | | | | | | | | | 90 |

## Continuation of Variables for Years 2005 to 2012 used in Data Analysis

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A BAUMANN & COMPANY LTD | 1926 | 1 | 3 | 2008 | 126358 | 34277 | 1.17 | -0.273 | -0.269 | -1.211 | -0.112 | 20 | 1 | 11.74687 | 89 |
| ACCESS KENYA GROUP | 2000 | 1 | 3 | 2008 | 1502525 | 964417 | 0.23 | 0.175 | 0.179 | 0.048 | 0.015 | 14.96 | 3 | 14.22266 | 15 |
| ARM CEMENT LIMITED | 1973 | 1 | 2 | 2008 | 6352478 | 2127531 | 0.24 | 0.111 | 0.153 | 0.056 | 0.240 | 45.46 | 1 | 15.66436 | 42 |
| BOC | 1940 | 0 | 2 | 2008 | 2057227 | 1454108 | 0.47 | 0.143 | 0.117 | 0.064 | -0.020 | 65.38 | 2 | 14.53687 | 75 |
| BRITISH AMERICAN TOBBACO | 1952 | 0 | 2 | 2008 | 10307662 | 4893645 | 0.37 | 0.234 | 0.249 | 0.130 | 0.489 | 60 | 2 | 16.1484 | 63 |
| CAR AND GENERAL | 1936 | 1 | 3 | 2008 | 1128845 | 1128845 | 1.13 | 0.285 | 0.343 | 0.214 | -0.052 | 32.5 | 1 | 13.93671 | 79 |
| CARBACID INVESTMENT COMPANY | 1961 | 1 | 2 | 2008 | 1209543 | 1024484 | 0.66 | 0.200 | 0.188 | 0.107 | -0.175 | 22.61 | 1 | 14.00575 | 54 |
| CROWN PAINT LIMITED | 1958 | 1 | 2 | 2008 | 1948281 | 821952 | 1.40 | 0.040 | 0.063 | 0.052 | 0.010 | 48.06 | 1 | 14.48246 | 57 |
| EAST AFRICAN CABLES LTD | 1965 | 1 | 2 | 2008 | 3043593 | 1366839 | 2.57 | 0.220 | 0.255 | 0.871 | 0.152 | 68.38 | 2 | 14.92855 | 50 |
| EAST AFRICAN PORTLAND CEMENT LTD | 1930 | 1 | 2 | 2008 | 9073345 | 4028749 | 0.56 | 0.079 | 0.125 | 0.089 | -0.119 | 52 | 2 | 16.02085 | 85 |
| EXPRESS KENYA LTD | 1918 | 1 | 3 | 2008 | 1320624 | 432106 | 0.94 | -0.040 | -0.019 | -0.094 | -0.381 | 60.43 | 2 | 14.09361 | 97 |
| KAKUZI LIMITED | 1927 | 1 | 1 | **2008** | 2662519 | 1567633 | 3.48 | 0.147 | 0.166 | 0.628 | 0.424 | 26.06 | 1 | 14.79478 | 88 |
| KAPCHORUA TEA COMPANY | 1948 | 1 | 1 | **2008** | 982058 | 621308 | 2.12 | -0.105 | -0.086 | -0.238 | -0.087 | 47.56 | 1 | 13.79741 | 67 |
| KENOL KOBIL(KENYA OIL CMPANY LIMITED | 1959 | 1 | 2 | 2008 | 27708592 | 10915860 | 1.12 | 0.052 | 0.109 | 0.091 | -0.189 | 50.07 | 2 | 17.13725 | 56 |
| KENYA AIRWAYS | 1977 | 1 | 3 | 2008 | 77838 | 26582 | 1.11 | 0.084 | 0.105 | 0.191 | -0.620 | 26 | 1 | 11.26239 | 38 |
| KENYA ELECTRICITY GENERATING CO. | 1954 | 1 | 2 | 2008 | 106993551 | 68125174 | 1.26 | 0.015 | 0.036 | 0.089 | -0.369 | 70 | 2 | 18.48828 | 61 |
| KENYA POWER & LIGHTNING COMPANY LIMITED | 1922 | 1 | 2 | 2008 | 59812122 | 7745288 | 4.00 | 0.046 | 0.059 | 0.910 | -0.243 | 51 | 2 | 17.90672 | 93 |
| LIMURU TEA COMPANY LTD | 1925 | 0 | 1 | 2008 | 57775 | 36117 | 0.20 | 0.264 | 0.264 | 0.046 | 1.033 | 52 | 2 | 10.96431 | 90 |
| SAFARICOM LTD | 1997 | 0 | 3 | 2008 | 74366313 | 42642593 | 0.30 | 0.268 | 0.276 | 0.096 | -0.153 | 40 | 2 | 18.12451 | 18 |
| SAMEER AFRICA LTD | 1969 | 1 | 2 | 2008 | 3076148 | 2135566 | 1.28 | 0.054 | 0.098 | 0.090 | -0.167 | 57.24 | 2 | 14.93919 | 46 |
| SASINI TEA & COFFEE LTD | 1952 | 1 | 1 | 2008 | 6796306 | 86483 | 0.05 | 0.186 | 0.195 | 0.501 | -0.219 | 41.84 | 1 | 15.73189 | 63 |
| SCANGROUP | 1999 | 1 | 3 | 2008 | 3761064 | 2016082 | 0.35 | 0.116 | 0.121 | 0.055 | 0.004 | 27.5 | 1 | 15.14021 | 16 |
| STANDARD GROUP LIMITED | 1919 | 1 | 3 | 2008 | 2686213 | 733890 | 0.20 | 0.107 | 0.191 | 0.117 | -0.230 | 69.22 | 2 | 14.80364 | 96 |
| TOTAL KENYA Ltd. | 1955 | 1 | 2 | **2008** | 14526784 | 5017822 | 0.90 | 0.071 | 0.096 | 0.126 | 0.664 | 87.16 | 2 | 16.4915 | 60 |
| TPS SERENA | 1970 | 0 | 3 | 2008 | 6506996 | 3750925 | 0.67 | 0.051 | 0.073 | 0.040 | 0.224 | 44.69 | 1 | 15.68839 | 45 |
| UCHUMI | 1975 | 1 | 3 | 2008 | | | | | | | | | | | 40 |
| UNGA GROUP LTD | 1908 | 1 | 2 | 2008 | 4761528 | 2964046 | 2.85 | 0.118 | 0.136 | 0.359 | -0.273 | 50.93 | 2 | 15.37608 | 107 |

## Continuation of Variables for Years 2005 to 2012 used in Data Analysis

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WILLIAMSON TEA COMPANY LTD | 1950 | 1 | 1 | 2008 | 3580325 | 2524094 | 5.01 | -0.040 | 0.038 | -0.190 | -0.174 | 51.46 | 2 | 15.09096 | 65 |
| BAMBURI CEMENT LTD | 1951 | 1 | 2 | 2007 | 20720 | 15075 | 0.21 | 0.263 | 0.266 | 0.054 | -0.128 | 31.3 | 1 | 9.938855 | 64 |
| CMC HOLDINGS LTD | 1948 | 0 | 3 | 2007 | 9297550 | 4061844 | 0.54 | 0.095 | 0.000 | 0.083 | 0.496 | 13.5 | 3 | 16.04526 | 67 |
| EAST AFRICAN BREWERIES LTD | 1922 | 0 | 2 | 2007 | 31106195 | 18802668 | 0.19 | 0.342 | 0.325 | 0.074 | 0.594 | 42.82 | 1 | 17.25292 | 93 |
| EVEREADY HOLDINGS LTD | 1967 | 0 | 2 | 2007 | 1189317 | 443085 | 0.60 | 0.151 | 0.158 | 0.172 | -0.129 | 35.12 | 1 | 13.98889 | 48 |
| MARSHALLS( EAST AFRICA) LTD | 1947 | 1 | 3 | 2007 | 1256055 | 462982 | 1.34 | 0.034 | 0.058 | 0.123 | -0.173 | 67.57 | 2 | 14.04349 | 68 |
| MUMIAS SUGAR COMPANY LIMITED | 1971 | 1 | 2 | 2007 | 11915896 | 8337660 | 0.17 | 0.160 | 0.160 | 0.029 | 0.658 | 70.76 | 2 | 16.29338 | 44 |
| NATION MEDIA GROUP | 1922 | 0 | 3 | 2007 | 5898600 | 3736000 | 0.16 | 0.272 | 0.280 | 0.046 | -0.094 | 44.73 | 1 | 15.59023 | 93 |
| REA VIPINGO LTD | 1995 | 1 | 1 | 2007 | 1166585 | 709165 | 0.60 | 0.144 | 0.169 | 0.098 | -0.090 | 37.47 | 1 | 13.96959 | 20 |
| UNILEVER TEA KENYA LTD | 1925 | 0 | 1 | 2007 | 4934832 | 2675067 | 0.83 | -0.027 | -0.039 | 0.032 | 0.309 | 88.24 | 2 | 15.41183 | 90 |
| A BAUMANN & COMPANY LTD | 1926 | 1 | 3 | 2007 | 137763 | 68323 | 0.61 | -0.258 | -0.254 | -0.319 | -0.737 | 20 | 1 | 11.83329 | 89 |
| ACCESS KENYA GROUP | 2000 | 1 | 3 | 2007 | 1023986 | 822547 | 0.17 | 0.167 | 0.170 | 0.028 | -0.094 | 19.83 | 3 | 13.83921 | 15 |
| ARM CEMENT LIMITED | 1973 | 1 | 2 | 2007 | 4504677 | 1734766 | 0.19 | 0.138 | 0.170 | 0.046 | -0.013 | 48.1 | 1 | 15.32063 | 42 |
| BOC | 1940 | 0 | 2 | 2007 | 1859335 | 1400132 | 0.45 | 0.215 | 0.215 | 0.086 | 0.043 | 65.38 | 2 | 14.43573 | 75 |
| BRITISH AMERICAN TOBBACO | 1952 | 0 | 2 | 2007 | 9269886 | 4693250 | 0.34 | 0.221 | 0.228 | 0.100 | 0.065 | 60 | 2 | 16.04228 | 63 |
| CAR AND GENERAL | 1936 | 1 | 3 | 2007 | 886599 | 886599 | 0.70 | 0.290 | 0.334 | 0.138 | -0.199 | 32.5 | 1 | 13.69515 | 79 |
| CARBACID INVESTMENT COMPANY | 1961 | 1 | 2 | 2007 | 1091017 | 923191 | 1.06 | 0.208 | 0.183 | 0.178 | 0.909 | 22.61 | 1 | 13.90262 | 54 |
| CROWN PAINT LIMITED | 1958 | 1 | 2 | 2007 | 1525910 | 813869 | 0.68 | 0.092 | 0.113 | 0.064 | -0.490 | 48.06 | 1 | 14.2381 | 57 |
| EAST AFRICAN CABLES LTD | 1965 | 1 | 2 | 2007 | 3209699 | 1102345 | 1.22 | 0.186 | 0.206 | 0.460 | -0.212 | 67.33 | 2 | 14.98169 | 50 |
| EAST AFRICAN PORTLAND CEMENT LTD | 1930 | 1 | 2 | 2007 | 8938527 | 3607097 | 0.36 | 0.124 | 0.085 | 0.077 | -0.254 | 52 | 2 | 16.00588 | 85 |
| EXPRESS KENYA LTD | 1918 | 1 | 3 | 2007 | 824106 | 444294 | 0.56 | 0.136 | 0.147 | 0.093 | -0.394 | 60.43 | 2 | 13.62205 | 97 |
| KAKUZI LIMITED | 1927 | 1 | 1 | **2007** | 2373681 | 1265916 | 1.78 | 0.114 | 0.135 | 0.270 | -0.366 | 26.06 | 1 | 14.67995 | 88 |
| KAPCHORUA TEA COMPANY | 1948 | 1 | 1 | **2007** | 1109894 | 710646 | 1.62 | 0.002 | 0.005 | -0.002 | -0.286 | 46.56 | 1 | 13.91978 | 67 |
| KENOL KOBIL(KENYA OIL CMPANY LIMITED | 1959 | 1 | 2 | 2007 | 13269441 | 4984434 | 0.50 | 0.066 | 0.087 | 0.060 | -0.020 | 50.07 | 2 | 16.40097 | 56 |
| KENYA AIRWAYS | 1977 | 1 | 3 | 2007 | 77287 | 21640 | 0.49 | 0.077 | 0.102 | 0.093 | -0.453 | 26 | 1 | 11.25528 | 38 |

## Continuation of Variables for Years 2005 to 2012 used in Data Analysis

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KENYA ELECTRICITY GENERATING CO. | 1954 | 1 | 2 | 2007 | 101966861 | 63638189 | 1.16 | 0.046 | 0.038 | 0.044 | -0.004 | 70 | 2 | 18.44016 | 61 |
| KENYA POWER & LIGHTING COMPANY LTD | 1922 | 1 | 2 | 2007 | 47321864 | 6160243 | 0.37 | 0.056 | 0.054 | 0.104 | -0.868 | 51 | 2 | 17.67248 | 93 |
| LIMURU TEA COMPANY LTD | 1925 | 0 | 1 | 2007 | 48458 | 31228 | 0.14 | 0.050 | 0.050 | 0.006 | -0.173 | 52 | 2 | 10.78845 | 90 |
| SAFARICOM LTD | 1997 | 0 | 3 | 2007 | 56408239 | 32789307 | | | | | | | | 17.84813 | 18 |
| SAMEER AFRICA LTD | 1969 | 1 | 2 | 2007 | 3161883 | 1961922 | 0.58 | 0.053 | 0.072 | 0.035 | -0.504 | 57.23 | 2 | 14.96668 | 46 |
| SASINI TEA & COFFEE LTD | 1952 | 1 | 1 | 2007 | 3825044 | 2936955 | 0.74 | -0.018 | -0.016 | -0.010 | -0.557 | 41.84 | 1 | 15.15708 | 63 |
| SCANGROUP | 1999 | 1 | 3 | 2007 | 1753635 | 587536 | 0.13 | 0.201 | 0.211 | 0.054 | 0.309 | 28.53 | 1 | 14.3772 | 16 |
| STANDARD GROUP LIMITED | 1919 | 1 | 3 | 2007 | 2204050 | 552749 | 0.13 | 0.131 | 0.204 | 0.099 | -0.105 | 69.2 | 2 | 14.60581 | 96 |
| TOTAL KENYA Ltd. | 1955 | 1 | 2 | **2007** | 12512753 | 4751591 | 0.68 | 0.062 | 0.085 | 0.075 | -0.137 | 86.16 | 2 | 16.34226 | 60 |
| TPS SERENA | 1970 | 0 | 3 | 2007 | 6781019 | 3678411 | 0.61 | 0.091 | 0.113 | 0.069 | -0.057 | 44.69 | 1 | 15.72964 | 45 |
| UCHUMI | 1975 | 1 | 3 | 2007 | | | | | | | | | | #NUM! | 40 |
| UNGA GROUP LTD | 1908 | 1 | 2 | 2007 | 3717369 | 2318989 | 2.38 | 0.042 | 0.038 | 0.188 | 0.068 | 50.93 | 2 | 15.12853 | 107 |
| WILLIAMSON TEA COMPANY LTD | 1950 | 1 | 1 | 2007 | 3754849 | 2667355 | 2.38 | 0.057 | 0.058 | 0.127 | -0.512 | 51.46 | 2 | 15.13856 | 65 |
| BAMBURI CEMENT LTD | 1951 | 1 | 2 | 2006 | 18513 | 13736 | 0.22 | 0.207 | 0.214 | 0.044 | 0.151 | 30.3 | 1 | 9.826228 | 64 |
| CMC HOLDINGS LTD | 1948 | 0 | 3 | 2006 | 7813688 | 3542025 | 0.06 | 0.072 | 0.000 | 0.006 | -0.875 | 13.3 | 3 | 15.87139 | 67 |
| EAST AFRICAN BREWERIES LTD | 1922 | 0 | 2 | 2006 | 24781697 | 16891530 | 0.18 | 0.346 | 0.331 | 0.007 | 0.150 | 42.82 | 1 | 17.02562 | 93 |
| EVEREADY HOLDINGS LTD | 1967 | 0 | 2 | 2006 | 919006 | 442677 | 0.27 | 0.255 | 0.285 | 0.099 | -0.484 | 35.12 | 1 | 13.73105 | 48 |
| MARSHALLS( EAST AFRICA) LTD | 1947 | 1 | 3 | 2006 | 1084471 | 333161 | 0.89 | 0.041 | 0.072 | 0.119 | -0.038 | 66.57 | 2 | 13.8966 | 68 |
| MUMIAS SUGAR COMPANY LIMITED | 1971 | 1 | 2 | 2006 | 11871506 | 7709049 | 0.14 | 0.187 | 0.173 | 0.029 | -0.079 | 70.76 | 2 | 16.28965 | 44 |
| NATION MEDIA GROUP | 1922 | 0 | 3 | 2006 | 5292000 | 3496700 | 0.15 | 0.217 | 0.206 | 0.035 | 0.057 | 44.73 | 1 | 15.48171 | 93 |
| REA VIPINGO LTD | 1995 | 1 | 1 | 2006 | 1066711 | 652372 | 0.48 | 0.148 | 0.150 | 0.082 | -0.105 | 36.47 | 1 | 13.88009 | 20 |
| UNILEVER TEA KENYA LTD | 1925 | 0 | 1 | 2006 | 5391404 | 3140943 | 0.80 | 0.015 | 0.007 | 0.014 | -0.150 | 88.24 | 2 | 15.50032 | 90 |
| A BAUMANN & COMPANY LTD | 1926 | 1 | 3 | 2006 | 155233 | 103818 | 2.08 | -0.273 | -0.272 | -0.848 | 1.231 | 20 | 1 | 11.95268 | 89 |
| ACCESS KENYA GROUP | 2000 | 1 | 3 | 2006 | | | | | | | | | | #NUM! | 15 |
| ARM CEMENT LIMITED | 1973 | 1 | 2 | 2006 | 4254328 | 1324776 | 0.17 | 0.091 | 0.098 | 0.033 | 0.163 | 48.1 | 1 | 15.26345 | 42 |
| BOC | 1940 | 0 | 2 | 2006 | 1705352 | 1271846 | 0.41 | 0.196 | 0.178 | 0.072 | 0.071 | 65.38 | 2 | 14.34928 | 75 |
| BRITISH AMERICAN TOBBACO | 1952 | 0 | 2 | 2006 | 4955444 | 4194485 | 0.21 | 0.352 | 0.365 | 0.061 | -0.237 | 60 | 2 | 15.416 | 63 |

## Continuation of Variables for Years 2005 to 2012 used in Data Analysis

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAR AND GENERAL | 1936 | 1 | 3 | 2006 | 495969 | 495969 | 0.60 | 0.357 | 0.376 | 0.167 | 0.559 | 32.5 | 1 | 13.11427 | 79 |
| CARBACID INVESTMENT COMPANY | 1961 | 1 | 2 | 2006 | 1026497 | 860461 | 0.99 | 0.175 | 0.148 | 0.145 | 0.097 | 22.61 | 1 | 13.84166 | 54 |
| CROWN PAINT LIMITED | 1958 | 1 | 2 | 2006 | 1534731 | 770953 | 0.74 | 0.052 | 0.078 | 0.061 | 0.189 | 48.06 | 1 | 14.24387 | 57 |
| EAST AFRICAN CABLES LTD | 1965 | 1 | 2 | 2006 | 1907657 | 805010 | 0.58 | 0.222 | 0.224 | 0.204 | -0.250 | 70.78 | 2 | 14.46139 | 50 |
| EAST AFRICAN PORTLAND CEMENT LTD | 1930 | 1 | 2 | 2006 | 9052207 | 3067933 | 0.27 | 0.102 | 0.065 | 0.036 | -0.120 | 52 | 2 | 16.01852 | 85 |
| EXPRESS KENYA LTD | 1918 | 1 | 3 | 2006 | 895619 | 377843 | 0.46 | 0.114 | 0.128 | 0.081 | -0.022 | 60.43 | 2 | 13.70527 | 97 |
| KAKUZI LIMITED | 1927 | 1 | 1 | **2006** | 2295867 | 1043269 | 1.33 | 0.083 | 0.110 | 0.170 | -0.094 | 26.06 | 1 | 14.64662 | 88 |
| KAPCHORUA TEA COMPANY | 1948 | 1 | 1 | **2006** | 965401 | 654711 | 1.12 | -0.014 | -0.006 | -0.017 | -0.250 | 45.56 | 1 | 13.7803 | 67 |
| KENOL KOBIL(KENYA OIL CMPANY LIMITED | 1959 | 1 | 2 | 2006 | 13350607 | 4672903 | 0.43 | 0.092 | 0.105 | 0.077 | -0.076 | 73.69 | 2 | 16.40707 | 56 |
| KENYA AIRWAYS | 1977 | 1 | 3 | 2006 | 69294 | 17257 | 0.36 | 0.100 | 0.119 | 0.100 | -0.095 | 26 | 1 | 11.14611 | 38 |
| KENYA ELECTRICITY GENERATING CO. | 1954 | 1 | 2 | 2006 | 64786240 | 36498663 | 0.48 | 0.057 | 0.058 | 0.050 | -0.254 | 70 | 2 | 17.9866 | 61 |
| KENYA POWER & LIGHTING COMPANY LTD | 1922 | 1 | 2 | 2006 | 38728912 | 4661155 | 0.35 | 0.064 | 0.057 | 0.123 | 0.246 | 51 | 2 | 17.4721 | 93 |
| LIMURU TEA COMPANY LTD | 1925 | 0 | 1 | 2006 | 61195 | 42099 | 0.20 | 0.114 | 0.114 | 0.023 | 0.100 | 52 | 2 | 11.02182 | 90 |
| SAFARICOM LTD | 1997 | 0 | 3 | 2006 | 43944947 | 23770549 | | | | | | | | 17.59845 | 18 |
| SAMEER AFRICA LTD | 1969 | 1 | 2 | 2006 | 3310066 | 1850986 | 0.53 | 0.037 | 0.020 | -0.006 | -0.032 | 57.24 | 2 | 15.01248 | 46 |
| SASINI TEA & COFFEE LTD | 1952 | 1 | 1 | 2006 | 3830463 | 2697425 | 1.60 | 0.091 | 0.092 | 0.143 | 1.395 | 41.84 | 1 | 15.1585 | 63 |
| SCANGROUP | 1999 | 1 | 3 | 2006 | 1237967 | 458802 | 0.12 | 0.225 | 0.227 | 0.050 | 0.146 | 28.53 | 1 | 14.02898 | 16 |
| STANDARD GROUP LIMITED | 1919 | 1 | 3 | 2006 | 1291360 | 397182 | 0.09 | 0.159 | 0.252 | 0.070 | -0.036 | 69.2 | 2 | 14.07121 | 96 |
| TOTAL KENYA Ltd. | 1955 | 1 | 2 | **2006** | 15353456 | 4665064 | 0.67 | 0.044 | 0.069 | 0.069 | 0.063 | 85.16 | 2 | 16.54685 | 60 |
| TPS SERENA | 1970 | 0 | 3 | 2006 | 6138529 | 3403992 | 0.44 | 0.163 | 0.112 | 0.043 | -0.210 | 44.69 | 1 | 15.6301 | 45 |
| UCHUMI | 1975 | 1 | 3 | 2006 | | | | | | | | | | #NUM! | 40 |
| UNGA GROUP LTD | 1908 | 1 | 2 | 2006 | 3590169 | 2196610 | 1.92 | 0.040 | 0.064 | 0.057 | -0.146 | 50.93 | 2 | 15.09371 | 107 |
| WILLIAMSON TEA COMPANY LTD | 1950 | 1 | 1 | 2006 | 3154794 | 2318260 | 2.80 | 0.027 | -0.023 | -0.070 | 0.407 | 51.46 | 2 | 14.96443 | 65 |
| BAMBURI CEMENT LTD | 1951 | 1 | 2 | 2005 | 15332 | 11281 | 0.15 | 0.205 | 0.217 | 0.029 | -0.116 | 29.3 | 1 | 9.637697 | 64 |
| CMC HOLDINGS LTD | 1948 | 0 | 3 | 2005 | 7050725 | 3035218 | 0.13 | 0.065 | 0.000 | 0.015 | 1.649 | 12.5 | 3 | 15.76864 | 67 |
| EAST AFRICAN BREWERIES LTD | 1922 | 0 | 2 | 2005 | 22738494 | 15346633 | 0.17 | 0.378 | 0.377 | 0.065 | 0.063 | 42.46 | 1 | 16.93957 | 93 |

## Continuation of Variables for Years 2005 to 2012 used in Data Analysis

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EVEREADY HOLDINGS LTD | 1967 | 0 | 2 | 2005 | 818575 | 277111 | 0.07 | 0.329 | 0.342 | 0.050 | -0.552 | 35.12 | 1 | 13.61532 | 48 |
| MARSHALLS( EAST AFRICA) LTD | 1947 | 1 | 3 | 2005 | 988855 | 288461 | 0.67 | 0.063 | 0.100 | 0.098 | -0.133 | 65.57 | 2 | 13.8043 | 68 |
| MUMIAS SUGAR COMPANY LIMITED | 1971 | 1 | 2 | 2005 | 9497574 | 6080035 | 0.15 | 0.194 | 0.189 | 0.032 | 0.340 | 70.76 | 2 | 16.06655 | 44 |
| NATION MEDIA GROUP | 1922 | 0 | 3 | 2005 | 4426700 | 3230700 | 0.24 | 0.228 | 0.218 | 0.053 | 0.700 | 44.73 | 1 | 15.30316 | 93 |
| REA VIPINGO LTD | 1995 | 1 | 1 | 2005 | 1045227 | 619239 | 0.49 | 0.207 | 0.211 | 0.148 | 0.129 | 36.47 | 1 | 13.85974 | 20 |
| UNILEVER TEA KENYA LTD | 1925 | 0 | 1 | 2005 | 4908947 | 2915520 | 0.66 | 0.021 | 0.032 | 0.015 | -0.094 | 88.24 | 2 | 15.40657 | 90 |
| A BAUMANN & COMPANY LTD | 1926 | 1 | 3 | 2005 | 189031 | 145832 | 4.47 | -0.362 | -0.362 | -2.237 | 0.529 | 73 | 2 | 12.14967 | 89 |
| ACCESS KENYA GROUP | 2000 | 1 | 3 | 2005 | | | | | | | | | | #NUM! | 15 |
| ARM CEMENT LIMITED | 1973 | 1 | 2 | 2005 | 3238664 | 1162219 | 0.32 | 0.091 | 0.098 | 0.055 | 1.224 | 48.1 | 1 | 14.99067 | 42 |
| BOC | 1940 | 0 | 2 | 2005 | 1613167 | 1266661 | 0.46 | 0.181 | 0.146 | 0.076 | 0.182 | 65.38 | 2 | 14.29371 | 75 |
| BRITISH AMERICAN TOBBACO | 1952 | 0 | 2 | 2005 | 6246441 | 3893063 | 0.19 | 0.322 | 0.330 | 0.067 | 0.027 | 60 | 2 | 15.64752 | 63 |
| CAR AND GENERAL | 1936 | 1 | 3 | 2005 | 427474 | 427474 | 0.66 | 0.662 | 0.641 | 0.301 | 0.299 | 32.5 | 1 | 12.96565 | 79 |
| CARBACID INVESTMENT COMPANY | 1961 | 1 | 2 | 2005 | 995960 | 815858 | 2.06 | 0.159 | 0.134 | 0.286 | 1.343 | 22.61 | 1 | 13.81146 | 54 |
| CROWN PAINT LIMITED | 1958 | 1 | 2 | 2005 | 1258821 | 646659 | 0.76 | 0.055 | 0.080 | 0.041 | 0.252 | 48.06 | 1 | 14.04569 | 57 |
| EAST AFRICAN CABLES LTD | 1965 | 1 | 2 | 2005 | 1052170 | 589086 | 0.48 | 0.279 | 0.278 | 0.175 | 0.233 | 70.78 | 2 | 13.86637 | 50 |
| EAST AFRICAN PORTLAND CEMENT LTD | 1930 | 1 | 2 | 2005 | 7470297 | 2252835 | 0.19 | 0.145 | 0.123 | 0.019 | -0.033 | 52 | 2 | 15.82645 | 85 |
| EXPRESS KENYA LTD | 1918 | 1 | 3 | 2005 | 616191 | 283009 | 0.64 | 0.124 | 0.137 | 0.121 | 0.848 | 60.43 | 2 | 13.33131 | 97 |
| KAKUZI LIMITED | 1927 | 1 | 1 | **2005** | 2063506 | 910218 | 0.96 | -0.055 | -0.030 | -0.078 | -0.171 | 26.06 | 1 | 14.53992 | 88 |
| KAPCHORUA TEA COMPANY | 1948 | 1 | 1 | **2005** | 1034780 | 684064 | 1.46 | 0.036 | 0.037 | 0.056 | 0.292 | 44.56 | 1 | 13.8497 | 67 |
| KENOL KOBIL(KENYA OIL CMPANY LIMITED | 1959 | 1 | 2 | 2005 | 8383484 | 4078797 | 0.37 | 0.162 | 0.190 | 0.081 | 0.011 | 84.64 | 2 | 15.94177 | 56 |
| KENYA AIRWAYS | 1977 | 1 | 3 | 2005 | 44822 | 12329 | 1.11 | 0.104 | 0.129 | 0.273 | 3.427 | 26 | 1 | 10.71045 | 38 |
| KENYA ELECTRICITY GENERATING CO. | 1954 | 1 | 2 | 2005 | 77900268 | 33428760 | | | | | | | | 18.17094 | 61 |
| KENYA POWER & LIGHTING COMPANY LTD | 1922 | 1 | 2 | 2005 | 35837483 | 2998929 | 0.34 | 0.055 | 0.051 | 0.145 | 0.536 | 51 | 2 | 17.3945 | 93 |
| LIMURU TEA COMPANY LTD | 1925 | 0 | 1 | 2005 | 52291 | 36778 | 0.18 | -0.086 | -0.117 | -0.015 | 0.035 | 52 | 2 | 10.86458 | 90 |
| SAFARICOM LTD | 1997 | 0 | 3 | 2005 | 34373821 | 15345093 | | | | | | | | 17.35281 | 18 |

## Continuation of Variables for Years 2005 to 2012 used in Data Analysis

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMEER AFRICA LTD | 1969 | 1 | 2 | 2005 | 3204530 | 2028470 | 0.53 | 0.092 | 0.100 | 0.053 | -0.058 | 59.5 | 2 | 14.98008 | 46 |
| SASINI TEA & COFFEE LTD | 1952 | 1 | 1 | 2005 | 3442734 | 3138077 | 2.58 | -0.152 | -0.152 | -0.301 | 0.383 | 41.84 | 1 | 15.05178 | 63 |
| SCANGROUP | 1999 | 1 | 3 | 2005 | 1021563 | 237617 | | | | | | | | 13.83684 | 16 |
| STANDARD GROUP LIMITED | 1919 | 1 | 3 | 2005 | 981564 | 243799 | 0.09 | 0.074 | 0.158 | 0.045 | 0.663 | 69.2 | 2 | 13.7969 | 96 |
| TOTAL KENYA Ltd. | 1955 | 1 | 2 | **2005** | 10773296 | 4616649 | 0.66 | 0.074 | 0.100 | 0.076 | 0.063 | 84.16 | 2 | 16.19258 | 60 |
| TPS SERENA | 1970 | 0 | 3 | 2005 | 5023515 | 2388040 | 0.38 | 0.028 | 0.104 | 0.004 | 0.240 | 76.67 | 2 | 15.42964 | 45 |
| UCHUMI | 1975 | 1 | 3 | 2005 | 1853937 | 113806 | 0.04 | -0.662 | -6.515 | -0.478 | 0.100 | 10.1 | 3 | 14.43282 | 40 |
| UNGA GROUP LTD | 1908 | 1 | 2 | 2005 | 3872719 | 2126353 | 1.87 | 0.040 | 0.058 | 0.110 | 0.006 | 50.93 | 2 | 15.16947 | 107 |
| WILLIAMSON TEA COMPANY LTD | 1950 | 1 | 1 | 2005 | 3331954 | 2422342 | 1.93 | 0.042 | 0.043 | 0.077 | -0.304 | 51.46 | 2 | 15.01907 | 65 |