THE EFFECT OF CAPITAL EXPENDITURE ON FINANCIAL PERFORMANCE OF FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE

By

MWANGI ROBERT WACHANGA

D61/P/8260/2003

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTERS IN BUSINESS ADMINISTRATION OF THE UNIVERSITY OF NAIROBI.

OCTOBER, 2014

DECLARATION

This research project is my original work and has not been submitted for examination to any other university.

Signature_____ Date _____

Mwangi Robert Wachanga

D61 / 8260 / 2003

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

Signature_____ Date _____

Mr. Joseph Barasa

Lecturer, School of Business

Department of Accounting and Finance

University of Nairobi

ACKNOWLEDGEMENT

I acknowledge and thank the almighty God for his blessings and giving me the strength and presence of mind throughout my educational journey.

DEDICATION

I dedicate this research paper to my parents, Dr. and Mrs. E. Mwangi, to whom I am eternally indebted for bringing me to the person I am, and to my lovely wife Grace and children, Lina and Ryan. May God bless you all abundantly.

ABSTRACT

Organisations worldwide require investment in capital expenditure in order for them to achieve their business objectives and maximize shareholders wealth. It is therefore expected that investment in capital expenditure should be followed by an increase in the financial performance of an entity.

The study sought to establish the effect of capital expenditure on financial performance of organisations listed at the Nairobi Securities Exchange (NSE). A census study comprising of a total of 53 companies that were listed at the NSE during the period 2009 to 2013 was conducted by way of a desk review of published company annual financial statements. The linear regression model was used to establish the relationship between capital expenditure and financial performance. In recognition that capital expenditure is not solely responsible for financial performance, degree of leverage and firm size were introduced into the model. Findings of the study indicate that all three factors, capital expenditure, leverage and firm size influence financial performance positively. These factors account for a substantial 69.5% of firm financial performance of companies listed at the NSE as represented by a coefficient of multiple regression of 0.695. Further findings indicate an intercept of 0.723 for all five years under study.

The study concludes that capital expenditure, leverage and size of the firm positively and significantly affect financial performance. This conclusion underpins the importance of senior management understanding the impact of capital expenditure strategies on a firm's ability to maximize shareholders wealth.

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LIST OF ABBREVIATIONS

CAPEX	Capital Expenditure
KSHS	Kenya Shillings
NPV	Net Present Value
NSE	Nairobi Securities Exchange
PPE	Property Plant and Equipment
ROA	Return on Assets
ROE	Return on Equity

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CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Organisations worldwide require investment in capital expenditure in order for them to achieve their business objectives and ultimately, add organisational value and maximize shareholders wealth. It is therefore expected that investment in capital expenditure should be followed by a future return and consequently, an increase in the financial performance and value of an entity. This study seeks to test the aforementioned premise within the Kenyan economic landscape and specifically, publicly listed organisations in the Nairobi Securities Exchange (NSE).

Capital expenditure is the asset category that represents the most significant usage of a firm's resources. Hennessy and Whited (2005) find that on average, annual capital expenditures-to-asset ratio is as high as 13% in a sample of U.S. listed companies, and it is 7.5% for a sample of worldwide firms. Li, Donglin (2004) noted that despite the huge amount of capital expenditure by Corporate America each year (e.g., in 2001 the total capital expenditure reached 1.3 trillion dollars), it was surprising that so few studies had addressed the implications of capital investments on future profitability. Even fewer studies have been conducted in the East African arena and this study is expected to contribute to this knowledge gap.

1.1.1 Capital Expenditure

Capital expenditure is incurred when a business spends money either to buy fixed assets or add to the value of an existing fixed asset with a useful life extending beyond the taxable year (McConnell and Muscarella, 1985). It refers to the funds used by a company to acquire or upgrade physical assets such as property, industrial buildings or equipment. It is generally expected that capital expenditures will create future economic benefits that will span out for more than one financial or tax year.

There are two types of capital investments. The first relates to expenditures to acquire or construct new fixed assets. This category is aimed at increasing the scope of an organisation's operations. The second category relates to expenditure incurred to maintain existing assets and therefore, maintain the current scope of the organisation's operations and is often referred to as sustaining capital expenditure. Any capital expenditure acquisition needs to equate to a feasible and profitable Return on Investment for investors to consider it a worthwhile expense for an organisation.

In the case where a capital expenditure constitutes a major financial decision for a company, the expenditure must be formalized at an annual shareholders meeting or a meeting of the board of directors. In seeking this approval, management must articulate how the proposed capital expenditure is aligned to the organisation's strategic objectives. It must further demonstrate the future economic benefit that is expected to be derived from the proposed capital expenditure.

In accounting, a capital expenditure is added to an asset account ("capitalized"), thus increasing the asset's basis (the cost or value of an asset adjusted for tax purposes) (Akbar, Ali and Saadi, 2008).

In financial reporting, capital expenditure is classified as Property, Plant and Equipment. According to International Financial Reporting Standards (2012), property, plant and equipment are tangible items that:

a) are held for use in the production or supply of goods or services, for rental to others, or for administrative purposes; and
b) are expected to be used during more than one period. (IAS 16, para. 6)

1.1.2 Financial Performance

Financial performance refers to the degree to which financial objectives are attained, or are in the process thereof, over a stipulated time frame. It entails measuring the results of a firm's activities in monetary terms and analyzing this to provide insights into the performance of an organisation as a whole. This measurement can be used to deduce a firm’s overall health over a given period of time and also to provide a metric that can be used for comparison purposes with similar firms, industries, sectors and geographies. Financial performance also provides the intelligence required by management to forecast performance and growth of the organisation in the short and long term.

The most popular measures of financial performance are return on equity (ROE) and return on assets (ROA). The ROE measures accounting earnings over a period per currency unit of shareholders’ equity invested. It measures the amount of income

generated by the investment made by an organisation's owners (equity holders). ROE is best represented by the formula below.

$$\text{Return on Equity} = \frac{\text{Net Income}}{\text{Shareholder's Equity}}$$

Return on Assets measures the rate at which assets employed by an organisation are generating income. It provides management with information on the level of efficiency with which the entity's assets, whether financed by debt or equity are generating after tax profits. The formula for computing ROA is presented below.

$$\text{Return on Assets} = \frac{\text{Net Income}}{\text{Total Assets}}$$

1.1.3 Effect of Capital Expenditure on Financial Performance

Capital expenditure is an investment that entails an outlay in the present, in exchange for a payoff in the future. The future payoff is expected to exceed the value of investment hence providing a return that increases firm value and maximizes shareholders wealth. The foregoing forms the basis of the financial theory that the effect of capital expenditure should have a positively correlated relationship with firm's financial performance. Al Farouque, Tony, Dunstan and Karim (2005), found that capital expenditure had a positive influence on corporate performance as measured using Return on Assets (ROA).

1.1.4 The Nairobi Securities Exchange

Established in 1954 as a voluntary organisation of stockbrokers, the Nairobi Securities Exchange (NSE) provides a platform for the issuance and trading of equity and debt

securities. The securities comprise of both variable income and fixed income instruments which include shares of publicly quoted companies (equity) in addition to bonds (debt) floated by the government and corporate entities.

The NSE is a key institution in the Kenyan and larger East African capital market. It plays a pivotal role in the economic landscape by offering key functions such as mobilization of savings, resource allocation, providing a platform through with companies can access capital, enhancing inflow of foreign capital, and facilitation of government privatization programs in addition to allowing for local participation in corporate governance through share ownership.

Daily activity at the NSE is dominated by purchase and sale of shares or bonds in the secondary market that comprises of more than 63 listed companies. Returns on share ownership is by way of dividends and/or capital gains whereas the payoff for bond holders is through interest payments structured through to maturity of the bond.

1.2 Research Problem

Capital expenditure decisions are backed by capital budgeting processes that involve detailed review of the strategically aligned investment opportunities available to an organisation. The objective is to select the most viable option that will provide the highest increase in value to an organisation. Management has a bevy of techniques which they use to evaluate the various investment opportunities that are often competing for limited firm resources. The capital budgeting process ensures that capital expenditure decisions are made to the investment options that will lead to an increase in the firm's profitability.

According to the Pecking Order Theorem companies usually go public after having exhausted internal sources of financing. Thus, listing in securities and stocks exchange allows companies to overcome borrowing constraints associated with debt financing. From this point of view, companies with higher investment needs are more likely to go public. Amadi, (2005) indicate that there is a need to approximate investment needs by capital expenditures on property plant and equipment (Capex) and sales growth. Listing on a stock exchange plays a role in creating public visibility of a company hence increasing its recognition among a larger set of investors.

Lev and Thiagrajan (1993) states that capital investments represent a fundamental signal claimed by analysts to be useful in predicting future profitability and stock returns. Li, Donglin (2004) observed that given the huge amount of capital expenditure by Corporate America each year (e.g., in 2001 the total capital expenditure reached 1.3 trillion dollars), it was surprising that so few studies had addressed the implications of capital investments for future profitability. This knowledge gap is even more severe in the Kenyan economy with few empirical attempts to understand post capital investment effects on a firm's financial performance.

Gitau (2012) reports that due to the developing nature of the Kenyan economy, and the rapid population growth rate, firms are able to identify growth opportunities with relative ease. These opportunities require investment in capital expenditure in order for them to be realised. The study concludes that most firms do not have internally generated funds to finance the capital expenditure and are therefore forced to source externally through debt and or public/public equity.

Capital expenditures comprise one of the largest and riskiest accounts in corporate financial statements. An understanding of motivators for capital investment decisions is valuable for investors, regulators, auditors, and the public at large (Pulliam and Solomon, 2002). The current literature has mostly focused on managerial behavior in advanced economies and has reported evidence that shareholder wealth is positively affected when firms make capital spending decisions (Woolridge (1988) and McConnell and Muscarella (1985)). It would therefore be important to undertake a similar study in a developing economy such us Kenya so as to compare the findings and build a localized body of knowledge on the subject matter.

In conclusion, research on effect of capital expenditure on profitability and financial performance in Kenya is not comprehensive hence creating a research gap that deserves attention. Informed by this knowledge gap, the study seeks to answer the research question of whether there exists an effect of capital expenditure on financial performance of firms listed at the Nairobi Securities Exchange.

1.3 Research Objective

To establish the effect of capital expenditure on financial performance of organisations listed at Nairobi Securities Exchange.

1.4 Value of the Study

The study will assist all organisations that invest resources in capital expenditure to understand the relationship between capital investment and its contribution to profitability. By extrapolating the results from the study which shall focus on entities

listed at the Nairobi Securities Exchange, stakeholders will gain valuable insights that can be used to interpret capital investment activity and its effect on profitability. The intelligence gained should help guide management to realign its capital expenditure initiatives for improved financial performance.

The results of the study will be invaluable to investors and management of NSE listed companies as a whole as its findings will appraise firm capital expenditure and its link to financial performance. The study will offer an opportunity for review of capital expenditure initiatives as it will try to unearth how it has been an effective lead to improved financial performance.

The study will benefit both academicians and future researchers in Kenya and beyond. Academicians and researchers are always searching for new information and references. They will benefit from this study as it will add to the wealth of existing knowledge on capital expenditure and link the same with financial performance. The study will thus broaden the knowledge on capital expenditure and provide a basis for future research on capital expenditure and its relationship with financial performance.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents review of theoretical and empirical literature on capital expenditure and its implication on financial performance.

2.2 Review of Theories

The following theories are relevant in capital expenditure and financial performance and are therefore discussed. These are the Pecking Order theory, Agency theory and Free Cash Flow theory.

2.2.1 Pecking Order Theory

The pecking-order theory argues that, because of information asymmetry, firms choose to use retained earnings first to finance their investments (Myers, 1984). When internal financing does not suffice, firms look outside by issuing debt first and equity last.

The pecking order theory suggests that firms have a particular preference order for capital used to finance their businesses (Myers, 1984). Owing to the presence of information asymmetries between the firm and potential financiers, the relative costs of finance vary between the financing choices. According to Myers (1984), due to adverse selection, firms prefer internal to external sources of finance. When internal funds are insufficient and an organisation is forced to source externally, then management will

prefer debt to equity because of lower information costs associated with debt issues. Equity is therefore rarely issued and is seen more as a last result as opposed to a preferred choice.

The quality of an organization plays an important role in determining the source of financing for any capital ventures that the organisation would like to explore. Good quality firms tend to use internal funds as much as possible. Low quality firms tend to not have as much profits and retained earnings as high-quality firms and are therefore forced to seek external sources thereby increasing the cost of capital.

New equity holders will expect a higher rate of return on capital invested resulting in the new equity finance being more costly to the firm than using existing internal funds. A similar argument can be provided between the retained earnings and new debt-holders. In addition, the greater the exposure to the risk associated with the information asymmetries for the various financing choices besides retained earnings, the higher the return of capital demanded by each source. Thus, the firm will prefer retained earnings financing to debt, short-term debt over long-term debt and debt over equity.

2.2.2 Agency Theory

Jensen and Meckling (1976) defined an agency relationship as a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent. If both parties to the relationship are utility maximizers, there is good reason to believe that the agent will not always act in the best interests of the principal. The agent's actions in this case will be skewed towards achievement of their personal

goals as opposed to maximization of the shareholders return. This divergence in objectives between the parties will force the principal (shareholders) to incur monitoring costs aimed at mitigating the agent's extent of divergent.

The mandate of executive management is to run the affairs of the company to the best interest of its owners (shareholders). Therefore, the objective will be to maximize the returns to shareholders by increasing the profit figures and cash flows.

The costs of monitoring the managers so that they act in the best interests of shareholders are referred to as agency costs. The higher the need to monitor the managers, the higher the agency costs will be. Pinegar and Wilbricht (1989) discovered that the principal-agent problem can be dealt with to some extent through the capital structure by increasing the debt level and without causing any radical increase in agency costs. Similarly, Lubatkin and Chatterjee (1994) argue that increasing the debt to equity ratio will help firms ensure that managers are running the business more efficiently. Hence, managers will return excess cash flows to the shareholders rather than investing in negative NPV projects since the managers will have to make sure that the debt obligations of the firm are repaid.

The increase in debt levels of an organization leads to both the lenders and shareholders becoming the parties of the organization's corporate governance structure. Managers that are not able to meet the debt obligations are replaced by more efficient managers who can better serve the shareholders. This mean that leveraged firms are better for shareholders as debt level can be used for monitoring the managers.

On the other hand, existence of high levels of debt creates a conflict of interest between shareholders and debt-holders. Debt-holders are interested in ensuring that the organization's activities result to generation of profits and cash-flows that are only enough to repay the debt. However, shareholders are interested in ensuring that management invests in projects that will deliver higher returns that will flow to bottom line earnings that can be paid out as dividends or retained for organic firm growth. This expectation of higher returns leads to increased levels of risk. Florackis (2008) observed that it is here that the conflict of interest arises since debt holders will impose certain restrictions so that the firm can repay their debt obligations by preventing shareholders from influencing management to make risky investments.

Titman, Wei and Xie (2004) observed an overinvestment behavior by managers who had empire building incentives. These managers tend to invest any free firm cash flows on capital expenditures without much regard for maximization of shareholder returns. This behavior is more prevalent where managers' compensation is tied to firm growth measured by increase in revenue. Shareholders of such firms must incur monitoring or agency costs to curb this phenomenon.

2.2.3 The Free Cash Flow Theory

Free cash flows are excess and uncommitted cash positions held by organisations after investing in all strategically aligned, positive NPV projects. This position often leads to an agency problem where management tends to engage in additional investment activities that may or may not be aligned to the firm's strategy and often in negative NPV projects.

The free cash flow theory is more prevalent in mature firms that are prone to over-invest due to the fact that their operating cash flows surpass the available investment opportunities. This is compounded by a tendency by top management to empire build especially when their compensation is pegged to increase in firm size.

Jensen (1989) notes that top managers with access to free cash flows tend to allocate these to negative NPV projects as opposed to distribution of the same to shareholders. This occurs mainly when management performance and remuneration is appraised based on the level of firm growth. Proponents of the free cash flow theory contend that free cash flows in firms with poor investments should be mopped up to avoid managers allocating this to negative NPV projects.

2.3 Determinants of Financial Performance

Capon, Farley and Hoenig (1990) studied the determinants of financial performance by reviewing 320 published studies relating to environmental, strategic and organizational factors to financial performance. Their results indicate that financial performance is affected by many different factors all of which can be classified within the realm of the three aforementioned variables, i.e. environmental, strategic and organizational. Factors cited by the study as having significant effect on financial performance were capital investment, debt and size of the firm. Other factors include barriers to entry, economies of scale, market share, quality of products and services, industry characteristics and capacity utilization.

Many studies have sought to document the relationship between debt and financial performance. Jensen and Meckling (1976) conclude that the relationship between the

two is largely positive. They argue that the existence of debt forces managers to invest in profitable undertakings that will enable the organization service its debt obligations and at the same time, increasing the profitability or financial performance of the organization. However, the study introduces a caveat that is agency costs. Jensen and Meckling (1976) argue that agency costs incurred to manage the relationship between managers and shareholders have the potential of diminishing the increased profitability brought about by the existence of leverage.

Saliha & Abdessatar (2011) assess the determinants of financial performance with a specific focus on the link between performance, form of control and debt. They studied 40 Tunisian listed and unlisted companies during the period 1998-2006. Results of the study reveal a significant interaction between performance, debt and form of control. This relationship is more prominent in listed companies. Listed companies are characterized by higher growth and profitability than unlisted companies due to their un-concentrated ownership structure and ease of capital raising via debt and/or equity.

Agustinus & Rachmadi (2008) studied the factors determining performance of 238 firms listed in the Indonesian Jakarta Stock Exchange (JSX) in the period 1994 - 2004. The results show a positive relation between firm size and profitability. In the study, firm size is measured using the natural logarithm of total assets whereas Return on Assets is used as the measure of firm profitability.

2.4 Review of Empirical Studies

The body of empirical evidence regarding the subject matter is conflicted with two schools of thought being in existence. The first is of the view that just like any other well

researched analyzed and executed investment, capital expenditures translate to returns manifested through increased financial performance. Lev and Thiagrajan (1993) stated that capital investments represent a fundamental signal claimed by analysts to be useful in predicting future profitability and stock returns.

A large number of studies relating to capital expenditure and financial performance make use of stock returns as the measure of financial performance understandably because any measure of an organisation's performance must be linked to the goal of shareholders wealth maximization as evidenced by the firm's stock price. Few studies utilize accounting based measures of financial performance ostensibly because of the ability of these measures to be manipulated through creative accounting and/or revenue/cost recognition. The foregoing review of empirical studies presents findings of studies that evaluated financial performance using both accounting measures and stock return measures of financial performance.

McConnell and Muscarella (1985) indicate that announcements of increases in planned capital investments are generally associated with significantly positive excess stock returns. They find that on average, the stock market reacts positively to announcements of increases in planned capital expenditures and negatively to decreases in planned capital expenditures. This view is supported by Woolridge (1988) who observed that the current literature which is mostly focused on managerial behavior in advanced economies, reports evidence that shareholder wealth is positively affected when firms make capital spending decisions. Woolridge (1988) further reports positive stock price reaction to a variety of long-term strategic investments such as joint ventures, plant and

equipment purchases, new product introductions, and research and development expenditures.

Martin and Kensiner (1990), studied the share-price response to announcements of increases in research and development spending. They find that on average, there are significant positive reactions even when the announcement occurs in the face of an earnings decline.

In follow-up studies, Blose and Shieh (1997) find a significant positive relation between the magnitude of the stock market reaction to capital investment announcements and the level of new investment.

Chung, Wright and Charoenwong (1998) argue that financial performance as measured by share price reaction depends critically on the market's assessment about the quality of a firm's capital expenditure decisions. They postulate that for firms with high quality investment opportunities, announcements of increased capital spending decisions are accompanied by increases in the firm's share prices. The reverse is true for firms without what the market perceives as quality investment opportunities.

Fama and French (1999) studied the relationship between firm investment and profitability for the aggregate non-financial U. S. corporations by computing the overall internal rate of return on investment. A positive internal rate of return led them to conclude that "on average corporate investment seems to be profitable"

Ching-Hai, Hsiang, Chen and Yen-Sheng (2006) examine the relationship between capital expenditures and corporate earnings for 357 manufacturing firms listed on the

Taiwan Stock Exchange over a 10 year period. The findings indicate a significantly positive association between capital expenditures and future corporate earnings even after controlling for current corporate earnings.

Brooke (2014) disaggregated capital expenditure between maintenance CAPEX and growth CAPEX. They find that growth CAPEX exhibited a more positive association with future financial performance than maintenance CAPEX. They further postulate that this positive association is decreased by agency costs.

The second school of thought documents a negative relationship between capital expenditure and financial performance.

Abarbanell and Bushee (1997) show that capital expenditure conveys a negative signal for future earnings and conclude that there seems to be a negative relation between capital investment and future profitability. They conjectured that capital expenditures could be a bad signal for future earnings if poor performing firms take on excessive projects. They further report that industry-adjusted capital expenditure growth is negatively associated with future returns.

Titman, Wei and Xie (2004) report that there exists a negative association between capital investments and future stock returns. This negative association is stronger in firms with higher free cash flow and lower debt ratios. They interpret their evidence on the backdrop of the free cash flow theory and attribute the negative relationship to the overinvestment behavior by managers with empire building incentives. They compare Japanese Keiretsu (intertwined) firms and independent firms and find that in the former

groups, there is a negative association between investment and future returns while in the latter, the association is positive. The result is consistent with the idea that keiretsu firms, which have low-cost access to capital, tend to over invest.

Fairfield, Whisenant and Yohn (2003) study the relationship using return on assets, an accounting based measure of financial performance. Following a financial statement analysis study, they document a negative association between growth in net long term operating assets and one year ahead future return on assets. Richardson, Richard, Sloan and Irem (2006) find a similar association and attribute it to the lower reliability of long term asset accruals.

Chen, Yao, Yu, and Zhang (2008) examine the effect of corporate asset growth on stock returns using data on nine equity markets in the Pacific-Basin region. They find a pervasive negative relationship between asset growth and subsequent stock returns during the sample period from 1981 to 2004. Similar findings are documented by Cooper, Gulen, and Schill (2008) who studied firm asset growth and subsequent stock return. The study ranked firms in the U.S market during the period 1968 to 2003 into rankings based on their level of asset growth. They show that firms with high asset growth had a 20% lower return than firms with low asset growth or capital expenditure.

2.5 Summary of Literature Review

A review of the literature reveals two hypotheses. The first that supports the financial theory and provides evidence that increased investment in capital expenditure, results in increased financial performance and the reverse holding true. There therefore exists a positive relationship between capital expenditure and financial performance.

Conversely, several studies document a negative association between capital expenditure and financial performance. Further studies try to explain this perceived deviation from the theory and provide various explanations for the phenomenon. A large number of studies attribute the negative association to the free cash flow theory where managers with empire building tendencies over invest in capital projects regardless of their profitability i.e. negative NPV projects.

Both hypotheses have one thing in common, the investment decisions are made by management who act as agents for the shareholders. Tenets of the agency theory explain that there exists a natural divergence of interest between shareholders and managers, forcing shareholders, who are the owners of capital to incur agency costs. These costs are aimed at aligning management behavior to the inherent interests of shareholders.

In summary, the existence of a conflict in the literature review regarding the relationship between capital expenditure and financial performance creates a research gap that calls for further study. This research gap is compounded more in the Kenyan context where there is lack of comprehensive information about the relationship between capital expenditure and financial performance.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter is a blueprint of the methodology that will be used during the conduct of this study. The methodology is presented hereinafter and is grouped in the order of research design, population, data collection, data analysis and finally data validity and reliability.

3.2 Research Design

The research design is the overall plan of conducting the study in order to achieve the stated objective. This study will adopt a descriptive survey design. According to Schindler and Cooper (2003), a descriptive research design is appropriate where the study seeks to describe the characteristics of certain groups, estimate the proportion of people who have certain characteristics and make predictions. Mugenda and Mugenda (2003) describes descriptive research design as a systematic, empirical inquiry into which the researcher does not have a direct control of the independent variables as their manifestation has already occurred or because the independent variable cannot inherently be manipulated.

The current research design is chosen because the study is not confined to the collection and description of the data, but seeks to determine the existence of a relationship

between two variables, investment in capital expenditure and financial performance of organisations listed in the Nairobi Securities Exchange.

3.3 Population

Mugenda and Mugenda (2003) define a population as an entire group of individuals, events or objects having a common observable characteristic.

The study population will be all the firms that were listed consistently from 2009 to 2013. This effectively classifies the study as a census survey. A total of 53 companies were listed and actively traded during the review period. A list of these companies is presented as an appendix to this report.

3.4 Data Collection

Secondary data will be collected using desk review of published company annual financial statements. The review will cover a period spanning five years (2009 – 2013). The data considered will be quantitative in nature.

Data collection will specifically entail a review of the annual financial statements of each of the 53 companies listed in the NSE during the period 2009 – 2013. The objective will be to obtain the following information:

a) Capital expenditure statistics. This information shall be obtained on the face of the statement of financial position and the PPE movement schedule which forms a note to the financial statements.

b) Ratio of earnings before taxation to total assets (ROA). This data shall be mined from the statements of financial position and comprehensive income of the annual financial statements of each of the companies.

3.5 Data Analysis

From the secondary data sources, capital expenditure will be summarized for each of the companies in table form to facilitate data analysis. In line with the study objective, the study will use linear regression model. The linear regression model will seek to establish the relationship between capital expenditure and financial performance. Leverage and Size of the firm are introduced as other variables to give weight to the study and be cognizant of the fact that other determinants exist that exert significant influence on financial performance. The linear regression model is: $\mathbf{FP = \beta_0 + \beta_1\ CE + \beta_2\ (X_2) + \beta_3\ (X_{3)} + e,}$ Where,

FP = financial performance (as measured by ROA)

CE = capital expenditure (as measured using net book value of PPE)

β_0 = constant or intercept

β_1 - β_3 = the regression coefficients

X_2 and X_3 = Control variables will be leverage (L) and (S) size

X_2 = Ratio of total debt to total assets

X_3 = Size, defined as the natural log (Ln) of total assets

e = error term of the model (significance level of the model).

Capital expenditures will be computed using the book value of property plant and equipment during the review period. Financial performance will be measured using return on assets (ROA). The study will compare ROA of the year after acquisition of capital expenditure so as to allow for the assets to start making returns. For instance if capital expenditure is incurred in 2009 then it will be compared to financial performance of 2010. This comparison will be based on percent change in capital expenditure versus percent change in financial performance (ROA).

The linear regression model to be used for this study incorporates the fact that financial performance is dependent upon other variables and not just capital expenditure. These other variables have been controlled in the model and are degree of leverage and size of the firm. Leverage shall be measure by obtaining the ratio of total debt to total assets whereas size of the firm shall be defined by the natural log (Ln) of total assets.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the information processed from the data collected during the study on the effect of capital expenditure on financial performance of 53 organisations listed at the Nairobi Securities Exchange during the period 2009 to 2013.

4.2 Descriptive Statistics

Table 4. 1: Summary of the study variables

Year	**2009**	**2010**	**2011**	**2012**	**2013**	**Mean**	**Std. Deviation**
ROA	0.1101	0.1464	0.1226	0.1064	0.1064	0.1184	0.0170
CAPEX (Kshs '000)	750,425	722,806	935,298	765,820	990,627	832,995	121,229
Leverage	4.1596	3.7533	1.2030	0.3708	2.4139	2.2319	1.8639
Size	9.9335	10.0252	10.0529	10.0959	10.1417	10.0498	0.0786
Total Asset (Kshs)	31,666,150,660	38,302,387,512	45,010,453,368	50,388,513,779	57,599,205,866	44,593,342,237	10,119,274,641

Source: Author (2014)

Table 4.1 presents the summary of the study variables from the companies listed at Nairobi Securities Exchange. From the summary, 2012 and 2013 recorded the same ROA at 0.1064 while 2010 recorded the highest ROA at 0.14647, the mean of ROA for

the five years was 0.1184. On capital Expenditure, 2013 recorded the highest at Kshs 990,627,000 while 2009 had the lowest at Kshs 722,806,000. Average capital expenditure was Kshs 832,995,000. The leverage was least in 2012 at 0.3708 and highest in 2009 at 4.1596 with an average of 2.2319. Size had an average of 9.4497 with very minimal fluctuations among the five years. Total assets increased steadily throughout the period posting an average of Kshs 44,593,342,237.

4.3 Regression Results

The study conducted a linear regression model to establish the relationship between capital expenditure and financial performance of companies listed at Nairobi Securities Exchange between the years 2009 and 2013. A list of the companies is presented in appendix 1. The coefficient of determination (R^2) explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable. The adjusted coefficient of determination (adjusted R^2) is a modified version of R^2 that accommodates the presence of multiple independent variables. In the study, financial performance is the dependent variable whereas capital expenditure, leverage and size of the firm constitute the independent variables.

In order to conduct the study, SPSS and advanced MS Excel were used. Results relating to the correlation coefficient (R), coefficient of determination (R^2), adjusted coefficient of determination (Adjusted R^2) and the Standard error of estimate (Se) are presented in table 4.2 below.

Table 4.2: Model Summary

Model	R	R Square (R^2)	Adjusted R Square	Std. Error of the Estimate
1	0.863	0.746	0.695	0.1076

Source: Author (2014)

The three independent variables that were studied, explain 69.5% of the financial performance of the companies listed at the Nairobi Securities Exchange as represented by the adjusted R^2. This therefore means that the three variables (capital expenditure, leverage and size of the firm) contribute to 69.5% of financial performance of companies listed at the Nairobi Securities Exchange, while other factors not studied in this research account for the remaining 30.5%. Therefore, further research should be conducted to investigate the other factors that account for 30.5% of financial performance of the companies listed at the Nairobi Securities Exchange.

Table 4.3: Summary of One-Way ANOVA results of the regression analysis between financial performance of the companies listed at the Nairobi Securities Exchange and predictor variables

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.421	3	0.855	19.973	0.00051
	Residual	1.67	56	0.043		
	Total	5.091	59			

Source: Author (2014)

From the ANOVA statistics in table 4.3, the processed data, which are the population parameters, had a significance level of 0.00051 which shows that the data is ideal for making a conclusion on the population's parameter. The F calculated at 5% Level of significance was 19.973. Since F calculated is greater than the F critical (value = 2.77), this shows that the overall model was significant i.e. there is a significant relationship between capital expenditure and financial performance.

Table 4.4: Regression coefficients of the relationship between financial performance of the companies listed at the Nairobi Securities Exchange and the three predictive variables

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	0.723	0.409		2.003	0.0364
	Capital expenditure	0.264	0.028	0.246	0.175	.0411
	Leverage	0.427	0.211	0.409	1.307	.0233
	Size of the Firm	0.754	0.041	0.682	0.108	.0417
Dependent variable: Financial performance of companies listed at the Nairobi Securities Exchange						

Source: Author (2014)

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

FP= 0.723 + 0.264CE + 0.427L + 0.754SF

Where FP is Financial Performance, CE is Capital Expenditure, L is Leverage and SF is Size of the firm. According to the model, all the variables were significant as their significance value was less than 0.05. The three variables (Capital expenditure, Leverage and Size of the firm) were positively correlated with financial performance of the companies listed at the Nairobi Securities Exchange. From the model, taking all factors (Capital expenditure, Leverage and Size of the firm) constant at zero, financial

performance of the companies listed at the Nairobi Securities Exchange was 0.723. The data findings analyzed also shows that taking all other independent variables at zero, a unit increase in capital expenditure will lead to a 0.264 increase in financial performance of the companies listed at the Nairobi Securities Exchange, a unit increase in leverage will lead to a 0.427 increase in financial performance of the companies listed at the Nairobi Securities Exchange while a unit increase in size of the firm will lead to a 0.754 increase in financial performance of the companies listed at the Nairobi Securities Exchange. The interpretation of this results is that of the three independent variables, size of the firm has the most significant effect on financial performance of companies listed at the Nairobi Securities Exchange.

4.4 Summary and Interpretation of Findings

From the above regression model, the study found out that all three measured factors i.e. capital expenditure, leverage and firm size had varying degrees of positive influence on financial performance of companies listed at the Nairobi Securities Exchange. The study found out that the intercept was 0.723 for all years.

The three independent variables that were studied (capital structure, leverage and size of the firm) explain a substantial 69.5% of financial performance of companies listed at the Nairobi Securities Exchange as represented by an adjusted coefficient of determination (adjusted R^2) of (0.695). This therefore means that the combined effect of the three independent variables contributes a significant 69.5% of financial performance of companies listed at the Nairobi Securities Exchange. Other factors and random

variations not studied in this research account for the balance of 30.5 % of financial performance of companies listed at the Nairobi Securities Exchange.

The study established that the coefficient for capital expenditure was 0.264, meaning that capital expenditure positively and significantly influenced the financial performance of companies listed at the Nairobi Securities Exchange. Further, a unit increase in capital expenditure would lead to a 0.264 increase in financial performance. This is in line with several studies that postulate that an increase in capital expenditure results in an increase in financial performance. Among these is Al Farouque, et al (2005), who found that capital expenditure had a positive influence on corporate performance as measure by Return on Assets. (ROA). Similarly, Li, Donglin (2004), in his study found that investment in Property Plant and Equipment is positively associated with Return on Assets at a significance level of less than 5%. Lev and Thiagrajan (1993) stated that capital investments represent a fundamental signal claimed by analysts to be useful in predicting future profitability and stock returns.

The study also deduced that leverage, as measured by the ratio of total debt to total assets, had a positive and significant influence on financial performance of companies listed at the Nairobi Securities Exchange. This is evidenced by a coefficient equal to 0.427. This is in line with Margaritis and Psillaki (2010) who found that leverage has a positive effect on financial performance. Lubatkin and Chatterjee (1994) argue that increasing leverage helps firms ensure that managers are running the business more efficiently thus leading to increased profitability and financial performance.

Giroud, Allen and Akintoye (2012) show that increasing leverage ratios up to certain optimal limits based on firm capital structure result in better financial performance. Coricelli, Jarrell, and Kim (2012) find that the positive relation between leverage and total productivity growth exists to a certain point, beyond which the relationship turns negative.

The study further deduced that size of the firm, as measured by the natural logarithm (Ln) of total assets, positively influenced financial performance of companies listed at the Nairobi Securities Exchange. This is evidenced by a positive coefficient measure of 0.754. This finding correlates with Hennessy and Levy (2002) who posit that large firms are more likely to exploit economies of scale and enjoy higher negotiation power over their clients and suppliers hence resulting to better financial performance. Agustinus & Rachmadi (2008) studied the factors determining performance of 238 firms listed in the Indonesian Jakarta Stock Exchange (JSX) in the period 1994 - 2004. The results show a positive relation between firm size and profitability. In the study, firm size is measured using the natural logarithm of total assets whereas Return on Assets is used as the measure of firm profitability.

Some studies such as Barrett, Heaney and McCosker (2005), Yoon (2004), and Risseeuw (1997) caveat that the relationship between financial performance and size is not infinitely linear but there exists an optimal size level above which increased firm size results in deterioration of financial performance. This findings are consistent with the characteristics of the free cash flow theory which is prevalent in mature firms that are

prone to over investments due to high levels of excess operating cash flows that surpass available investment opportunities.

Titman, Wei and Xie (2004) observed an overinvestment behavior by managers who had empire building incentives. These managers tend to invest any free firm cash flows on capital expenditures without much regard for maximization of shareholder returns. This behavior resulted in a negative relationship between increase in firm size and financial performance due to the tendency by the empire building enticed managers to invest in negative NPV investments.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This objective of the study was to determine the relationship between capital expenditure and financial performance of companies listed at the Nairobi Securities Exchange. This chapter is a recap of the discussions and findings drawn from the previous chapters. Significant findings are summarized, conclusions drawn, recommendations made to policy makers in addition to further recommendations on opportunities for further research.

5.2 Summary of Findings

Capital expenditure is incurred to acquire economic resources or assets that are used to generate revenues. The level of revenues generated play an important role in determining the financial performance of the organization. It therefore is important to understand the relationship between the asset acquisition process and its impact on financial performance. Understanding the aforementioned relationship forms the objective of this study.

The study sought to establish the effect of capital expenditure on financial performance of organisations listed at the Nairobi Securities Exchange. A descriptive survey design was adopted. According to Schindler and Cooper (2003), a descriptive research design is appropriate where the study seeks to describe the characteristics of certain groups,

estimate the proportion of elements that have certain characteristics and make predictions. The census study covered a total of 53 companies that were listed and trading actively at the Nairobi Securities Exchange between the period 2009 and 2013. Secondary data was collected using desk review of published company annual financial statements and academic sources.

The multiple linear regression model was used to establish the relationship between capital expenditure and financial performance. The study took cognizance of the fact that capital expenditure was not the sole determinant of financial performance and consequently introduced additional variables that affect financial performance. This are leverage as measured by the ratio of total debt to total assets and size of the firm as measured by the natural logarithm of total assets. Results of the study revealed that all three independent variables affected financial performance positively but in varying degrees. The regression model resulted in an intercept of 0.723 for all years under study. The three independent variables, capital structure, leverage and size of the firm explain a substantial 69.5% of financial performance of companies listed at the Nairobi Securities Exchange as represented by an adjusted coefficient of determination (adjusted R^2) of 0.695. The study concludes that capital structure, leverage and size of the firm positively and significantly affect financial performance.

5.3 Conclusions

Capital expenditure is incurred to acquire and/or maintain non-current assets whose economic benefit spurn for a period exceeding one year. Various studies have demonstrated that capital expenditure significantly affects the value and very survival of

a firm (Tobin, 1969; Yoshikawa, 1980; Hayashi, 1982; Abel, 1983). Accordingly, a greater understanding of the effect of capital expenditure on financial performance is essential to investors, management, regulators, auditors and the public at large. This study seeks to contribute to the aforementioned understanding within the scope of companies listed at the Nairobi Securities Exchange

From the organisations considered, it was established that the three independent variables studied; capital structure, leverage and size of the firm explain a substantial 69.5% of financial performance of companies listed at the Nairobi Securities Exchange as represented by an adjusted coefficient of determination (adjusted R^2) of 0.695. This therefore means that the three independent variables contribute to 69.5% of the financial performance of companies listed at the Nairobi Securities Exchange.

The study found that the coefficient for capital expenditure was 0.264, meaning that capital expenditure positively and significantly influenced the financial performance of companies listed at the Nairobi Securities Exchange. Taking all other independent variables at zero, a unit increase in capital expenditure lead to a 0.264 increase in ROA of the companies listed at the Nairobi Securities Exchange. The interpretation of this result is consistent with the expectation that capital expenditure creates future economic benefits that leads to an increase in financial performance as measured using Return on Assets.

The study also established that leverage had a positive and significant influence on financial performance of companies listed at the NSE due to a resultant coefficient of 0.427. Use of debt to finance capital expenditure and operations would be beneficial if

the returns from the investment in capital expenditure and working capital exceed the cost of the related debt. The study concludes that the aforementioned premise holds true and that firms listed at the NSE during the review period incurred debt to finance positive NPV capital investments during the period of study hence the positive correlation between financial performance and leveraged.

The study further inferred that size of the firm positively influenced financial performance of companies listed at the NSE. In the regression model, firm size posted a positive coefficient of 0.754. Hennessey and Levy (2002) posit that large firms are more likely to exploit economies of scale and enjoy higher negotiation power over their clients and suppliers leading to increased financial performance. Large firms often have adequate reserves that can be used to finance capital investments therefore eliminating debt costs and consequently, increased ROA. They are also characterized by large asset bases which can be used to access cheaper collateralized loans that lead to decreased cost of debt and higher profitability levels.

Amongst the three variables, capital expenditure, leverage and size of the firm, the latter has the largest influence on financial performance as evidenced by the significantly higher coefficient value of 0.754. Over time, increased capital expenditure either financed organically or through debt leads to increased growth in firm size due to an accumulation of revenue generating assets. This increased asset base would lead to increased profitability and financial performance.

5.4 Limitations of the Study

In the course of the research, a number of challenges were encountered. Access to the annual financial statements posed the first challenge. The information is not available in a central repository hence spending significant amounts of time in obtaining the information from fragmented sources. There also exists a public perception that annual financial statements of listed companies are confidential hence contributing negatively to the ease of access of the accounts.

The financial statements are prepared under underlying assumptions and concepts some of which are subjective and rely on management estimates. Examples are provisions, estimates on asset useful lives and impairment judgments all of which will differ from firm to firm. Existence of the aforementioned subjectivity in the underlying data would have a distorting effect on the findings of this study.

A tendency by companies to restate preceding financial statements posed a challenge especially where restatements were material and were effected outside the review period.

The period under study was one in which there was a general election in 2012. In light of the previous elections that were marred by political unrest, many companies were cautious in their strategies relating to investment and capital expenditure. The run up to the elections is generally characterized by high inflation rates and a weakened local currency.

Lastly, the study entailed three variables; capital expenditure, leverage and firm size that were deemed to have an effect on financial performance. The three variables posted a combined effect of 69.5% on financial performance. Therefore, there is need to carry out

the study incorporative of other factors in a bid to account for the remaining 30.5% of factors that affect financial performance of the companies listed at the NSE.

5.5 Recommendations and Suggestions

5.5.1 Policy Recommendations

The results of this study underpin the importance of assessing the impact of capital expenditure decisions on financial performance. When managers are making capital investment considerations that are in line with organisational strategy, it is important that they assess the impact of these considerations on financial performance.

The study also brings to fore the relationship of capital expenditure and financial performance against the backdrop of leverage. This is relevant especially when management is considering financing expansion and capital expenditure initiatives through debt. Management must not only understand the combined effect of additional leverage and capital expenditure on financial performance. In addition, consideration must be taken to ensure that assets financed by borrowed funds provide a return sufficient enough to cover the cost of the related borrowing and still provide a return on investment. Failure to this would lead to an erosion of reserves in servicing debts non-performing asset acquisitions.

The study also reveals that in addition to capital expenditure, leverage and firm size, other factors affect financial performance. It is important for management to be cognizant of this fact and ensure that they strive to identify and manage the other

determinants that affect financial performance. These include but are not limited to the development of new products, marketing activities and competitor activity.

5.5.2 Suggestions for Further Research

Arising from this study, the following recommendations for future research are presented. First, the study focused on all 53 companies that were listed at the Nairobi Securities Exchange during the period 2009 to 2013. Extrapolation of the findings cannot be applied to each of the individual companies in the study due to varying industry characteristics such as risk and asset structures. It is therefore recommended that further studies be conducted on the subject matter with specific focus on the relationship at industry / segment level.

Due to the existence of high political risk relating to the general elections in 2012, it is recommended that a similar study be conducted in future covering a period that is free of similar political interference. Also supporting the need for future research on the subject matter is the dynamic nature of the Kenyan economic landscape that force organisations to continuously revise their operating and investment strategies.

There are two types of capital investments. The first relates to expenditures to acquire or construct new fixed assets. The second category, known as sustaining capital expenditure is incurred to maintain existing assets. It is recommended that further research, focused on each of the types of capital expenditure be conducted in order to understand the relationship at the sub-category level.

The study is specific to firms listed at the Nairobi Securities Exchange. However, majority of organizations in the country are non-listed thus creating the need to subject the research question to this tier of firms and compare results to those of the findings of this study.

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APPENDICES

Appendix I: List of Listed companies in the Nairobi Securities Exchange between 2009 and 2013.

Agricultural

1 Eaagads Limited
2 Kakuzi Limited
3 Kapchorua Tea Company Limited
4 Limuru Tea Company Limited
5 Rea Vipingo Plantations Limited
6 Sasini Tea And Coffee Limited
7 Williamson Tea Kenya Limited

Automobiles And Accessories

8 Car And General (Kenya) Limited
9 CMC Holdings Limited
10 Marshalls (EA) Limited
11 Sameer Africa Limited

Banking

12 Barclays Bank Of Kenya Limited
13 CFC Stanbic Bank
14 Co-operative Bank Of Kenya
15 Diamond Trust Bank (Kenya) Limited
16 Equity Bank Limited
17 Housing Finance Company Limited
18 Kenya Commercial Bank Limited
19 National Bank Of Kenya Limited
20 NIC Bank Limited
21 Standard Chartered Bank Kenya Limited

Commercial And Services

22 Express Kenya Limited
23 Kenya Airways Limited
24 Longhorn Kenya Limited
25 Nation Media Group Limited
26 Scangroup Limited
27 Standard Group Limited
28 TPS Eastern Africa Limited (Serena Hotels)

Construction And Allied

29 ARM Cement Limited
30 Bamburi Cement Company Limited
31 Crown Paints Kenya Limited
32 East African Cables Limited
33 East African Portland Cement Company

Energy And Petroleum

34 Kenol Kobil Limited
35 Kenya Electricity Generating Company (KENGEN)
36 The Kenya Power & Lighting Co. Limited
37 Total Kenya Limited

Insurance

38 Jubilee Holdings Limited
39 Kenya Reinsurance Corporation Limited
40 Liberty Kenya Holdings Limited
41 Pan Africa Insurance Company Limited

Investment

42 Centum Investment Company Limited
43 Olympia Capital Holdings Limited

Manufacturing And Allied

44 B.O.C Kenya Limited

45 British American Tobacco Kenya Limited

46 Carbacid Investments Limited

47 East African Breweries Limited

48 Eveready East Africa Limited

49 Kenya Orchards Limited

50 Mumias Sugar Company Limited

51 Unga Group Limited

Telecommunication And Technology

52 Access Kenya Group

53 Safaricom Limited

Source: The Nairobi Securities Exchange handbook for the years 2009 and 2013.

Appendix II: Total Asset values of firms listed and actively traded at the NSE between 2009 and 2013

	Name of the Company	2009	2010	2011	2012	2013
1	Access Kenya	1,771,307,000	1,615,161,000	2,415,111,000	2,265,714,000	2,499,648,000
2	Athi River Mining	12,141,091,000	16,564,900,000	20,515,940,000	26,953,100,000	31,378,329,700
3	Bamburi Cement	32,112,000,000	33,306,000,000	33,502,000,000	43,038,000,000	43,345,400,000
4	Barclays Bank	164,875,000,000	172,415,000,000	167,029,000,000	184,825,000,000	206,739,000,000
5	BOC Kenya Ltd	1,988,401,000	2,019,810,000	1,816,803,000	1,989,541,000	1,882,265,400
6	BAT	10,553,206,000	11,121,561,000	13,750,545,000	15,176,495,000	16,062,419,300
7	Car & General Kenya	3,210,498,000	3,871,293,000	5,562,239,000	5,705,400,000	6,698,440,300
8	Carbacid Kenya	1,376,380,000	1,512,166,000	1,739,985,000	2,012,816,000	2,161,223,300
9	CMC Holdings	13,293,168,000	14,667,707,000	14,579,112,000	12,957,113,000	14,450,073,400
10	Crown Paints	1,858,452,000	1,972,337,000	2,215,352,000	2,258,263,000	2,343,596,200
11	Centrum	6,460,427,000	9,840,000,000	15,003,000,000	15,721,000,000	21,406,000,000
12	CFC Stanbic	127,690,950,000	140,080,202,000	150,171,015,000	143,212,155,000	180,511,797,000
13	Co-operative Bank	110,678,000,000	154,339,000,000	168,312,000,000	200,588,000,000	231,215,000,000
14	Diamond Trust Bank	66,679,080,000	83,600,177,000	107,765,064,000	135,461,412,000	166,520,351,000
15	Eaagads	260,061,000	3,076,491,000	354,922,000	573,356,000	499,424,100
16	East African Breweries	34,546,993,000	38,218,440,000	49,519,364,000	54,584,316,000	59,635,659,900
17	East African Cables	3,543,383,000	4,518,445,000	4,993,032,000	6,248,642,000	6,827,343,100
18	East African Portland Cement	12,035,963,000	12,037,565,000	13,530,871,000	14,091,006,000	15,612,819,000
19	Eveready East Africa	997,672,000	1,195,824,000	1,016,908,000	1,150,729,000	1,233,503,200
20	Express Kenya	1,304,116,000	1,341,699,000	766,798,000	495,609,000	389,564,800
21	Equity Bank	100,812,000,000	143,018,000,000	196,294,000,000	243,170,000,000	277,729,000,000
22	HFCK	18,239,359,000	29,278,396,000	31,870,916,000	40,967,577,000	47,389,377,000
23	Jubilee Holdings	23,679,814,000	30,691,382,000	38,039,832,000	47,257,540,000	61,159,185,000
24	Kakuzi	2,873,255,000	3,218,590,000	3,817,320,000	3,571,700,000	4,057,404,900
25	Kapchorua Tea Company	1,167,797,000	1,498,931,000	1,570,203,000	1,962,897,000	2,145,602,400
26	KenGen	108,603,879,000	150,566,886,000	160,993,290,000	163,144,873,000	187,468,112,300
27	KenolKobil	29,435,336,000	30,372,909,000	45,974,304,000	32,684,166,000	41,182,096,200
28	Kenya Airways	75,979,000,000	73,263,000,000	78,743,000,000	77,432,000,000	77,659,800,000
29	Kenya Orchards	78,703,987	74,491,123	70,372,491	68,936,272	70,597,300
30	Kenya Power & Lighting	71,563,808,000	85,025,890,000	121,171,515,000	134,131,983,000	153,815,292,300
31	KCB Bank	195,015,488,000	251,356,200,000	330,663,959,000	368,018,785,000	390,851,579,000
32	Kenya Reinsurance Coorporation	15,001,000,000	17,241,000,000	19,096,000,000	23,788,000,000	28,223,000,000
33	Liberty Kenya Ltd	12,340,921,000	23,827,329,000	23,895,777,000	27,372,100,000	31,452,190,000
34	Limuru Tea	84,794,000	158,305,000	191,242,000	320,023,000	351,711,000
35	LongHorn Kenya	431,357,000	523,000,000	709,653,000	661,675,000	778,232,400
36	Marshalls East Africa	1,433,970,000	1,126,208,000	1,076,865,000	567,095,000	589,913,100
37	Mumias Sugar	17,475,715,000	18,081,787,000	22,927,399,000	27,400,113,000	29,591,545,400
38	Nation Media Group	6,572,400,000	7,975,200,000	8,816,300,000	10,677,400,000	11,240,390,000
39	National Bank of Kenya	51,404,408,000	60,026,694,000	68,664,516,000	67,178,607,000	92,555,717,000
40	NIC Bank	47,558,241,000	59,013,922,000	78,984,005,000	108,348,593,000	121,052,739,000
41	Olympia Capital Holdings	787,577,000	974,479,000	1,074,236,000	1,867,621,000	1,897,407,000
42	Pan Africa Insurance Co.	7,563,815,000	10,671,621,000	11,499,229,000	16,473,522,000	21,157,507,000
43	REA Vipingo Plantations	1,414,084,000	1,707,016,000	2,288,740,000	2,376,618,000	2,592,873,600
44	Safaricom	91,682,324,000	104,120,850,000	113,854,762,000	121,899,677,000	136,356,535,000
45	Sameer Africa	3,005,374,000	3,086,993,000	3,125,040,000	3,399,651,000	3,368,642,800
46	Sasini	7,998,233,000	9,060,061,000	9,462,027,000	8,922,980,000	10,163,064,000
47	ScanGroup	3,933,148,000	8,009,431,000	8,489,938,000	8,646,961,000	10,861,526,400
48	Standard Chartered Bank	123,778,972,000	142,746,249,000	164,046,624,000	195,352,756,000	220,391,180,000
49	Standard Group	3,003,966,000	3,306,000,000	3,512,257,000	3,501,548,000	3,843,685,100
50	Total Kenya	31,528,196,000	30,375,677,000	35,198,166,000	32,980,604,000	41,095,168,400
51	TPS Serena	6,996,196,000	11,923,137,000	13,131,840,000	13,484,076,000	16,435,390,200
52	Unga Group	5,565,541,000	5,064,420,000	5,708,897,000	6,410,259,000	6,534,374,400
53	Williamson Tea kenya	3,921,165,000	5,328,706,000	6,032,743,000	7,243,227,000	7,285,215,000
	Average	**31,666,150,660**	**38,302,387,512**	**45,010,453,368**	**50,388,513,779**	**57,599,205,866**
					Mean	**44,593,342,237**
					Standard Deviation	**10,119,274,641**

Appendix III: Natural Log (Ln) of Total Assets of firms listed and actively traded at the NSE between 2009 and 2013

	Name of the Company	2009	2010	2011	2012	2013
1	Access Kenya	9.2483	9.2082	9.3829	9.3552	9.3979
2	Athi River Mining	10.0843	10.2192	10.3121	10.4306	10.4966
3	Bamburi Cement	10.5067	10.5225	10.5251	10.6339	10.6369
4	Barclays Bank	11.2172	11.2366	11.2228	11.2668	11.3154
5	BOC Kenya Ltd	9.2985	9.3053	9.2593	9.2988	9.2747
6	BAT	10.0234	10.0462	10.1383	10.1812	10.2058
7	Car & General Kenya	9.5066	9.5879	9.7452	9.7563	9.8260
8	Carbacid Kenya	9.1387	9.1796	9.2405	9.3038	9.3347
9	CMC Holdings	10.1236	10.1664	10.1637	10.1125	10.1599
10	Crown Paints	9.2692	9.2950	9.3454	9.3538	9.3699
11	Centrum	10.1965	10.1762	9.9930	10.1965	10.3305
12	CFC Stanbic	11.1560	11.1766	11.1464	11.1560	11.2565
13	Co-operative Bank	11.0441	11.1885	11.2261	11.3023	11.3640
14	Diamond Trust Bank	10.8240	10.9222	11.0325	11.1318	11.2215
15	Eaagads	8.4151	9.4881	8.5501	8.7584	8.6985
16	East African Breweries	10.5384	10.5823	10.6948	10.7371	10.7755
17	East African Cables	9.5494	9.6550	9.6984	9.7958	9.8343
18	East African Portland Cement	10.0805	10.0805	10.1313	10.1489	10.1935
19	Eveready East Africa	8.9990	9.0777	9.0073	9.0610	9.0911
20	Express Kenya	9.1153	9.1277	8.8847	8.6951	8.5906
21	Equity Bank	11.0035	11.1554	11.2929	11.3859	11.4436
22	HFCK	10.2610	10.4665	10.5034	10.6124	10.6757
23	Jubilee Holdings	10.3744	10.4870	10.5802	10.6745	10.7865
24	Kakuzi	9.4584	9.5077	9.5818	9.5529	9.6082
25	Kapchorua Tea Company	9.0674	9.1758	9.1960	9.2929	9.3315
26	KenGen	11.0358	11.1777	11.2068	11.2126	11.2729
27	KenolKobil	10.4689	10.4825	10.6625	10.5143	10.6147
28	Kenya Airways	10.8807	10.8649	10.8962	10.8889	10.8902
29	Kenya Orchards	7.8960	7.8721	7.8474	7.8384	7.8488
30	Kenya Power & Lighting	10.8547	10.9296	11.0834	11.1275	11.1870
31	KCB Bank	11.2901	11.4003	11.5194	11.5659	11.5920
32	Kenya Reinsurance Coorporation	10.1761	10.2366	10.2809	10.3764	10.4506
33	Liberty Kenya Ltd	10.0913	10.3771	10.3783	10.4373	10.4977
34	Limuru Tea	7.9284	8.1995	8.2816	8.5052	8.5462
35	LongHorn Kenya	8.6348	8.7185	8.8510	8.8206	8.8911
36	Marshalls East Africa	9.1565	9.0516	9.0322	8.7537	8.7708
37	Mumias Sugar	10.2424	10.2572	10.3604	10.4378	10.4712
38	Nation Media Group	9.8177	9.9017	9.9453	10.0285	10.0508
39	National Bank of Kenya	10.7110	10.7783	10.8367	10.8272	10.9664
40	NIC Bank	10.6772	10.7710	10.8975	11.0348	11.0830
41	Olympia Capital Holdings	8.8963	8.9888	9.0311	9.2713	9.2782
42	Pan Africa Insurance Co.	9.8787	10.0282	10.0607	10.2168	10.3255
43	REA Vipingo Plantations	9.1505	9.2322	9.3596	9.3760	9.4138
44	Safaricom	10.9623	11.0175	11.0564	11.0860	11.1347
45	Sameer Africa	9.4779	9.4895	9.4949	9.5314	9.5275
46	Sasini	9.9030	9.9571	9.9760	9.9505	10.0070
47	ScanGroup	9.5947	9.9036	9.9289	9.9369	10.0359
48	Standard Chartered Bank	11.0926	11.1546	11.2150	11.2908	11.3432
49	Standard Group	9.4777	9.5193	9.5456	9.5443	9.5847
50	Total Kenya	10.4987	10.4825	10.5465	10.5183	10.6138
51	TPS Serena	9.8449	10.0764	10.1183	10.1298	10.2158
52	Unga Group	9.7455	9.7045	9.7566	9.8069	9.8152
53	Williamson Tea kenya	9.5934	9.7266	9.7805	9.8599	9.8624
	Average	9.9335	10.0252	10.0529	10.0959	10.1417
					Mean	**10.0498**
					Std Deviation	**0.0786**

Appendix IV: ROA of firms listed and actively traded at the NSE between 2009 and 2013

	Name of the Company	2009	2010	2011	2012	2013
1	Access Kenya	0.1391	(0.0045)	0.0675	0.0627	0.0758
2	Athi River Mining	0.2962	0.0279	0.0072	0.0414	0.0742
3	Bamburi Cement	0.3401	0.2356	0.2542	0.2142	0.1282
4	Barclays Bank	0.0361	0.0643	0.0471	0.0523	0.0412
5	BOC Kenya Ltd	0.1126	0.0577	0.1064	0.1578	0.1550
6	BAT	0.2046	0.2580	0.4032	0.3458	0.3604
7	Car & General Kenya	0.1016	0.1025	0.1105	0.0637	0.0804
8	Carbacid Kenya	0.3034	0.3183	0.2475	0.3077	0.3153
9	CMC Holdings	0.0671	0.0440	0.0143	0.0159	0.0154
10	Crown Paints	0.0718	0.0912	0.1017	0.1012	0.1477
11	Centrum	0.0400	0.1693	0.2331	0.0793	0.1596
12	CFC Stanbic	0.0056	0.0110	0.0117	0.0200	0.0358
13	Co-operative Bank	0.0356	0.0414	0.0348	0.0459	0.0454
14	Diamond Trust Bank	0.0344	0.0519	0.0515	0.0377	0.0386
15	Eaagads	0.0608	0.1672	0.0330	0.1019	0.1452
16	East African Breweries	0.3546	0.3638	0.3208	0.3080	0.2036
17	East African Cables	0.1730	0.0730	0.1029	0.1509	0.0937
18	East African Portland Cement	0.0923	0.0281	0.0099	0.0628	0.1007
19	Eveready East Africa	0.0496	0.0148	0.1448	0.0678	0.0525
20	Express Kenya	0.0196	0.0114	0.1657	0.0173	0.0034
21	Equity Bank	0.0669	0.0897	0.0897	0.0887	0.0782
22	HFCK	0.0164	0.0208	0.0213	0.0233	0.0243
23	Jubilee Holdings	0.0452	0.0777	0.0622	0.0601	0.0530
24	Kakuzi	0.2090	0.1944	0.2859	0.1487	0.0670
25	Kapchorua Tea Company	0.1016	0.1709	0.1791	0.0717	0.1224
26	KenGen	0.0426	0.0229	0.0243	0.0251	0.0251
27	KenolKobil	0.0698	0.0964	0.1624	0.1950	0.0173
28	Kenya Airways	0.0738	0.0352	0.0683	0.0273	0.1398
29	Kenya Orchards	(0.0241)	0.0071	0.0096	0.0035	0.0350
30	Kenya Power & Lighting	0.0800	0.0789	0.0736	0.0702	0.0000
31	KCB Bank	0.0214	0.0368	0.0437	0.0369	0.0390
32	Kenya Reinsurance Coorporation	0.0953	0.1028	0.1110	0.1467	0.1261
33	Liberty Kenya Ltd	(0.0640)	0.0211	0.0399	0.0359	0.0404
34	Limuru Tea	0.6704	1.2304	0.3781	0.7667	0.0588
35	LongHorn Kenya	0.0768	0.0635	0.4074	0.0366	0.2287
36	Marshalls East Africa	0.0971	0.2404	0.1612	0.1537	0.1940
37	Mumias Sugar	0.0843	0.1247	0.1464	0.0769	0.0816
38	Nation Media Group	0.2444	0.3266	0.2516	0.3975	0.3360
39	National Bank of Kenya	0.0343	0.0393	0.0258	0.0107	0.0166
40	NIC Bank	0.0255	0.0392	0.0459	0.0384	0.0299
41	Olympia Capital Holdings	0.0489	0.0082	0.0361	0.0226	0.0042
42	Pan Africa Insurance Co.	0.0228	0.0779	0.0415	0.0522	0.0759
43	REA Vipingo Plantations	0.1863	0.6836	0.2117	0.1614	0.1896
44	Safaricom	0.0030	0.0007	0.0014	0.0026	0.0037
45	Sameer Africa	0.2470	0.4600	0.3285	0.0273	0.0466
46	Sasini	0.0801	0.1048	0.1413	0.1157	0.1164
47	ScanGroup	0.0998	0.1153	0.0290	0.0313	0.0348
48	Standard Chartered Bank	0.0478	0.0434	0.0409	0.0492	0.0474
49	Standard Group	0.2731	0.4622	0.0175	0.0183	0.5953
50	Total Kenya	0.0358	0.0220	0.0281	0.0205	0.0295
51	TPS Serena	0.0214	0.0619	0.0432	0.0307	0.0360
52	Unga Group	0.2316	0.3514	0.3561	0.2982	0.3584
53	Williamson Tea kenya	0.0307	0.2234	0.1660	0.1417	0.1181
	Average	0.1101	0.1464	0.1226	0.1064	0.1064
					Mean	**0.1184**
					Std Deviation	**0.0170**

Appendix V: Capital Expenditure of firms listed and actively traded at the NSE between 2009 and 2013

	Name of the Company	2009	2010	2011	2012	2013
1	Access Kenya	1,003,967	530,550	349,975	390,181	287,915
2	Athi River Mining	687,418	1,138,100	1,269,759	859,086	1,252,403
3	Bamburi Cement	593,140	1,057,590	426,221	423,547	889,832
4	Barclays Bank	3,582,000	1,388,000	975,000	886,000	673,000
5	BOC Kenya Ltd	15,657	27,025	13,664	32,180	52,404
6	BAT	547,847	235,237	1,091,680	490,703	800,853
7	Car & General Kenya	15,336	27,060	167,203	20,586	29,152
8	Carbacid Kenya	517,175	13,404	55,113	30,348	176,898
9	CMC Holdings	255,307	169,888	339,750	98,486	255,155
10	Crown Paints	36,658	13,762	51,802	34,557	43,300
11	Centrum	1,724	10,045	2,512,361	130,585	1,940,988
12	CFC Stanbic	1,824,096	562,373	610,210	295,152	348,213
13	Co-operative Bank	2,357,588	1,745,494	3,601,239	3,060,120	2,595,833
14	Diamond Trust Bank	900,646	438,509	666,208	1,258,974	3,051,222
15	Eaagads	8,541	16,966	3,504	32,706	171,037
16	East African Breweries	923,574	1,003,728	3,019,762	6,332,947	4,421,779
17	East African Cables	111,555	55,210	15,631	58,321	45,737
18	East African Portland Cement	336,185	179,909	191,360	115,552	239,475
19	Eveready East Africa	277,009	396,835	11,415	76,059	543,324
20	Express Kenya	6,264	68,422	84,200	40,226	61,796
21	Equity Bank	2,197,000	2,203,000	2,698,000	4,145,000	4,480,000
22	HFCK	11,801	62,521	180,850	162,930	404,036
23	Jubilee Holdings	127,721	112,811	96,719	99,432	576,430
24	Kakuzi	1,151,353	4,973,037	6,948,048	2,678,696	5,446,591
25	Kapchorua Tea Company	49,800	277,827	487,512	360,898	414,917
26	KenGen	1,278,510	1,159,496	1,177,976	1,589,938	1,166,287
27	KenolKobil	1,192,604	155	1,532,657	134,068	701,345
28	Kenya Airways	3,891,378	5,422,189	6,416,238	8,275,311	8,612,354
29	Kenya Orchards	-	-	20,000	-	-
30	Kenya Power & Lighting	158,305	139,868	135,016	256,030	194,778
31	KCB Bank	3,639,527	2,272,587	1,957,586	2,778,753	2,465,437
32	Kenya Reinsurance Coorporation	30,489	69,838	13,765	59,208	203,181
33	Liberty Kenya Ltd	176,339	81,487	116,503	120,389	48,969
34	Limuru Tea	14,328	64,072	42,352	49,274	42,655
35	LongHorn Kenya	7,439,834	5,886,120	8,328,458	218,511	7,016,417
36	Marshalls East Africa	3,943	17,569	14,563	20,391	25,872
37	Mumias Sugar	226,282	42,913	32,930	50,325	92,304
38	Nation Media Group	141,384	101,954	58,012	30,173	82,751
39	National Bank of Kenya	440,294	620,627	1,056,880	1,069,980	920,544
40	NIC Bank	822,130	200,998	685,252	713,630	447,986
41	Olympia Capital Holdings	39,538	10,990	57,597	9,156	985
42	Pan Africa Insurance Co.	513,643	98,744	57,622	117,224	70,499
43	REA Vipingo Plantations	336,238	26,192	22,170	27,324	84,736
44	Safaricom	22,066	426,181	98,029	225,188	28,509
45	Sameer Africa	119,493	306,562	109,156	171,800	67,327
46	Sasini	112,377	362,197	122,661	200,411	67,283
47	ScanGroup	105,262	417,831	136,166	229,022	67,238
48	Standard Chartered Bank	1,120,922	1,455,401	720,724	658,691	479,155
49	Standard Group	98,147	473,465	149,671	257,633	67,194
50	Total Kenya	91,031	529,099	163,176	286,244	67,150
51	TPS Serena	83,916	584,733	176,681	314,855	67,105
52	Unga Group	62,569	751,636	217,196	400,688	66,973
53	Williamson Tea kenya	72,601	78,492	84,575	210,971	145,889
	Average	**750,425**	**722,806**	**935,298**	**765,820**	**990,627**
					Mean	**832,995**
					Std Deviation	**121,229**