THE RELATIONSHIP BETWEEN CAPITAL BUDGETING TECHNIQUES AND FINANCIAL PERFORMANCE OF NON-FINANCIAL FIRMS LISTED AT NAIROBI SECURITIES EXCHANGE

BY

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October, 2014
DECLARATION

STUDENT’S DECLARATION

This research project is my own original work and has not been presented for examination in any other University.

Signed: ……………………

Julius Wahome Wokabi  Date: …………………………….

SUPERVISOR’S DECLARATION

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

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

Mr. Cyrus Mwangi
ACKNOWLEDGEMENT

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DEDICATION

I wish to dedicate this work to my wife Margaret Waihuini and my two children David Wokabi and Esther Wangari. They all inspired me to work hard.

God bless them all.
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<tr>
<td>ARR</td>
<td>Accounting Rate of Return</td>
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<tr>
<td>BSC</td>
<td>Balanced Scorecard</td>
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<td>CBA</td>
<td>Cost Benefit Analysis</td>
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<td>CBK</td>
<td>Central Bank of Kenya</td>
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<td>CMA</td>
<td>Capital Markets Authority</td>
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<tr>
<td>DCF</td>
<td>Discounted Cash Flow</td>
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<tr>
<td>EAIT</td>
<td>Earnings After Interest and Taxes</td>
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<tr>
<td>EPS</td>
<td>Earnings per Share</td>
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<tr>
<td>IRR</td>
<td>Internal Rate of Return</td>
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<tr>
<td>MIRR</td>
<td>Modified Internal Rate of Return</td>
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<tr>
<td>MM</td>
<td>Modigliani and Miller</td>
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<tr>
<td>NOI</td>
<td>Net Operating Income</td>
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<td>NPV</td>
<td>Net Present Value</td>
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<tr>
<td>NSE</td>
<td>Nairobi Securities Exchange</td>
</tr>
<tr>
<td>PI</td>
<td>Profitability Index</td>
</tr>
<tr>
<td>PBP</td>
<td>Payback Period</td>
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ROA: Return on Assets

ROCE: Return on Capital Employed

U.S.A United States of America

WACC: Weighted Average Cost of Capital
ABSTRACT

The main objective of this study was to investigate the relationship between capital budgeting techniques and financial performance of non-financial firms listed at Nairobi Securities Exchange. The study employed a descriptive design to determine the relationship between capital budgeting techniques and financial performance of non-financial firms listed at Nairobi Securities Exchange. The target population consisted of all the 50 non-financial companies listed at The Nairobi Securities Exchange as at 30th December 2013 (see appendix II). The study employed a census survey, because NSE had only 50 non-financial firms that were listed, therefore the whole population of the companies was included in this study. Thus, no sampling procedure was conducted. The study employed both primary and secondary data. The data was collected through questionnaires which were administered by the researcher using drop and pick later method. The secondary data was collected from the published accounts of the companies. The published accounts were obtained from Capital Markets Authority (CMA) and NSE library. Regression analysis was used to test the relationship between capital budgeting techniques and financial performance. The study established that holding all factors (Capital budgeting techniques, size of the firm and age of the company, factors affecting return on investment. The findings presented also shows that taking all other independent variables at zero, a unit increase in capital budgeting techniques will lead to an increase in the scores of return on investment. A unit increase in size of the firm will lead to an increase in return on investment. On the other hand, a unit increase in age of the company will lead to an increase in the scores of return on investment. This infers that age of the company influences return on investment most followed by capital budgeting techniques and size of the firm. The study also established a significant relationship between return on investment and the independent variables; capital budgeting techniques and age of the company. The results of the regression analysis show that the capital budgeting techniques significantly affect firm performance, measured by return on investments. Ranking of the individual independent variables, it shows that, age of the company is highly related with return on investments, followed by capital budgeting techniques, size of the firm respectively. Theoretically, the use of sophisticated capital budgeting techniques should increase the effectiveness of the firms’ performance. Thus, the results of this study concurred with the four theories that underpin the study. Based on the findings the study recommends the managers feel that capital budgeting is at times implemented without adequate education to implementers and ill fitting financial and operating structures.
CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Capital expenditure decisions involve the effective acquisition, maintenance, and divestiture of and from real assets. A capital project increases the firm’s value if and only if its incremental cash flows are positive (Edvinsson and Malone, 2007). Therefore one of the key determinants of the survival and success of a firm is how capital expenditure decisions are made by its management. In recent years, sophisticated capital budgeting techniques have been proposed to help managers in this task. Many a time however, there is reluctance on the part of management to employ the latest techniques to assist them make the crucial decisions. Research has attributed this to reasons such as that the techniques at first appear too obscure, impractical or time consuming (Freeman, 2011). It is probably also due to the fact that it seems to be human nature to continue using proven and time tested techniques and avoid change.

Capital budgeting is a critical area of financial performance that not only consumes a lot of resources in today’s business, but demands the attention of managers from inception of a project through growth stage to its maturity (Pike and Dobbins, 2006). However, in finance literature, capital investments are often described as long-term investments. Long-term investments are difficult to deal with because risk and uncertainty must be accounted for, in addition to series of forecasting, implementation and monitoring of long-range decisions. Capital budgeting determines the shape and structure of a company and affects its competitive advantage (Edvinsson and Malone, 2007).

Studies by Arnold and Hatzopoulos (2010) in the United States (U.S.) concerning the use of capital budgeting techniques indicate that the sophistication of analytical techniques used by U.S. executives have increased over time. Specifically, they have shifted from non-
discounted cash flow techniques like Accounting Rate of Return (ARR) and Payback Period (PP) to the use of the theoretically more accurate discounted cash flow techniques, such as Net Present Value (NPV) and the Internal Rate of Return (IRR). However, theoretically less accurate models such as PP continue to be popular, they argue, as back-up tools to methods that adjust for time value of money. Of the time-adjusted methods, studies show the IRR technique seems to be the preferred method, while the Profitability Index (PI) is the least popular (Kidwell et al. 2003).

Studies in Africa also show that given a certain scenario, companies evaluate their finances differently with some companies requiring significant time and strategic processing in order to approve capital expenditures (Bontis, 2008). Other companies, however, use simpler analytical techniques that require nothing more than the approval of a project by several departments inside the company. Bontis (2008) argues that some companies evaluate capital expenditures with more advanced capital budgeting techniques, such as NPV and IRR, while other companies use PP and ARR techniques. In similar findings, Myers (2004) state that there are companies that have very complicated capital budgeting systems in place, while their competitors may agree on a project by a simple majority vote of the board of directors.

In Kenya, capital expenditure planning has assumed a new dimension and has been given much attention both in finance literature and in practice (Njiru, 2003). This is because capital expenditures involve committing huge sum of money, whose benefits extend well ahead into the future, and the future is said to be clouded with risk and uncertainty and once committed, capital expenditure is irreversible. Thus, capital expenditure has huge impact on the future profitability and value creation of a company. Copeland et al. (2010) note that for a successful and effective capital expenditure planning, certain activities are necessary and should be given due attention. These are strategic analysis, establishing investment goals, searching for investment opportunities, forecasting cash flows of the investment, evaluating
the risk of adjusted future cash flows, decision making, and implementing accepted opportunities and post audit procedures.

1.1.1 Capital Budgeting Techniques

Capital investment decisions that involve the purchase of items such as land, machinery, buildings, or equipment are among the most important decisions undertaken by the business manager. These decisions typically involve the commitment of large sums of money, and they will affect the business over a number of years. Furthermore, the funds to purchase a capital item must be paid out immediately, whereas the income or benefits accrue over time. Because the benefits are based on future events and the ability to foresee the future is imperfect, considerable effort should be made to evaluate investment alternatives as thoroughly as possible (Bontis, 2008).

Some of these techniques are Accounting Rate of Return, Pay Back Period, Internal Rate of Return and Profitability Index.

A key component of capital investment is Capital budgeting which is the process of analysing investment opportunities in long-term assets which are expected to produce benefits for more than one year (Peterson and Fabozzi, 2002). A central feature of any investment analysis is DCF, which takes into consideration the time value of money, is regarded as theoretically correct, and includes at least four different discounting models: NPV, IRR, modified internal rate of return (MIRR), and profitability index (PI) (Brigham et al. 1999). The estimates used to analyze capital investments are projections of future conditions. Therefore capital investments involve risk because of the uncertainties surrounding the key variables involved in the analysis. Consequently, the analyst making the investment calculations and management using these results for decision purposes must allow for a whole range of
possible outcomes. Even the best estimates can go wrong as events unfold; yet the decisions have to be made ahead of time.

1.1.2 Financial Performance

Traditionally, firms relied on their tangible assets to drive their performance and firm-level strategy. Financial measures are regarded as “lag” indicators of performance whereas Intellectual capital measures (like non-financial measures) are regarded as “lead” indicators since they are mainly intended to generate future earnings power. While all future earnings are uncertain, it is greater for intellectual capital than for tangible assets. Hamilton (2010) asserts that fund managers in forecasting their valuation of firms use financial information. The performance of business organizations is affected by their strategies and operations in market and non-market environments. Sizeable, long-term investments in tangible and intangible assets have long term consequences. An investment today will determine the firm’s strategic position for many years. They further state that these investments also have a considerable impact on the organization’s future cash flows and the risk associated with those cash flows. A business’ cost of capital provides both a benchmark to evaluate its performance and a discount rate for evaluating capital investments (Klammer, 2011). Inadequate evaluation and decision tools risk the possibility of applying scarce resources to areas, which promote a return less than the cost of capital.

The limitations on financial statements in explaining firm value underline the fact that the source of economic value is no longer the production of material goods, but the creation of intellectual capital. Intellectual capital includes human capital and structural capital wrapped up in customers, processes, databases, brands, and systems (Modigliani and Miller, 2003), and has been playing an increasingly important role in creating corporate sustainable competitive advantages. The use of financial ratios for business analysis is common, and
hence, almost cliché. Ratio analysis techniques can be considered a business analysis paradigm as an established point of view (Kennerley, 2002). Considering these facts, encouraging industry operators to apply the techniques of ratio analysis to assess their performance requires a simple framework that compresses a large amount of data into a small set of performance indicators. These performance indicators must include intangible, non-financial elements that are often critically important to operators.

1.1.3 Relationship between Capital Budgeting and Financial Performance

Companies create value by making investments, some short term and others long term. Before proceeding with capital investments, a company must first set its goals with respect to which market/s it wants to compete. The company must then develop a strategy, firstly by analysing the macro-environment for threats and opportunities; and secondly by assessing the companies own strengths and weaknesses. How much capital is available to spend will restrict the number of investments a company can make (Reeb et al, 2008). Searching for viable investment opportunities can either arise as a result of creativity within the organisation (Stein, 2006) or a need to improve operations within the organisation. An example of this would be an aging critical asset which poses a risk of production losses to the business.

Both empirical and survey studies have been conducted in the capital budgeting field over the years. Amir and Lev (2006) conducted a survey study to prove a causal relationship between the firm’s performance and the sophistication of its capital investment procedures and practices. He surveyed 369 manufacturing firms to determine the level of sophistication of each firm. The unit of measurement for performance was the operating rate of return. Amir and Lev (2006) also created dummy variables for the use or non-use of discounted and non-discounted valuation techniques, profit contribution, firm size, firm’s risk and capital
intensity of the firm. Regression analysis was then used to formulate a linear relationship between these factors. The result was that the accounting rate of return and discounting variables were found to have a negative performance relationship. One of the performance measurement used by Amir and Lev (2006) was the return on assets, which describes the operating performance and not the effectiveness of the capital investments.

1.1.4 Nairobi Securities Exchange

The Nairobi Securities Exchange began in the early 1920s while Kenya was considered a colony under British control. It was an informal market place for local stocks and shares. By 1954, a true stock exchange was created when the NSE was officially recognized by the London Stock Exchange as an overseas stock exchange (NSE, 2013). After Kenyan independence from Britain, the stock exchange continued to grow and became a major financial institution. The facilities have modernized since the original "handshake over coffee" method of trading. The NSE has recently adapted an automated trading system, to keep pace with other major world stock exchanges. For continued listing in the Nairobi Securities Exchange, companies are required to establish audit committees and comply with guidelines on corporate governance issued by the Capital Markets Authority. The Capital Markets Authority was created pursuant to the Capital Markets Act, Chapter 485a for the purpose of promoting, regulating and facilitating the development of an orderly, fair and efficient Capital Markets in Kenya. The authority has issued guidelines on corporate Governance practices for listed companies in Kenya (CMA, 2002).

The share prices in the Nairobi Securities Exchange usually vary with time and this can be attributed to factors such as changes in the economic growth of the region, threat of war or strikes, government policies or political changes. Share prices movements in the NSE market are measured by an index based on 20 representative companies and is calculated on a daily
basis. The index is a general price movement indicator based on a sample or upon all the stock market companies and the sale and purchase decisions are based on its movements (NSE, 2013). Currently, there are 61 listed companies where 50 of them are non financial firms.

In Kenya, the nature of capital structure greatly influences the performance of many firms listed in Nairobi Securities Exchange. Firms seek both debt and equity capital by way of Initial Public Offer (IPO) and bonds. The choice could be an impediments to its growth, the main among them being shareholder composition, size and type of investor, and the listing requirements (NSE, 2005). The companies that are owned by Kenyans only, or those that are subsidiaries of foreign companies have a low likelihood of being listed while a company with mixed shareholding has the highest likelihood of getting listed. The larger the investor the more likely it is that they will use the NSE as an investment vehicle and also the larger the company the more likely it is to be listed. The listing requirements, including the fees negatively affect the likelihood of listing.

The regulatory environment at the Nairobi Securities Exchange in Kenya is considered to be very strict. This drives firms to rely on borrowing rather than increasing equity financing. The businesses of the listed companies are always on the look out to increase the debt finance in their capital structure, in anticipation of improving their performance. The principle of increasing risk indicates that, with increased debt the potential for a decrease in gain is higher than the potential for an increase in gain and yet some firms use more debt than others and still perform better. In Kenya, in a survey of enterprise attitudes, Wagacha (2001) found that firms seemed to increase their borrowing after listing. For large listed firms the debt to equity ratios seemed to rise, while for the small firms they fell, indicating that market development favoured large listed firms. From companies’ annual reports it is evident that many
companies quoted at NSE do not pay dividends consistently, and when they pay, the level of payout is very low contrary to shareholders’ expectations.

1.2 Research Problem

After the 2008 economic crisis, capital budgeting has been a very sort-out topic by both the academics and industry practitioners, more so in the manufacturing sector which is very capital intensive (Hamilton, 2010). Globalisation resulted in products and markets opening up to new competitors. To meet and exceed investor expectations, firms must formulate strategies that give them above average returns (Holland, 2003). In modern financial management, managers are required to allocate pre-determined capital among multiple projects to diversify corporate risk. It is usual that a manager has to allocate available capital among multiple risky projects. Thus, an optimal investment allocation strategy among these projects is critical in a corporate investment decision-making process.

The following studies have been done locally Kadondi (2002) and Maingi (2006) conducted studies on capital budgeting techniques used by companies listed at NSE. The study objective was to find out the capital budgeting techniques used in investment appraisal by corporations in Kenya and determine if those techniques used confirm the existing theory and practices of organisations in those developed states. Local studies conducted so far examine capital budgeting techniques employed by commercial banks. Njiru (2008) carried out a study and looked at the capital investment appraisal from the point of view of shareholder wealth maximization and wanted to find out the most commonly used capital investment appraisal techniques by commercial parastatals and also determine the factors that influence the choice of the technique used. Oyaro (2009) studied the capital budgeting techniques for insurance companies in Kenya. The research reviewed that discounted cash flow methods used preferred to the simpler methods like internal rate of return and payback. The impact of
capital budgeting techniques on the financial performance of courier companies in Kenya by Pike (2007) which sought to determine the impact of capital budgeting techniques on financial performance of courier companies in Kenya.

Much of the early work on capital budgeting and capital budgeting techniques did not look into the relationship between capital budgeting practices and financial performance. There is therefore a gap as far as studying the relationship between capital budgeting practices and financial performance among the non-financial firms listed firms is concerned. It is evident from the above review that the relationship between capital budgeting practices and financial performance of non-financial firms listed firms has not been done fully. In addition, most of the studies conducted have been in developed countries and they are not conclusive. The study therefore aimed to answer the following research question: What is the relationship between capital budgeting techniques and financial performance of non-financial firms listed at Nairobi Securities Exchange?

1.3 Research Objective

To investigate the relationship between capital budgeting techniques and financial performance of non-financial firms listed at Nairobi Securities Exchange

1.4 Value of the Study

This research will provide a comprehensive theory and opinions for listed non-financial firms to set up capital budgeting processes that fit their own developing need, and will help companies to check faults in their companies. The four main benefits of the study are; doing sufficient research will reduce some avoidable mistakes in the practical application of the capital budgeting process, during the research study, the advantages and disadvantages of various capital budgeting methods will be identified to deal with practices of the listed non-
The study will focus on providing comprehensive illustrations of concepts, methods and approaches for capital budgeting processes.

The study will be of importance to the following stakeholders:

The study will help Commercial Banks’ policymakers to have a clear understanding of how capital investment influences financial performance of the commercial banks. The study will make multiple contributions to the literature on capital investment through investigation of optimal investment decisions in continuous-time downside risk-based capital investment system.

The study will come in handy to support the Government and CBK as regulators in their quest to streamline operations in the banking sector putting in mind that the economy as a whole inches on how the banking sector performs. Inappropriate resource allocation can hinder growth in the economy. There is a contagion effect between banks performance and economic performance which have a direct impact on employment levels, economic growth, inflation levels etc.

To Firms quoted on the Nairobi Securities Exchange (NSE) due to the nature of quoted companies, stringent standards of governance and financial propriety are expected, including application of best practices when selecting capital expenditure projects. This study may assist managers of these firms to benchmark their current practices and those of the surveyed firms.
To Non-Financial Firms the firms will set standards of operational capacity in terms of capital and investment requirements. Since this study will show the extent to which firms use various aids to decision making, management of the firms can use the study as a benchmark their firms can use against industry practice. This would lead to general improvement of standards in decision making.

In addition study paves the road for further research on continuous-time downside risk in making investment decisions. Students interested in Finance as a subject will find it useful and build on the existing body of knowledge.
CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The literature review in this study gave some theories done on this subject as well as what some recent studies have found on the relationship between capital budgeting techniques and financial performance. The study specifically covered the theoretical discussions, empirical literature and concludes with the summary of literature review.

2.2 Theoretical Framework

This section reviewed four theories on capital budgeting practices namely Trade-off theory, Contemporary Capital Budgeting Theory, Real Options Theory and the Pecking-order Theory and they were presented in the subsequent sections;

2.2.1 Trade - Off Theory

The trade-off theory as first developed by (Modigliani and Miller, 1963) argues that firms have optimal debt ratios based on the trade-off between the tax deductibility of interest expenses and the costs of financial distress. The findings of (Sullivan, 1996) and (Brounen et al. 2004) are that most companies do have a target range, but only a few of them have a strict target.

The trade-off theory of capital structure supposes that in order to maintain a target range, firms should be constantly rebalancing their target to keep up with stock price changes. However, observed target ratios may be changing over time even though firms do have a set range. Transaction costs and fees for issuing debt affect the decisions of only half of the Chief Finance Officers when they choose the appropriate amount of debt for their firms.
2.2.2 Contemporary Capital Budgeting Theory

Trade-off theory which was discussed in the previous paragraph assumes that cash flows are permanent and indefinite. However, more often than not, investment projects have limited useful lives in the real world. In capital budgeting five important elements must be considered: the initial investment, the operating cash flow, the useful life of the project, the salvage value, and the cost of capital. In most literature a fixed serviceable life is assumed, so the project will be in place for a few years, and, after that period, it will be closed. This view is put forward by Kuhn (2010), and Mintzberg (1999). The implication is that, upon the close of the project, the venture is to be dissolved, so the company must pay back the par value of bonds to bondholders and the par value of common shares to stockholders.

Therefore, unlike in Trade-off theory, depreciation is not accumulated from year to year to replace the capital asset. Instead it is added back to the NOI to increase the operating cash flow for the investors. The initial investment is the amount of capital required upfront to start a project which includes, but is not limited to, the purchase price of the capital asset, sales taxes, transportation cost, installation cost, and the working capital needs. In Trade-off theory, the investors never recapture the initial investment because the project will go on forever; in current theory this amount is recovered through the operating cash flows from the project. The operating cash flow in current theory is the cash inflow to the investors from the project.

2.2.3 Real Options Theory

If financial managers treat projects as black boxes, they may be tempted to think only of the first accept–reject decision and to ignore the subsequent investment decisions that may be tied to it. But if subsequent investment decisions depend on those made today, then today’s decision may depend on what you plan to do tomorrow. Real options are
options to modify projects (Ryan, 2002). Amir et al. (2003) offered a standard pricing model for financial options. Together with Webster (1998), they recognized that option-pricing theory could be applied to real assets and non-financial investments. To differentiate the options on real assets from the financial options traded in the market, Myers coined the term “real options”, which has been widely accepted in academic and industry world. Unlike the standard corporate resource allocation approaches, the real options approach acknowledges the importance of managerial flexibility and strategic adaptability. Its superiority over other capital budgeting methods like discounted cash flow (DCF) analysis has been widely recognized in analyzing the strategic investment decisions under uncertainties.

Salterio (2000) argues that traditional approaches to capital budgeting, such as discounted cash-flows (DCF), cannot capture entirely the project value, for different reasons: it is assumed that investment decisions are irreversible, interactions between decisions today and future decisions are not considered, and investment in assets seems to be a passive one that is management doesn’t interfere during the life of the project. He adds that managerial flexibility generates supplementary value for an investment opportunity because of managerial capacity to respond when new information arises, while the project is operated. Investment in real assets includes a set of real options that management can exercise in order to increase assets value under favorable circumstances or limit losses under unfavorable situations. Managerial flexibility in decision-making process introduces an asymmetry for the probability distribution of NPV for a project.

An investment opportunity value is dependent on future uncertain events, so it will be greater than forecasted value in the situation of passive management. This traditional view states that a project has a standard value, determined through traditional techniques like DCF. Contrary to this view, Kennerley (2002) captures adaptability, strategic value, and also a
supplementary value, coming from operational and strategic real options held by an active management. According to him when you use discounted cash flow (DCF) to value a project, you implicitly assume that the firm will hold the assets passively. After managers have invested in a new project, they must run with it so that if things go well, the project may be expanded; if they go badly, the project may be cutback or abandoned altogether. It follows therefore that projects that can easily be modified in these ways are more valuable than those that don’t provide such flexibility. The more uncertain the outlook, the more valuable this flexibility becomes a factor which cannot be measured using DCF methods.

2.2.4 Pecking-Order Theory

The pecking-order theory argues that, because of information asymmetry, firms choose to use their retained earnings first to finance their investments (Tufano, 1995). When internal financing does not suffice, firms issue debt first and equity last. In this model, firms do not have a set target ratio.

Having enough slack would allow firms to minimize the costs of information asymmetry associated with external financing. Studies show that majority of Chief Finance Officers appreciate financial flexibility, more so when the proportion of managerial ownership is higher. Most managers confirm that debts are issued when their internal funds are insufficient to fund their activities. Sometimes a firm’s inability to obtain funds using debt affects their decisions to issue common stock. As in (Simons, 1990), there is weak support for either the trade-off or the information asymmetry-based pecking-order theory of capital structure.
2.3 Determinants of Financial Performance of Listed Companies

Firm’s financial performances have been associated with economic indicators, corporate governance, ownership structure, capital structure and risk management. Commonly used financial ratios can be applied to evaluate the performances of operators and top management more accurately. Financial performance measurement is perhaps the most important, yet most misunderstood and most difficult task in management accounting (Atkinson et al. 1995). Neely (1998) suggests that performance measurement is the process of quantifying past action.

2.3.1 Economic Indicators

Economic condition of the country can affect a firm’s performance on multiple fronts. Cost of borrowings can negatively influence the firm's capability to generate finances and invest in projects (Ntim, 2009). Prices of utilities, high costs associated with plant and machinery due to either deterioration of currency or import costs, high inflation rate and low income level of people can decrease the demand for industrial goods and hence negatively impact the firm's performance (Forbes, 2002).

2.3.2 Corporate Governance

Corporate governance practices are the structures and behaviors that guide how a business entity sets its objectives, develops strategies and plans, monitors and reports its performance, and manage its risk (Reddy, 2010). Researchers are also of the view that good corporate governance practices enhance the performance of the firm (Chugh et al., 2009). There are two models of corporate structure shareholder model and stakeholder model. Shareholder model focuses on the wealth creation of owners while stakeholder model covers broader aspect and
concerns the welfare of all stakeholders and overall firm performance (Maher and Andersson, 1999).

2.3.3 Ownership Structure

Division of ownership into types rests on the dimension that is separation of ownership and control. Berle and Means (2003) developed a dichotomy of ownership and identified two types namely, Owner-controlled firms and managerially controlled firms. McEachern (2001) found it to be insufficient for explanation of ownership structure and its impacts, so he identified three types adding externally controlled firms (Ugurlu, 2000). Owner controlled firms are the ones where the managers are the dominant shareholders. Externally controlled firms are the ones where the managers are not dominant shareholders. Managerially controlled firms are the ones in which no dominant shareholder exists.

According to agency theory if managers of a firm also have ownership stake they are most likely to maximize shareholder wealth (Dutta, 1999). Managerial risk aversion and constraints on wealth, limit the ownership of managers. And ownership can become costly for more diversified managers (Jensen et al., 1992). Number of tradable shares is inversely related to inside ownership (Lin et al., 2011) as most of the shares owned by insiders are restricted from trading (Born, 1988). Through greater monitoring the negative and positive impacts of ownership concentration can be equated, and some time benefits can over weigh the negativities (Kaserer and Moldenhauer, 2008). Insider ownership is negatively related to foreign institutional ownership (Ugurlu, 2000).
2.3.4 Capital Structure

Capital structure is also an important factor that determines the performance of a firm. Capital structure refers to the ratio of debt and equity financing. In case if more debt financing the company has to face certain bankruptcy risk, but there are also some tax and monitoring benefits associated with debt financing (Su and Vo, 2010). It also mitigates the agency conflict by reducing the free cash flow of the firm. There should be an appropriate capital structure that generates the maximum profit for the organization, as too less equity financing increases the control of the owners to a large extent (Abu - Rub, 2012).

2.3.5 Risk Management

Risk management of a firm may also impact its performance. Risky firms tend to attract only risk taking investors. The relationship of risk and returns has to be managed so that the investors do get the return associated and expected with the risk they are bearing.

2.4 Empirical Literature

Haka et al. (1985) carried out a study aimed to determine the effect on a firm’s market performance of switching from naïve to sophisticated capital budgeting selection procedures. They theoretically stated that, a firm should perform better if it employs sophisticated techniques than if it uses naïve techniques. The study had a population sample of 50 firms, out of which 30 firms responded. To obtain a set of firms that switched from naïve to sophisticated techniques the study used personal interviews for two main reasons; first to determine the firm had indeed adopted sophisticate capital budgeting techniques for evaluating a large part of their capital budget and that such techniques were properly employed. Second, it was important to ascertain as precisely as possible, when the adoption took place. They found out that 48 months before the firms switched to sophisticated capital
budgeting techniques, with three different 48-month periods after the switch, indicated no significant improvements in the relative market performance of the firms’ adopting sophisticated selection techniques. However, while they found no long-run effects on relative market returns for adopting firms, their results suggested that there was a short-run positive effect when firms adopt sophisticated capital budgeting selection procedures.

Mooi and Mustapha (2001) undertook a study to find out whether the degree of sophistication of capital budgeting practice affects the firm performance, in terms of profitability. The study used a sample of 42 firms listed at Kuala Lumpur Stock Exchange in Malaysia. The study used Return on Assets (ROA) and Earnings per Share (EPS) to measure performance of the firms, and used regression analysis to determine the association between capital budgeting sophistication and firm performance. The capital budgeting techniques which were surveyed were NPV, IRR, ARR and Payback. From the analysis, 19% of the responding firms used superior capital budgeting methods whose score was 0% to 60%, 42.9% of the firms had a score of 61% to 80% of usage of superior capital budgeting methods, and 38.1% had a score of 81% to 100% of the usage of capital budgeting methods. The t-tests results of the study showed that the degree of capital budgeting sophistication did not significantly affect firm performance, measured by ROA and EPS. Theoretically, the use of superior capital budgeting process should increase the effectiveness of the firms’ investments decision making. Thus their study failed to confirm with the theory.

Klammer (2003) sought to investigate the association of capital budgeting techniques and performance in American firms. Attention was directed at the relationship of performance and capital budgeting procedures because the future of the firm is dependent largely on the investment decisions made today. A total of 369 manufacturing firms were sampled, of which 184 firms’ responded 48.9%. The study focused on the operating rate of return as a measure
of the firms’ performance. Capital budgeting techniques tested were payback method and the discounting techniques. For testing the association of firm performance and capital budgeting techniques, the study adopted a hypothesis that, firms having better performance will have adopted more sophisticated capital budgeting techniques. A simple regression analysis was carried out to test the hypothesis. The results of the study indicated that, despite a growing adoption of sophisticated capital budgeting methods, the regression results did not show a consistent significant association between performance and capital budgeting techniques. This indicated that the mere adoption of various analytical tools is not sufficient to bring about superior performance and that other factor such as marketing, product development, executive recruitment and training, labor relations, etc., may have a greater impact on profitability.

Consistent with Klammer’s (2003) study, other factors were found to vitiate the improvement of firm performance after a switch from naïve to sophisticated capital budgeting selection techniques. These factors were found to be; economic stress (the acute resource scarcity), which they asserted that in times of economic stress, firms do some ‘belt tightening’ by instituting cost reduction procedures and the adoption of new criteria for capital budgeting could be one of these belt tightening procedure. The company’s reward structure was also another factor, where they found out that companies that reward their employees on the basis of long-term incentive plans may experience more benefits from sophisticated selection techniques than companies that reward using a short-term reward plan. Study concluded that the adoption of sophisticated capital budgeting selection techniques, in and of itself, does not result in superior market performance.

Gilbert (2005) carried out a study to determine the application of capital budgeting methods and their association with firm performance among South African manufacturing firms. A sample of 318 firms was surveyed, but only 118 firms representing 37% responded. The
survey tested the application and impact of payback method, accounting rate of return, net present value and the internal rate of return. The return on assets was also used as a measure of firm performance. The results of the study indicated that, 15% of the firms employed the payback method, 8% used purely the discounting methods while the rest employed a mixture of both non-discounting and discounting methods. It was also concluded that though many of the managers were aware of the benefits of using the discounting methods, their responses involved the use of shortcuts, and approximations. The study conclude that, while discounted cash flow methods can, and do, play an important role in capital investment decision-making, the costs and sometimes impossibility of completing them, properly means that their use is always going to be limited. Thus the conclusion of the study was that capital budgeting techniques had no significant impact on the financial performance of the manufacturing firms.

Yao et al, (2006) conducted a study to compare the use of capital budgeting techniques and their impact on performance in Netherlands and China. They compared 250 Dutch and 300 Chinese firms. Out of all the firms, 87 firms responded, 42 from Dutch and 45 from Chinese companies, resulting in a response rate of 17% for the Dutch and 15% for the Chinese sample. The results indicated that 49% CFOs in Chinese firms use the NPV method as opposed to 9% who use the traditional investment decision methods. In Dutch, the study found that 89% of the firms use NPV investment decision method while traditional investment decision methods took the rest of the respondents. Their study used return on assets to measure performance which was used in a regression model as a dependent variable and measured against the various investment decision techniques. The results indicated that in both countries, sophisticated capital budgeting techniques mostly NPV and IRR had a positive relationship with return on assets (ROA) while the traditional methods showed an insignificant relationship.
In Kenya, Olum’s (2006) study sought to view capital budgeting from the standpoint of shareholders’ wealth maximization and examined the extent to which capital budgeting techniques were being practically applied by corporations in Kenya. He argues that the current Capital Investment appraisal techniques are applied from only two points of view; namely that of a private entrepreneur and that of the whole society, considering commercial profitability and public profitability respectively. Kadondi (2002) undertook a study to determine the capital budgeting techniques used by companies listed at NSE and also to determine how the firms’ and CEO characteristics influence the use of a particular technique. The study had a sample of 43 companies, out of which 28 (65%) companies responded to the study questionnaire. The study found out that 85% carry out capital budgeting in stages though many of the respondents ignored the first stages of capital budgeting. Of these, the study found that 31% used the payback method, 27% applied NPV while 23% were using the IRR technique.

Khakasa (2009) attempts to provide empirical evidence on the state of practice in Kenyan banking institutions in evaluating IT investments ex ante. The results of the survey showed that the most popular investment appraisal techniques used in such evaluation in Kenyan banks were cost-benefit analysis, risk analysis, competition, payback period and return on investment, while the least popular are the internal Rate of Return, computer based techniques and the Net Present Value. Of the 41 banks sampled, a total of 25 responses were obtained. This was a response rate of 60.97%. 100% of the responding institutions indicated that they used at least one of the economic techniques to appraise potential IT projects. Most institutions used more than one financial technique to appraise their investments. The most popular economic technique is the Cost Benefit Analysis (CBA) method (92%), while Internal Rate of Return (IRR) ranked the lowest (0%). Besides CBA, payback period and Return on Investment were both used by 60% of the responding institutions. Only 8% of the
banking institutions used at least one of the discounting techniques. Net Present Value was found to be used by 8% of the banks, while IRR is used by none of the responding banks. Overall, the study concluded that banks had limited use of discounting techniques and this raised questions as to the extent of the use of cash flows to appraise potential projects.

Moore and Reichert (2009), in their multivariate study of firm performance and the use of modern analytical tools and financial techniques study in 500 firms in US, the study showed that firms adopting sophisticated capital budgeting techniques had better than average firm financial performance. More specifically, firms using modern inventory management techniques and Internal Rate of Return (IRR) reported superior financial performance, unlike those firms using naïve methods such as Pay Back method and Accounting Rate of Return (ARR).

A study by Olawale et al, (2010) was conducted to investigate if companies make use of sophisticated investment appraisal techniques when making investment decisions, and the impact of sophisticated appraisal techniques on the profitability of the manufacturing firms in the Nelson Mandela Bay Metropolitan area, South Africa. The study had a sample of 124 firms responding, 85 firms making 39% were found to be using sophisticated investment appraisal techniques when making investment decisions. Therefore the first objective that the manufacturing firms make use of sophisticated investment appraisal techniques when making investment decisions was confirmed. The profitability of the firms was measured by return on assets (ROA), the return on assets was determined based on the calculation of the earnings after interest and taxes (EAIT) and total assets. The study used regression analysis to test the relationship of each independent variable on profitability. The traditional methods comprising the payback method and accounting rate of return were also regressed against profitability to determine their significance and relationships to profitability. The results of the study showed that the payback method used by the respondents is not significant to profitability and does
not have a positive relationship with profitability of the respondent firms. Accounting rate of return was also found insignificant to profitability and negatively related to profitability. However, the results indicated that use sophisticated investment appraisal techniques had a positive impact on profitability thus confirming the second objective of the study.

2.5 Summary of Literature Review

The objectives of this study was to determine the capital budgeting techniques employed by non-financial firms listed in the NSE and the effect of those techniques on the financial performance. The results of most studies reported the use of both the inexperienced capital budgeting and discounted cash flow techniques. The naïve methods include; the payback method and the accounting rate of return. The discounted cash flow methods otherwise referred to as sophisticated capital budgeting include the net present value and the internal rate of return. Many companies seemed to prefer the payback method and net present value to accounting rate of return and internal rate of return respectively.

In the literature, it was argued that the use of capital budgeting practices was related to improved financial performance. A number of arguments to support this was cited. Some of the studies indicated that sophisticated capital budgeting techniques mostly NPV and IRR had a positive relationship with return on assets (ROA) while the traditional methods showed an insignificant relationship. However similar studies reported a negative relationship of the capital budgeting techniques and financial performance. The studies indicated that, despite a growing adoption of sophisticated capital budgeting methods, there was no consistent significant association between performance and capital budgeting techniques. This indicated that the mere adoption of various analytical tools was not sufficient to bring about superior performance and that other factor such as marketing, product development, executive recruitment and training and labor relations may have a greater impact on profitability.
Local studies on the other hand mainly dealt with the application of the capital budgeting techniques in listed companies and also in the banking sector. Their findings indicated that discounted cash flow methods were not extensively being used to appraise investment decisions. The study in the banking sector particularly found the overwhelming application of the naïve capital budgeting techniques. Thus given these conflicting findings in the literature and lack of substantive local study on the relationship between capital budgeting techniques and financial performance of non-financial firms listed at Nairobi Securities Exchange.
CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter contains the design of the study, the target population of the study, data collection method, measurement of variables used in analyzing the data and the statistical technique used for data analysis.

3.2 Research Design

The study employed a descriptive design to determine the relationship between capital budgeting techniques and financial performance of non-financial firms listed at Nairobi Securities Exchange. Descriptive research design was chosen because it enabled the researcher to generalize the findings to a larger population. The descriptive research design approach was credited due to the fact that it allows analysis of the relations of variables under study using linear regression as long as the sampling units for the study are many. It also allowed greater flexibility in terms of money and time as well as avoiding the hardship of hunting for respondents more than once to produce high response rate. These reasons justified why this study became a descriptive research design. For instance the study by Klammer (2003) and Khakasa (2009) just to mention a few employed this type of research design.

3.3 Population of the Study

The target population consisted of all the 50 non-financial companies listed at The Nairobi Securities Exchange as at 31st December 2013 (see appendix II). The choice of non-financial companies was preferred because they represented the main sectors of the Kenyan economy, and were therefore considered as adequate representation of companies in Kenya. In addition, since they were publicly quoted and published their annual reports, information about the
measurement of the financial performance were readily available, unlike those of unlisted companies.

The study employed a census survey, because NSE had only 50 non-financial firms that were listed, therefore the whole population of the companies was included in this study. Thus, no sampling procedure was conducted.

3.4 Data Collection Techniques

The study employed both primary and secondary data. The primary data was related more to the qualitative than the quantitative data. The data was collected through questionnaires which were administered by the researcher using drop and pick later method.

The secondary data was collected from the published accounts of the companies. The published accounts were obtained from Capital Markets Authority (CMA) and NSE library.

3.5 Reliability and Validity

A pilot-test was conducted on a small sample of 5 respondents. The pretest questionnaires were distributed equitably to the selected respondents in order to gather a cross-sectional feeling of respondents. This helped in ascertaining the robustness of the instrument. The questionnaire was modified to eliminate any ambiguities identified during the pilot-test. The post-test questionnaires were redesigned in close consultation with the assigned supervisor which ensured that possible errors were eliminated. The validity of the research instrument was then tested for internal consistency by use of Cronbach’s Alpha with a 70% acceptance level.
3.6 Data Analysis Techniques

Data was obtained and analyzed in general for the non-financial firms listed at the NSE. Regression analysis was used to test the relationship between capital budgeting techniques and financial performance. This study employed a model used by Olawale, F. et al. (2010) and Klammer (2003).

The regression equation to be used was as follows;

\[ Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon \]

Where:

\( Y \) = Return on Investments measured by Net Income over Total Assets

\( \alpha \) = Constant Term

\( \beta \) = Beta coefficients

\( X_1 \) = Capital Budgeting Techniques using dummy variables (1-NPV; 2 – IRR, 3 – ARR, 4 – PBP)

\( X_2 \) = control variable size measured by (log turnover)

\( X_3 \) = control variable age measured by the number of years in operation

\( \epsilon \) = Random error term

The statistical package for social sciences will (SPSS) version 17 will be used to analyze the data into frequency distribution. The primary data from the questionnaire will be analyzed using descriptive statistics, particularly frequencies and percentages. Information then will be generalized and summarized using tables and histograms where appropriate.
Robustic tests for significance that is t-test and f-test will be used to test the significance of independent variables with the dependent variable. Inferential statistics tests will also be used to help deductions to be made from the data to be collected so as to relate the findings to the sample. T-test will be used since the sample size is small. For the research question to be accepted or rejected comparison will be done between the critical t and the calculated t. Analysis of variance (ANOVA) test will then be used to study the amount of variation within each of the sample relative to the amount of variation between samples before conducting multiple regression analysis. Analysis of variance will be used because it makes use of the F-test in terms of sums of squares effects over sums of squares residual (Mugenda, 2008). The researchers will assume a 95% confidence level while testing the variables. The 95% confidence level will be used so as to allow tolerance and f-tests yield better coefficients at 95%. The data will be presented using statistical techniques, graphical techniques and a combination of both to indicate the results of the analysis and also for better conclusions.
CHAPTER FOUR: DATA ANALYSIS, RESULTS S AND DISCUSSION

4.1: Introduction

The research objectives were to determine the relationship between capital budgeting techniques and financial performance of non-financial firms. This chapter presents the analysis and findings with regard to the objective and discussion of the same. The data was collected from the population of 50 non-financial companies listed at The Nairobi Securities Exchange as at 30th December 2013. The findings are presented in histograms, frequency distributions and narrations.

4.2 Descriptive Statistics

4.2.1 Response Rate

The study targeted to sample 50 companies in collecting data with regard to the relationship between capital budgeting techniques and financial performance. From the study, 37 out of 50 targeted companies filled in and returned the questionnaire contributing to 74%. This commendable response rate was made a reality after the researcher made personal visits to remind the respondent to fill-in and return the questionnaires.

Table 4.1: Response Rate

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responded</td>
<td>37</td>
<td>74</td>
</tr>
<tr>
<td>Not responded</td>
<td>13</td>
<td>26</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Survey Data (2014)
4.2.2 NSE Economic Sector

The companies were to state their category in the securities exchange. According to the findings 19% which were the majority were from the commercial and services sector, 14% were from the Agricultural sector, 14% were insurance sector, 14% were manufacturing and allied sector, 14% were energy and petroleum sector, 11% were construction and allied sector, 8% were automobiles and accessories sector, 3% were telecommunication and technology sector, 3% were investment sector and 3% were growth enterprise market segment (GEMS) sector. The findings shows that all the sectors categorised as non-financial firms that are listed in Nairobi Securities Exchange were all represented in the study.

Figure 4.1 : NSE Economic Sectors

Source: Survey Data (2014)
4.2.3 Financial Performance

The findings as shown in Table 4.2 indicate the trend of Return on Investment (ROI) values over the 3 year period. The lowest value for ROI was a mean of 1.76 in year 2011 while the highest value for ROI was a mean of 4.45 in year 2013. This represented a positive change in the ROI mean values of 2.69 over the 3 year period. The steady rise in ROI values over the 3 year period indicates that the financial performance of the firms has been on the increase over the last 3 years. On the other hand, the standard deviation indicates variation in the financial performance among the non-financial companies listed at The Nairobi Securities Exchange.

Table 4.2: Return on Investment (ROI) and Capital Budgeting Techniques

<table>
<thead>
<tr>
<th></th>
<th>Return on Investment (ROI)</th>
<th>Capital Budgeting Techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td>Std. Dev</td>
<td>1.236</td>
<td>0.186</td>
</tr>
<tr>
<td>Mean</td>
<td>2.774</td>
<td>4.369</td>
</tr>
<tr>
<td>Lowest</td>
<td>1.76</td>
<td>2.35</td>
</tr>
<tr>
<td>Highest</td>
<td>4.45</td>
<td>6.04</td>
</tr>
<tr>
<td>Median</td>
<td>2.06</td>
<td>4.22</td>
</tr>
</tbody>
</table>

Source: Survey Data (2014)

4.2.4 Capital Budgeting Techniques

The findings as shown in Table 4.2 above indicate the trend of capital budgeting techniques over the 3 year period. From the findings, the lowest value of capital budgeting techniques was a mean of 2.35 in year 2011 while the highest value of capital budgeting techniques was a mean of 6.04 in year 2013. This shows a steady increase in the utilization of capital budgeting techniques by firms between year 2011 and year 2013. Thus, capital budgeting techniques had a positive influence on the financial performance of the non-financial companies listed at The Nairobi Securities Exchange.
4.3 Inferential Statistics

Inferential statistics that included correlation and regression were used to test the relationship between capital budgeting techniques and financial performance.

4.4.1 Correlation Analysis

Two predictor variables are correlated if their coefficient of correlations is greater than 0.8. In such a situation one of the variables must be dropped or removed from the model. As shown in table 4.3, none of the predictor variables had coefficient of correlation between themselves more than 0.8 hence all of them were included in the model.

**Table 4.3: Pearson Correlation Coefficients**

<table>
<thead>
<tr>
<th></th>
<th>Capital Budgeting Techniques</th>
<th>Size of the Firm</th>
<th>Age of the Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return on Investments</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital Budgeting</td>
<td>.025</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>Techniques</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size of the firm</td>
<td>.135</td>
<td>.159</td>
<td>1.000</td>
</tr>
<tr>
<td>Age of the company</td>
<td>.058</td>
<td>-.030</td>
<td>.147</td>
</tr>
</tbody>
</table>

Source: Researcher’s raw data.

The results suggest that the relationship between capital budgeting techniques and return on investments (rho = .025, p = 1.000) is statistically significant. Size of the firm and return on investments had a rho of .135 and a p value of 1.000 therefore denoting statistical significance. Similarly, the size of the firm and capital budgeting techniques posted a rho of .159 with a p value of 1.000 therefore providing a statistical significance. Age of the
The company and return on investments had a rho of .058, p=1.000 further pointing to a statistical significance. On the same note, the age of the company and the capital budgeting techniques correlated at rho= -.030 and p=1.000. This therefore is statistically significant. Finally, the age of the company and size of the firm stood at a correlation of rho=.147 and p= 1.000 revealing statistical significance.

4.4.2 Regression Analysis

Analysis in table 4.4 shows that the coefficient of determination (the percentage variation in the dependent variable being explained by the changes in the independent variables) $R^2$ equals 0.760, that is age of the company, size of the firm and capital budgeting techniques explain 76 percent of return on investments leaving only 24 percent unexplained. The P-value of 0.001 (Less than 0.05) implies that the model of return on investments is significant at the 5 percent significance.

Table 4.4: Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.872</td>
<td>.760</td>
<td>.754</td>
<td>.05163</td>
</tr>
</tbody>
</table>

Predictors: (Constant), age of the company, Size of the firm, Capital budgeting techniques

The study used the R square. The R Square is called the coefficient of determination and tells us how the return on investments of the listed firms varied with age of the company, size of the firm and capital budgeting techniques. The three independent variables that were studied explain 76% of the factors affecting return on investments of the listed firms as represented by R Squared (Coefficient of determination). This therefore means that other factors not
studied in this research contribute 24% of the factors affecting return on investments of the listed firms.

Table 4.5: ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>.025</td>
<td>2</td>
<td>.005</td>
<td>4.893</td>
<td>.001</td>
</tr>
<tr>
<td>Residual</td>
<td>.088</td>
<td>108</td>
<td>.003</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>.113</td>
<td>110</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Predictors: (Constant), age of the company, size of the firm, capital budgeting techniques:

Dependent Variable: Return on Investments

The probability value (p-value) of a statistical hypothesis test is the probability of getting a value of the test statistic as extreme as or more extreme than that observed by chance alone, if the null hypothesis $H_0$ is true. The p-value is compared with the actual significance level of the test and, if it is smaller, the result is significant. The smaller it is, the more convincing is the rejection of the null hypothesis. ANOVA findings in Table 4.5 shows that there is correlation between the predictors variables (age of the company, size of the firm, capital budgeting techniques) and response variable (Return on investments) since P-value of 0.001 is less than 0.05.

The established multiple linear regression equation becomes:

\[ Y = 0.001 + 0.038X_1 + 0.027X_2 + 0.042X_3 \]
Where

Constant = 0.001, shows that if age of the company, size of the firm, capital budgeting techniques were all rated as zero, return on investments rating would be 0.001

$X_1 = 0.038$, shows that one unit change in capital budgeting techniques results in 0.038 units increase in return on investments

$X_2 = 0.027$, shows that one unit change in size of the firm results in 0.027 units increase in return on investments

$X_3 = 0.042$, shows that one unit change in age of the company results in 0.042 units increase in return on investments

Ranking of the individual independent variables, it shows that, age of the company is highly related with return on investments, followed by capital budgeting techniques, size of the firm respectively.

Table 4.6: Coefficients of Regression Equation

<table>
<thead>
<tr>
<th></th>
<th>Un-standardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>0.001</td>
<td>0.073</td>
<td>0.0136986</td>
<td>0.994</td>
</tr>
<tr>
<td>Capital Budgeting Techniques</td>
<td>0.038</td>
<td>0.014</td>
<td>0.191</td>
<td>2.7142857</td>
</tr>
<tr>
<td>Size of the firm</td>
<td>0.027</td>
<td>0.012</td>
<td>0.149</td>
<td>2.2500</td>
</tr>
<tr>
<td>Age of the company</td>
<td>0.042</td>
<td>0.011</td>
<td>0.063</td>
<td>3.8181818</td>
</tr>
</tbody>
</table>

Dependent Variable: Return on investments
4.4 Chapter Summary

The main purpose of this study was to investigate the relationship between capital budgeting techniques and financial performance of non-financial firms listed at Nairobi Securities Exchange. In order to achieve the objective, a thorough literature review was done. Based on the literature it was found that companies used various capital budgeting techniques to appraise investment decisions. The results of the study show that majority of respondents employ the four capital budgeting techniques in the capital budgeting process these are; net present value, internal rate of return, accounting rate of return and the pay back method.

A basic principle of contemporary capital budgeting theory is that the return required on an investment should reflect the riskiness of the investment and the returns available elsewhere from investments of similar risk. This leads to the use ways of analyzing risk. According to the study, majority of the respondents carried out risk analysis. The study shows that sensitivity analysis is highly favored when carrying out risk analysis. The implication for corporate managers is that accept-reject decisions may be biased in favour of high-risk investments and against low-risk investments, with the possibility that poor high-risk investments will be accepted and good low risk investments will be rejected.

The study form the correlation analysis found that there was a relationship between capital budgeting techniques and return on investments with \( \rho = 0.25 \) and \( p = 1.000 \) which was statistically significant. Size of the firm and return on investments had a rho of 0.135 and a p value of 1.000 therefore denoting statistical significance. Similarly, the size of the firm and capital budgeting techniques posted a rho of 0.159 with a p value of 1.000 therefore providing a statistical significance. Age of the company and return on investments had a rho of 0.058, \( p=1.000 \) further pointing to a statistical significance. On the same note, the age of the company and the capital budgeting techniques correlated at rho= -.030 and p=1.000. This
therefore is statistically significant. Finally, the age of the company and size of the firm stood at a correlation of rho=.147 and p= 1.000 revealing statistical significance.

The three independent variables that were studied explain 76% of the factors affecting return on investments of the listed firms as represented by R Squared (Coefficient of determinant). This therefore means that other factors not studied in this research contribute 24% of the factors affecting return on investments of the listed firms.

The regression equation above has established that holding all factors (Capital budgeting techniques, size of the firm and age of the company, factors affecting return on investment will be 0.001. The findings presented also shows that taking all other independent variables at zero, a unit increase in capital budgeting techniques will lead to a 0.038 increase in the scores of return on investment. A unit increase in size of the firm will lead to a 0.027 increase in return on investment. On the other hand, a unit increase in age of the company will lead to a 0.042 and increase in the scores of return on investment. This infers that age of the company influences return on investment most followed by capital budgeting techniques and size of the firm. The study also established a significant relationship between return on investment and the independent variables; capital budgeting techniques and age of the company.
CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the findings, draws conclusion and gives recommendations for improvement. Suggestion for further studies is also presented at the end of the chapter.

5.2 Summary

The objectives of this study were to determine the relationship between capital budgeting techniques and financial performance of non-financial firms listed at Nairobi Securities Exchange. The choice of non listed companies was preferred because they represented the main sectors of the Kenyan economy, and are therefore considered as adequate representation of companies in Kenya. In addition, since they are publicly quoted and publish their annual reports, information about the measurement of the financial performance were readily available, unlike those of unlisted companies.

The study employed a descriptive design. Primary data was collected through questionnaires which were dropped and picked from the respondents. Of the target population of the study, 37 questionnaires were returned and this represented 75% response rate.

The study used multiple regression analysis to find the association between capital budgeting techniques and the financial performance of non-financial companies listed at the Nairobi Stock Exchange. Forecasting model was developed and tested for accuracy in obtaining predictions. The finding of the study indicated that model was significant. This is demonstrated in the part of the analysis where $R^2$ for the association between capital budgeting techniques and the financial performance of non-financial companies listed at the

39
Nairobi Stock Exchange was 76%. In other words the results revealed a consistent, significant positive association between capital budgeting techniques return on investments measured by net income over total assets.

5.3 Conclusion and Recommendations

The results of the regression analysis show that the capital budgeting techniques significantly affect firm performance, measured by return on investments. Ranking of the individual independent variables, it shows that, age of the company is highly related with return on investments, followed by capital budgeting techniques, size of the firm respectively. Theoretically, the use of sophisticated capital budgeting techniques should increase the effectiveness of the firms’ performance. Thus, the results of this study concurred with the four theories that underpin the study.

Based on the findings the study recommends the managers feel that capital budgeting is at times implemented without adequate education to implementers and ill fitting financial and operating structures. It thus recommends that proper understanding of the demand placed by implementation of these projects on the resources of a firm should be well assessed before implementation. It is important for the management of the companies to get involved in training and skill development especially in areas of capital budgeting and investments. Training consultants could be used to train the employees who will be advising the management on the best investment alternatives.

In addition, low levels of financial literacy can impact the degree to which companies use investment appraisal techniques. The government through the ministry of finance should broaden its efforts to ensure that a high level of financial literacy is universal to company managers. Government agencies such as NSE and capital markets authority should therefore organize training for newly listed companies. Further studies could investigate if industry
differences and the age of the firm could have a major impact on the use of budgeting techniques.

From the research findings, the respondents strongly advocated that policies should not always from up-down. The need for employee participation in making investment decisions that affect their duties was strongly advocated for.

This research therefore recommends increased consultation and dialogue between the implementing employees and management. The management staff to device methods of increasing employee participation.

5.4 Limitations of the Study

In the course of the study, the following limitations were encountered; the target population was not easily accessed. This was hampered by company policies and bureaucracy regarding their information outflow. The formal procedure is that a document received should go through all the steps until the relevant officer ascertains that the information being sought can or cannot be given out. In some cases the researcher had to go through this to access to data. This was found to be too long. This seriously impeded the researcher’s effort to conduct the census.

Respondents from mostly the companies were reluctant to give information about their operations; this they thought was too much beyond what is required by law and were hence reluctant to give information. In some situation the company legal officer had to be called upon to assess the implication of the data being sought.
Another potential limitation was the reliability of the data obtained. Inaccuracies could have resulted from the survey respondents misunderstanding the survey questions or terminologies used in capital budgeting. Indeed the researcher had to in many cases explain the meaning of some of the terminologies to the respondents who then could attempt to accord the right response.

5.5 Suggestions for Further Research

Since the study focused on non-financial firms listed at Nairobi Securities Exchange, it is recommended that a similar study be carried out in other companies not listed in the Nairobi stock exchange to test the same relationship between capital budgeting techniques and their financial performance.

Further studies are needed to test the relationship between the capital budgeting techniques and firm performance by use of a different firm financial performance measurement other than return on investments for instance earnings per share (EPS). Future research could also focus on a specific industry to obtain homogeneous results.

The capital budgeting practices of listed companies are not likely to be representative of all Kenyan companies. This is so because the study only focused on non-financial firms listed at Nairobi Securities Exchange ignoring the both the listed financial and unlisted companies. Thus it is recommended that another study be done in companies not listed at the NSE to test the same objective.
REFERENCES


Gilbert, E. (2005). Capital Budgeting: A case study analysis of the role of formal evaluation techniques in the decision making process; Graduate School of Business, University of Cape Town, 19, 19-36.


APPENDICES

Appendix I: Questionnaire

Kindly provide responses to the questions in each part as objective as possible by either ticking (✓) or marking (X) beside the most appropriate alternative. Your responses will be treated with utmost confidence.

PART I: GENERAL INFORMATION

1. Name of the Organization .................................................................

2. NSE Economic Sector .................................................................

PART II: INFORMATION ON CAPITAL BUDGETING

3. Does the company have guidelines on capital budgeting techniques?

   Yes [ ]    No [ ]

4. State the capital budgeting technique your company prefers when deciding which investments to undertake?

   NONE    [ ]
   PBP     [ ]
   ARR     [ ]
   NPV     [ ]
   IRR     [ ]
5. Turnover of the Company (Kshs. B)

<table>
<thead>
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<th></th>
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</thead>
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<td>[ ]</td>
</tr>
<tr>
<td>2013</td>
<td>[ ]</td>
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6. How many years has the company been in operation? - [ ] years

7. Non Current Assets of the Company (Kshs. B)

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<th>Year</th>
<th></th>
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<td>[ ]</td>
</tr>
<tr>
<td>2013</td>
<td>[ ]</td>
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8. Current Assets of the Company (Kshs. M)

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<tr>
<td>2013</td>
<td>[ ]</td>
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9. Non Current Liabilities of the Company (Kshs. B)

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<td>2012</td>
<td>[ ]</td>
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<td>2013</td>
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10. **Current Liabilities of the Company (Kshs. B)**

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<td>Year 2011</td>
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</tr>
<tr>
<td>Year 2012</td>
<td>[      ]</td>
</tr>
<tr>
<td>Year 2013</td>
<td>[      ]</td>
</tr>
</tbody>
</table>
Appendix II: List of Non-Financial Firms in NSE

AGRICULTURAL

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

COMMERCIAL AND SERVICES

8. Express Kenya Ltd
9. Kenya Airways Ltd
10. Nation Media Group Ltd
11. Standard Group Ltd
12. TPS Eastern Africa Ltd
13. Scangroup Ltd
14. Uchumi Supermarket Ltd
15. Hutchings Biemer Ltd
16. Longhorn Kenya Ltd
TELECOMMUNICATION AND TECHNOLOGY

17. Safaricom Ltd

AUTOMOBILES AND ACCESSORIES

18. Car and General (K) Ltd

19. CMC Holdings Ltd

20. Sameer Africa Ltd

21. Marshalls (E.A.) Ltd
INSURANCE

22. Jubilee Holdings Ltd
23. Pan Africa Insurance Holdings Ltd
24. Kenya Re-Insurance Corporation Ltd
25. Liberty Kenya Holdings Ltd
26. British-American Investments Company (Kenya) Ltd
27. CIC Insurance Group Ltd

INVESTMENT

28. Olympia Capital Holdings Ltd
29. Centum Investment Co Ltd
30. Trans-Century Ltd

MANUFACTURING AND ALLIED

31. B.O.C Kenya Ltd
32. British American Tobacco Kenya Ltd
33. Carbacid Investments Ltd
34. East African Breweries Ltd
35. Mumias Sugar Co. Ltd
36. Unga Group Ltd
37. Eveready East Africa Ltd
38. Kenya Orchards Ltd
39. A.Baumann & Co Ltd
CONSTRUCTION & ALLIED

40. ARM Cement Ltd
41. Bamburi Cement Ltd
42. Crown Paints Kenya Ltd
43. E. A Cables Ltd
44. E.A Portland Cement Co. Ltd

ENERGY & PETROLEUM

45. Kengen Co. Ltd
46. Kenolkobil Ltd
47. Kenya Power & Lighting Co. Ltd
48. Total Kenya Ltd
49. Umeme Ltd

GROWTH ENTERPRISE MARKET SEGMENT (GEMS)

50. Home Africa Ltd
### Appendix III: Raw Data Summary of Non-Financial Companies Listed at the Nairobi Securities Exchange

#### Breakdown of the 3 Years

<table>
<thead>
<tr>
<th>Company</th>
<th>Return on assets (ROI) (000)</th>
<th>capital budgeting techniques</th>
</tr>
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<tbody>
<tr>
<td>1. Eaagads Ltd</td>
<td>104,116</td>
<td>107,052</td>
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<tr>
<td>2. Kapchorua Tea Co. Ltd</td>
<td>602,912</td>
<td>619,909</td>
</tr>
<tr>
<td>3. Kakuzi Ltd</td>
<td>49,059</td>
<td>50,442</td>
</tr>
<tr>
<td>4. Limuru Tea Co. Ltd</td>
<td>325,601</td>
<td>334,780</td>
</tr>
<tr>
<td>5. Rea Vipingo Plantations Ltd</td>
<td>841,780</td>
<td>865,511</td>
</tr>
<tr>
<td>6. Sasini Ltd</td>
<td>218,508</td>
<td>224,669</td>
</tr>
<tr>
<td>7. Williamson Tea Kenya Ltd</td>
<td>510,318</td>
<td>524,705</td>
</tr>
<tr>
<td>8. Express Kenya Ltd</td>
<td>307,196</td>
<td>315,856</td>
</tr>
<tr>
<td>9. Nation Media Group Ltd</td>
<td>7,473</td>
<td>7,684</td>
</tr>
<tr>
<td>10. Standard Group Ltd</td>
<td>59,388</td>
<td>61,063</td>
</tr>
<tr>
<td>11. TPS Eastern Africa Ltd</td>
<td>53,220</td>
<td>54,720</td>
</tr>
<tr>
<td>12. Scangroup Ltd</td>
<td>645,477</td>
<td>663,674</td>
</tr>
<tr>
<td>13. Hutchings Biemer Ltd</td>
<td>298,696</td>
<td>307,117</td>
</tr>
<tr>
<td>No.</td>
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<tr>
<td>15</td>
<td>Safaricom Ltd</td>
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<td>Car and General (K) Ltd</td>
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<td>CMC Holdings Ltd</td>
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<td>Sameer Africa Ltd</td>
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<td>19</td>
<td>Marshall’s (E.A.) Ltd</td>
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<td>20</td>
<td>Jubilee Holdings Ltd</td>
<td>30,287</td>
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<td>21</td>
<td>Pan Africa Insurance Holdings Ltd</td>
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</tr>
<tr>
<td>22</td>
<td>Kenya Re-Insurance Corporation Ltd</td>
<td>314,422</td>
</tr>
<tr>
<td>23</td>
<td>Liberty Kenya Holdings Ltd</td>
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<td>24</td>
<td>CIC Insurance Group Ltd</td>
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<td>25</td>
<td>Olympia Capital Holdings Ltd</td>
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<td>26</td>
<td>Centum Investment Co Ltd</td>
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<td>27</td>
<td>Trans-Century Ltd</td>
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<td>B.O.C Kenya Ltd</td>
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<td>Mumias Sugar Co. Ltd</td>
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<td>Unga Group Ltd</td>
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<td>Kenya Orchards</td>
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<tr>
<td>--------------------------------------------------------</td>
<td>------------------------</td>
<td>-----------------------------</td>
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<tr>
<td>32. A.Baumann &amp; Co Ltd</td>
<td>22,181</td>
<td>22,806</td>
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<td>33. E. A Cables Ltd</td>
<td>123,201</td>
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<td>34. E.A Portland Cement Co. Ltd</td>
<td>102,987</td>
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<td>35. Kengen Co. Ltd</td>
<td>74,688</td>
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<td>36. Kenolkobil Ltd</td>
<td>191,411</td>
<td>196,808</td>
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<tr>
<td>37. Kenya Power &amp; Lighting Co. Ltd</td>
<td>1,463,599</td>
<td>1,504,861</td>
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**Per Company in the 3 Years (combined)**

<table>
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<tr>
<th>Company</th>
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<tbody>
<tr>
<td>Eaagads Ltd</td>
<td>3.38</td>
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</tr>
<tr>
<td>Kapchorua Tea Co. Ltd</td>
<td>3.92</td>
<td>1.88</td>
</tr>
<tr>
<td>Kakuzi Ltd</td>
<td>4.45</td>
<td>1.04</td>
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<tr>
<td>Limuru Tea Co. Ltd</td>
<td>1.76</td>
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<td>1.78</td>
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<td>Sasini Ltd</td>
<td>2.24</td>
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<td>Hutchings Biemer Ltd</td>
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<td>British-American Investments Company (Kenya) Ltd</td>
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<tr>
<td>Umeme Ltd</td>
<td>4.31</td>
<td>1.37</td>
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<tr>
<td>Home Africa Ltd</td>
<td>4.53</td>
<td>1.33</td>
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</table>

**SUMMARY**

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<tr>
<th>Year</th>
<th>Return on Assets (ROI)</th>
<th>Capital Budgeting Techniques</th>
</tr>
</thead>
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<tr>
<td>2011</td>
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