THE EFFECT OF CAPITAL BUDGETING TECHNIQUES ON THE FINANCIAL PERFORMANCE OF COMPANIES LISTED AT THE NAIROBI SECURITIES EXCHANGE

BY

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DECLARATION

I declare that this research project is my original work and has not been presented for a degree or any other academic award in any institution of learning.

Signature ……………………… Date …………………….

Betty Chepkorir Yator,

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

Signature ……………………… Date ………………………….

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DEDICATION

I dedicate the project work to my entire family ad friends for the support and especially for encouraging and cheering me up throughout the period.

May God bless you all abundantly.

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ABBREVIATION AND ACRONYMS

ANOVA: Analysis of Variance

NPV: Net Present Value

IRR: Internal Rate of Return

MIRR: Modified Internal Rate of Return

NSE: Nairobi Securities Exchange

PBP: Pay Back Period

ARR: Accounting Rate of Return

ROA: Return on Assets

ROCE: Return on Capital Employed

ROI: Return on Investment

ROC: Return on Capital

DCF: Discounting Cash Flow

KSHS: Kenya shillings

IFRS: International Financial Reporting Standards

ABSTRACT

The study objective was determining the effects of capital budgeting techniques on how the financial performance of those companies which are listed by the NSE. Reap option and contingency theories guided this research. The research applied cross sectional survey and involved the 66 companies listed in the NSE as at August 2018. Sampling was not employed because at the time of study there were only 66 listed companies at NSE. The study covered a period of five years from 2013-2017. Primary and secondary data were used. Questionnaires were used to collect primary data. The published financial statements of those firms that are listed provided secondary data. Analysis and processing of the collected data aligned to the objectives of the research. Statistical Package for Social Science (SPSS) version 23 was applied in analysis that was collected where by descriptive statistics were used to understand better the findings, the information presented into percentages, pie charts and tables with an analysis while inferential statistics was applied by use of multiple regression model. In this study, it was that a big number of companies were for the NPV method as an instrument for capital budgeting and followed by payback period and finally IRR method. There was no unanimous agreement on the ARR method in appraisal of investment projects but some of the companies still applied it. Slightly more than a half of the respondents preferred using cost of debt and cost of equity in determining acceptable rate of return while more than a quarter of them had no idea which method is used to determine the acceptable rate of return. The outcomes showed significance of the model since R^2 = 0.652 indicating 65.2% support. From outcomes of the research, results indicated that companies incorporated capital budgeting methods when they were performing investment appraisals. A conclusion was therefore made that a big number of companies employed NPV, payback period, IRR and ARR as methods for budgeting. A recommendation by the research is that sufficient measures needs to be employed in order to create progress on how the company performs through capital expenditure. Participation of employees is fundamental in making decisions concerning capital budgeting since an oversight role carried out by the executive management may be captured. As well, employment of fulltime employees is required as an important variable in the analysis of investments and include them in the production sector and in giving an overview of guidelines concerning capital expenditure. CMA and NSE are supposed to bring on board seminars pertaining the impacts of decisions made by the managers with regard to investments and the economy at large.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The volatility of global economy, changing trade practices and academic development has resulted to a necessity to re-examine investment practices, investing in innovation and technology is very critical to enabling firms gain competitive advantage in the business environment and also to ensure that firms operate effectively. One of the most important finance functions in modern times is an investment decision, it involves effective allocation of firm's funds and resources to projects that runs beyond a period of one year. These decisions are very important to the firms' management since they determine firm's value, profitability and capital structure as well as determines the amount of risks that firms are exposed to, therefore this decision is very important to current managers since it helps to mold firms future opportunities (Gitman & Forrester, 1977).

Mooi and Mustapha (2001) noted that application of a more systematic capital budgeting techniques results in a more successful capital expenditure decision making, capital expenditure involves an outlay of large amount of funds and resources whose benefits are expected to flow to the organization over a period of time in the future. Weston and Brigham (2005) noted that capital budgeting also referred to as investment decisions comprises of coming up with clear plans and also selecting the best plan on how expenditure whose returns cover beyond a period of about one year such purchasing land, building, structural expansion and purchase of equipment.

The study is anchored on two main theories; Myers (1984) came up with Real option theory which explains flexibility that management has whether to invest or not or option to continue or abandon the project and finally option to postponed or proceed through the project based on the situation at hand, this theory is specifically important to the study since it advises the researcher that there might be changes in the implementation. Pike (1986) invented the Contingency theory which explains that there is no best way to attain optimal performance since other variables exist that might limit applicability of capital budgeting technique and prevent it from giving optimal performance for example management must be keen to check the fit between operation of CBT and corporate context.

1.1.1 Capital Budget Techniques

Capital budgeting is a management tool used by organizations to evaluate decisions on how resources are allocated among investment projects, it assist to identify feasible project. According to Chartered Professional Accountants—Canada, (2017) capital budgeting creates measurability and accountability whereby management will decide on which investment project to be selected based on future value the project is expected to generate to approve of the amount of resources allocated for the same. The goal of survival of any organization is to create maximum wealth for shareholders, Investing in the unprofitable project will commit corporate resources to an investment without considering risks and returns (O'Sullivan & Sheffrin, 2003). According to Seitz and Ellison, (1999) ineffective capital appraisal for various projects may threaten corporate competencies and firms survival.

In determining worthiness of a project most studies has shown discounting cash flow as the central feature of investment analysis, discounted cash flow (DCF) applies future cash flows and not income and discount them using a required annual rate or a discounting factor to arrive at present value estimate, discounting cash flow considers time value of money and include different discounting model; NPV, IRR, MIRR, and Profitability Index(PI) (Brigham & Ehrhardt, 2002).

Munyao (2010) posits that the net present value is technique that is used to look for the present value of inflows of an investment which is then compared with the present value of the initial outlay, if the difference between the two is positive the it is said that the project has generated return that was expected therefore this project is acceptable but if the difference is negative it is said that the rate at which the project has returned is not sufficient therefore the project should be rejected. In the event two or more mutually exclusive projects have positive NPV, the project that gives highest NPV is selected. Benefits of using NPV involves; easier to calculate and also NPV considers time value of money on the other hand most people don't understand how to apply the results of NPV and end up applying rate of return used in calculation resulting in wrong and manipulated results.

IRR is the discount rate at zero NPV as discussed above we have seen that NPV is calculated using already determined discount rate. An assumption is made that a positive NPV will give a higher actual return while a negative NPV will result in a lower actual return. By constantly manipulating the discounting rate of return one can easily attain the rate at zero NPV, this rate is seen to be the internal rate of return (IRR), coming up with

correct IRR is more difficult because it involves repetitive process, it is also possible to have multiple IRR if the interim payments are reinvested at IRR rate.

Various investment analysis approaches do not take into consideration discounting cash flows, for example payback period (PP) and accounting rate of return (ARR). Studies have shown that payback period and Accounting rate of return (ARR) techniques are frequently used technique to appraise project. According to Pike and Neale (1999), Payback period is the period that lapse for given company requires to gain stability. This time period ignores the time value of money as well as cash flows that comes after the time limit lapses. Payback period to some extent gives relevant perspective of appraisal methods since it does not give concrete analysis of project, some investors take keen interest on time limit of the project and will not fund project that go beyond specific time limit.

Munyao (2010) gives a description of ARR as being the simple or average rate of return, it's obtained by dividing the annual accounting profit by the initial capital investment outlay over a projects life span to derive ratio or return that can be expected. The ARR as a non-discounting approach also faces same criticism as the PB since it violates some important finance principles like time value of money and considers accounting profits instead of cash flows.

1.1.2 Financial Performance

According to Bititci, Carrie and McDevitt, (1997) every organization wants to provide an integrated control system where strategies are deployed to all business processes, the objective of this process is performance and management decisions obtained through

feedback from performance measurement. To measure performance is very critical to managing performance, by determining performance organizational management convert complex realities to be simple and can be communicated as well as acted upon easily (Lebas, 1995). Successful management is a result of simplified reality by measuring. In the same capacity, Bititci et al., (1997) suggests that measuring performance is critical aspect and very important to performance management process because it greatly influences changes towards attaining effectiveness and efficiencies in operations.

Most commonly used measure of performance include; profitability, return on capital(ROC), economic value added, revenue growth, cost reduction and cash flow. These financial measures direct organizations efforts, processes to be better quality and also identifies faults of the organization. Organizations divided into different divisions ignores the size of divisions profit and focus on return on investment (ROI) of the division which expresses divisional profit as a portion of assets employed in the division for example: return on equity, return on capital employed and return on net assets Drury, (2007).

There are many challenges associated with relying majorly on ROI for example the optimization of divisions performances where by the it inspires managers to make decisions that only benefits their own divisions even though these investments may not benefit the whole organization (Merchant & Van der Stede, 2007). Researchers have come up with many ways of doing away with sub-optimization for example use of residual income, according to Burksaitiene, (2008). Residual income can be obtained by deducting capital charge for net asset from profit.

The biggest criticism of measuring financial performance came from Merchant and Van der Stede (2007), who found out why accounting profitability measures fails to fully reflect economic returns, for example, accounting systems are essentially the effects of transactions that have occurred over a period of time. Thus, income statements only records change of value that resulted into transaction, and profit calculations also ignore certain financial values and value changes that make the estimate accounting incorrectly measured.

According to Merchant and Van der Stede (2007), despite the many criticisms pointed towards measuring financial performance, many organizations still use them as a primary control measure for profits and cash flows and monitor and to ensure the survival of the organization. They also represent a return to investors and are among the most important measures used by foreigners to assess the performance of the organization.

1.1.3 Capital Budgeting Techniques and Financial Performance

A number of studies have noted analysis of sophisticated capital technique and its effects on firm's performance as well as use of information from books of account when analyzing and measuring performance (Christy, 1966). According to Munyao (2010) considering economic rationality, sophisticated capital budgeting procedures has been seen as means by which firms achieve its main objective of ensuring that shareholders gain maximum value of their investments, this fact indicate that firms can maximize or increase its shareholder's wealth through use of sophisticated capital budgeting appraisal method. Therefore, from financial theories point of view it is known and expected that the choice of sophisticated capital budgeting techniques will influence performance of the

organization positively. Thus studies on the same had depicted a rather conflicting outcome.

1.1.4 Firms Listed at Nairobi Securities Exchange

Founded in 1954, Nairobi Securities Exchange (NSE) is Kenya's premier African stock market. NSE is one of the fastest growing economies in sub-Saharan Africa. NSE provides a first-class trading platform for local and international markets and attracts investors interested in the economic growth of Kenya and Africa.NSE moved from being member owned to being owned by shareholders and self-listed in 2014, it is led by Board and management team who are African leading professionals focused on innovation, diversification and operational excellence in the exchange.

The Nairobi Securities Exchange has approximately 66 listed companies with a trading volume of approximately $ 10 million and a market capitalization of approximately $ 23 million. Amongst the 66 listed companies; 7 Agricultural firms, 1 Automobiles, 11 Banking,12 Commercial and Services, 5 Construction and Allied, 5 Energy and petroleum, 6 Insurance, 5 Investment, 8 Manufacturing and Allied, 1 Telecommunication and Technology, 1 Real estate investment trust,1 Exchange traded fund and finally NSE is the only company that offers investment services.

A detailed investigation of companies listed in the Nairobi Securities exchange revealed a consistent application capital budgeting techniques in investment appraisal, this has also translated to a consistent positive relationship with financial performance of listed firms at NSE. According to Wokabi (2014) and Munyao (2010) firms listed at Nairobi securities exchange (NSE) employee the following capital budgeting techniques; Net

present value(NPV), Internal rate of return (IRR) Accounting rate of return(ARR) and Payback period(PB). It is also noted that companies rarely consider other capital budgeting stages except for capital budgeting appraisal (Nairobi Securities Exchange, 2013).

It has been established that holding all other factors constant for firms listed at NSE for example size of the firm and age of the firm, a unit increase in application of capital budgeting technique results in a unit increase in the return on investment therefore increase in firm's performance.

1.2 Research Problem

As discussed earlier, listed companies at the NSE are important towards economic sustainability of a country, therefore managers of this companies are obligated to and to look rationally and critically into its budget to improve organizations' financial performance. According to finance theories the main objective of the firm is to maximize shareholder's wealth, there are many strategies that management of a firm put in place in order to ensure that it meets this objective, one of this strategies is by applying the use of modern capital appraisal methods to ensure that the firm meets the optimal investment decision to gain maximum return from investment. Finance theory perspective states that there is a positive relationship amid capital investment appraisal methods and financial performance.

Studies on firms listed at Nairobi securities exchange (NSE) has shown a continuous application on capital budgeting techniques on investment decision, the application of the

right capital budgeting techniques has translated to optimal investment decision which results in higher returns on investment and improved financial performance.

Klammer (1973) in his study to determine association between sophisticated capital budgeting technique and financial performance in American firm studied payback periods and discounting techniques found out that greater adoption of sophisticated capital budgeting techniques in investment decision did not translate to superior performance and therefore there was no significant and consistent association between investment techniques and financial performance. A similar research by Haka and Pinches (1985) on effects on firms market performance of switching from Naïve to sophisticated capital budgeting techniques revealed that there was no significant improvement in financial performance of firms when applying sophisticated techniques, this study showed that there was a short run positive effect on financial performance.

Moore and Reichert (1989) studied 500 firms in the USA on how firms financial performance is affected by modern analytical tools and sophisticated capital budgeting techniques, the outcome of the study showed that firms had above average financial performance when they applied investment techniques and more specifically firms that applied IRR methods registered above average financial performance.

Local studies on capital budgeting techniques and financial performance have been carried out as well in Kenya Olum (1976) study on how capital budgeting techniques are practically applied by corporation in Kenya, his outcome showed that firms applied capital budgeting techniques in either private entrepreneur or whole society. Kadondi (2002) investigated the capital budgeting techniques applied by listed companies at NSE,

his results showed that more than half of the companies listed at NSE applied capital budgeting techniques.

Studies by Munyao (2010) carried out studies on relationship between capital budgeting techniques and financial performance and the type of appraisal method that is applied by firms listed at NSE, his results indicated that PBP, ARR, NPV and IRR are the four mainly applied techniques used by companies listed in the NSE. He established that the choice of capita budgeting appraisal method selected affected greatly corporate performance as measured by return on asset hence a positive relationship.

In summary, Klammer (1973) obtained a totally opposite outcome on his study where he established that the choice of capital budgeting technique had no effect whatsoever on the firm's performance in the U.S. Both Munyao (2010) and Chai (2011) evidenced a substantial positive relationship amongst the two variables in the listed companies and courier's companies in Kenya respectively given all the perspective and results of the previous studies the questions then was: which investment planning methods do firms listed at NSE use, and how do these techniques affect the financial performance of companies?

1.3 Research Objective

It was determining the effects of capital budgeting techniques on the financial performance of those companies which are listed at the NSE.

1.4 Value of the study

Studies have shown that right application of capital budgeting technique will result in better decision making and financial practices on the kind of investment to be adopted

which later translates to improved firm's financial performance. The result of the research will help contemporary managers to do an evaluation of practices at the current moment and see how companies across Kenya apply capital budgeting techniques and appraisal methods, this will enable these managers have skills and knowledge on different capital appraisal methods and how they can be applied in order to achieve corporate performance as well as wealth maximization. The study will also inform other academicians/ researchers by providing useful information and improvement on theories in regards to capital appraisal techniques and how they affect financial performance. In addition, the research will be used in guiding policy makers in terms of policy formulation.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This is a review of completed and ongoing research of the earlier studies with an intention of eliminating the gaps identified on current knowledge and methodology of the investigation.

2.2 Theoretical Review

For the purpose of understanding Capital budgeting technique and practices, several theoretical perspectives are apparent for example real option theory and contingency theory.

2.2.1 Real Option Theory

Myers (1984) proposed real option theory and from that time this option has become of great interest to investors and analysts, generally investments have two significant features: first, once the expenditure has been incurred it cannot be reversed and second, investment can be pushed to a later date (Pindyck, 1991). The former characteristic makes investment superiors keen when making decision to invest in a new project, while the second gives firms option to wait more information and invest on favorable terms in the future, thereby reducing negative effects of uncertainty on management. Myers (1977) pointed this feature as investment deferral since it can be viewed as Real Option, because it provides firms with greater managerial flexibility and value. Real option focuses more on real investment like capital appraisal projects and not like financial investments.

According to Chance and Peterson, (2002) real options are option to decide on whether to invest or not or option to continue or abandon the project and finally option to postponed or proceed through the project, although empirical evidence has provided very limited applicability of real option in real world, real option potentially offers a more efficient way managers allocate resources to maximize their shareholders wealth by reducing uncertainty and downside risk. According to Arnold 2003, recognized that the increase in real option is equated to the law of supply and demand where supply side reflects the growing approach to real option whereas the demand side reflects how management positions the firm to benefit from uncertainty. Damodaran (2000) suggests that based on strategic value an investment bring the managers can either choose to reject a project using standard DCF.

Real option theory is very important to this study because the theory advices that despite application of capital budgeting techniques appraisal methods the management still has an option on whether to invest or not or option to continue or abandon the project and finally option to postponed or proceed through the project based on the situation at hand. Projects selected using DCF will not necessarily be the ones carried down to the end of project period because the organization will not hold the project passively due to flexibility, once managers invest in projects, they run with it and expand when the project is flourishing but if project go badly they are abandoned. It was therefore important to note that projects pursued by firms listed at NSE might be based on this flexibility.

2.2.2 The Contingency Theory

Pike (1986), has demonstrated that appropriation of resources efficiently isn't about adopting sophisticated and all superior investment technique but the management must

put into consideration the suitability between the background of the organization and the structure of capital appraisal system. Pike (1986) Identified common features of corporate context that have effect on design on operation of the firm's appraisal system. Aspect number one is a firm's leadership structure. Haka et al (1985) showed opposing view whereby he argued that firms will gain a higher return by applying capital appraisal technique in a stable environment. This is concluded based on Schall and Sundem (1980) study, shows that environmental uncertainty reduces effectiveness of sophisticated capital budgeting appraisal method.

The second feature is the environmental uncertainty. Unpredictable state of operation leads to unsuitable and highly unbending capital budgeting structures.Pike (1986) on the other hand noted that firms that operate in an uncertain environment tend to benefit more on application of sophisticated investment method especially in risk appraisal.The final feature concerns behavioral characteristics. Pike (1986) came up with 3 features, i.e. the style of management, the firm's history and Professionalism. An administrative based capital appraisal control strategy is anticipated to be consistent with logical way of management, staff that are professional and history of good investment decisions results in good. The business's economic position has a positive impact on the plan and effort put on capital budgeting. Axelsson,et al.,(2002), noted that a careful decision is directed to budgeting in an organization that has adverse financial state, because there will be need for frequent follow up just to ensure positive outcome on investment.

These argument has been used to explain how applicability of capital budgeting technique affects performance of firms, Haka et al. (1985). The theory makes one understand that there is no one best way of coming with the optimal investment decision

that is application of sophisticated capital budgeting technique does not guarantee optimal firms performance since there are other factors that must be looked into that might limit applicability of the techniques for example managers must look at the fit between operation of CBT and corporate context for instance centralized organizations which leaves decision making to top management as opposed to decentralized organization where even investment junior staff put an input to the investment decision.

2.3 Determinants of Financial Performance

Financial status of a firm advises decision making of the management as they help put an effort to try and uphold stability and market share, how a manager allocates resources affects directly the economy and environment in which the business operates by attaining positive financial outcomes. In order to eliminate negative influences and promote factors that enhance performance in the company, scrutiny of factors that contribute to financial performance of a firm is important for all partners who have interest in the firm. These factors acts as a basis for evaluating firm's performance they include: profitability of the company, leverage and size of the company. All these factors influence market value of the company in one way or the other. (Branch & Gale, 1983)

2.3.1 Leverage

This is the ratio of debt to equity. Though important in indicating the wellbeing of a company's performance, most firms do not use it to measure its impact on the value of companies. For this reason, this variable will be used as a control variable. A common method of measuring is the ratio of debt which shows the liabilities of a company; but then it does not clearly explain the ratio of debt to equity (Booth, & Cleary, 2013).

2.3.2 Size of the Company

In an industry of whatever nature sizes of firms differ this means that methods of investment also. Economists are concerned with the best size of a business unit, that is, a firm in which the choice of investment decision will lead to positive firm's performance.

According to Mathur (1997) the size of the firm can largely affect financial performance for three main reasons: large firms get easier access to cheaper funding as opposed to small firms, large firms use advantage of their firm size to get financial deals in business relations and also easier access to factors of productions. Thus, firms' focus should be on increasing their size by boosting turnover and opening up new markets for existing and new products.

2.4 Empirical Review

Singh, Jain and Yadav, (2012) studied the current practices in capital budgeting techniques in companies based in India in order to provide guidelines to practioners. They studied 166 non-financial of Bombay stock exchange (BSE) 200 index in which drop and pick questionnaires were administered and also secondary data collected from 2001-2011.All the sample responded, they found that sophisticated capital budgeting techniques have continuously being applied in India, firms applied both Discounted cash flow and non-discounted cash flows techniques in which IRR were used by more than three quarters of the sampled companies against NPV used by half the sampled companies. Weaknesses of the study is that it is country specific, a sectoral analysis of the sampled companies could provide a deeper insight into the subject.

Klammer (1973) studied the effects of capital budgeting techniques and benefits in US firms. He focused on how performance is tied to capital budgeting practices, business survival largely depends on investments made. He used 369 manufacturing companies, out of this 184 companies responded to 48.9%. In his study, he focused more on profitability as a determinant of business performance.

The capital budgeting methods tested were the amortization method and discounting techniques such as net present value (NPV). To test the link for performance of the firms and the type of capital appraisal method employed, the study hypothesized that firms using sophisticated capital budgeting techniques worked better. A simple regression analysis was performed to test the hypothesis that the study found that, despite the growing acceptance of sophisticated capital budgeting techniques, simple regression results did not show a consistent correlation between the techniques but it showed that simply adopting different analytical tools was not enough to improve performance but other factors like product publicizing, product improvement, recruitment and leadership training, employment relations, etc.

Study by Haka et al. (1985) to find out how the transition from naïve capital selection procedures to sophisticated procedures affects the performance of the enterprise market. They theoretically explained that a company should be more efficient when using sophisticated techniques than when using naive techniques. The study included a sample of 50 companies, of which 30 responded. To get a range of companies that went from naive techniques to sophisticated techniques, the study used personal interviews for two main reasons; first, it should be noted that the company did use investment accounting

techniques to evaluate the capital budget and whether these techniques were used as needed. Secondly, it was important to know exactly when the adoption took place.

The result of the study provided a more precise conclusion than the study by Klammer (1973). They found that comparing performance 48 months before moving to sophisticated capital appraisal method with sets of four years after the transition did not result in any significant improvement in relative market returns for adopting companies. The results also showed that it was positive in the short term for companies that have a sophisticated selection process

In accordance with Klammer's (1973) study, some factors were discovered to influence the improvement in business performance as a result of shifting from naïve to sophisticated capital appraisal methods. These factors have been found; Economic stress (acute scarcity of resources), they said that in times of economic difficulties, companies could make adjustments by introducing cost reduction techniques and introducing new capitalization criteria for one of these procedures. The compensation structure of the company was also another factor: firms that reward employees over a long period incentive plans have been seen to benefit from sophisticated capital appraisal method than firms that have short-term incentives plans. The study concluded that the introduction of sophisticated capital selection procedures does not in itself lead to better market performance.

Gilbert (2005) did a study on the association existing between business performance and the application of capital appraisal methods to manufacturing firms in South Africa. A sample of 318 companies examined, only 118 companies representing 37% responded.

The survey determined the impacts and applicability of depreciation method, discount rate, NPV and internal rate of return. To measure performance, return on investment was used. Results of the study showed that 15% of companies used the depreciation method, 8% used only the discounting method, and the rest used a combination of discounted and discounted methods. It was also noted that many managers preferred abbreviations and approximations, although they understood very well the benefits of using discounting methods. The study made a conclusion that discounted cash flow plays a key role on decisions concerning investments but can be limited by costs. Therefore, capital budgeting appraisal methods had no significant impact on financial performance of manufacturing firms.

Olawale et al. (2010) conducted a study to determine whether firms are applying complicated methods of appraising investments and what impact complicated valuation techniques have on the profits made by manufacturing companies in the Nelson Mandela Bay metropolitan area in SA. The study found that 124 companies responded, with 85 companies using 39% of investment decisions for sophisticated methods of auditing investments. As a result, this study met the study's objective that manufacturing companies use sophisticated investment appraisal methods to validate their investment decisions. He measured the profitability of the study on the basis of ROA, it was calculated using the calculation of the profit after interest and tax and the total assets. The study used regression analysis to test how independent variable relates to profitability. Traditional depreciation and profitability methods have also been reduced relative to profitability to examine their relationship with profitability. The result of the study showed that the discounting method for the evaluation of projects is not significant for

profitability and does not affect the profitability of the companies surveyed. However, the results showed that sophisticated investment appraisal methods related positively with profitability, confirming the second objective of the study.

Moore and Reichert (1989), in their multivariate analysis on business development and the use of household techniques of sophisticated and naive capital, a study of 500 companies in the United States. The return on investment (IRR) indicates a higher financial return than companies using naive methods such as the repayment method and the compounding rate of return (ARR).

2.5 Conceptual Framework

It is the representation of the association that exists amongst the dependent variables and independent variable presented in a graph, (Kombo & Tromp, 2009).In this study it conceptualizes how the independent variable that is the capital budgeting techniques like NPV, IRR,PB and ARR decision affects the dependent variables which the firms 'performance and the control variables which includes, leverage, size of the company, capital structure and sustainable growth rate. Figure 2.1 shows the conceptual framework of the study

Independent Variables

20
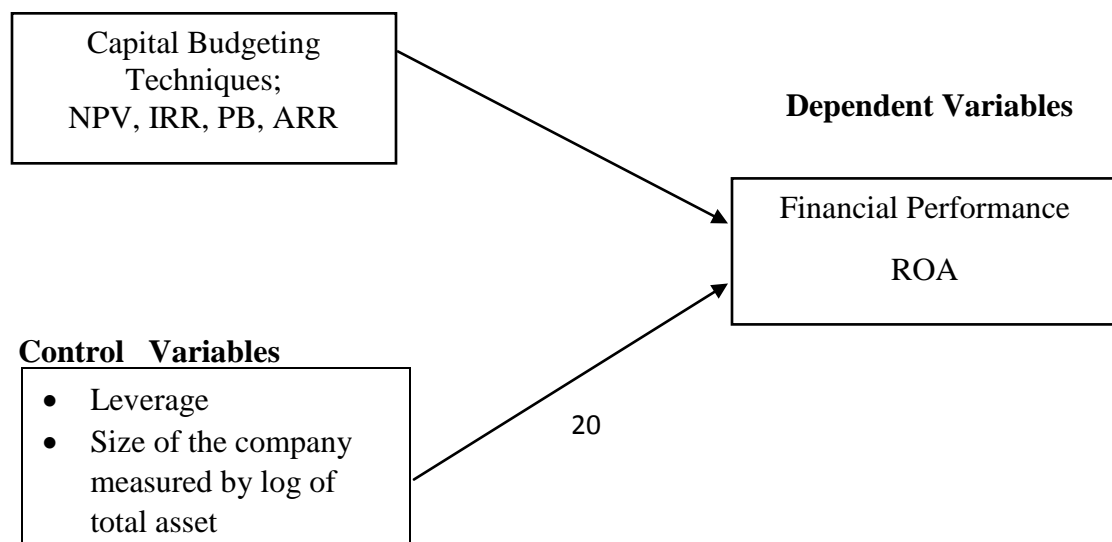
Figure 2.1: Conceptual Framework

2.6 Summary of Literature Review

The key objectives of the research was ascertaining how capital investment appraisal methods deployed by companies listed affect financial performance. Outcome of most studies conducted have shown application of both naive capital appraisal methods that is the payback method and ARR and sophisticated capital budgeting technique. Some companies had preference on payback period and NPV to ARR and IRR respectively.

Literature had shown that improved financial performance maybe be as result of application of capital budgeting practices. A lot of researches have indicated argument to prove of this association, some studies have shown that capital budgeting techniques have no effects on financial performance of the firms, similar studies have also shown that complicated methods on capital budgeting majorly the NPV and IRR are positively related with financial performance as opposed to traditional methods which reported negative association.

Research evidence has shown that other factors such as marketing, product development, recruitment and training have greater impact on profitability, therefore application of sophisticated capital budgeting techniques is not a guarantee for financial achievement and firm growth. A keen look at the local studies which involved application of capital budgeting techniques on in companies listed at NSE and banking sector. The outcome of most of this studies showed that there is massive application of traditional methods of appraising investment projects especially in banking sector. In light of these conflicting results and the lack of a background information on the same, this study attempted to

identify how the choice of capital investment appraisal methods selected by listed companies affects their financial performance.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter looks into details the design of the study, identifies the target population, data collection methods and how these data was analyzed, measurement of variables that were used to analyze data and also statistical techniques used for data analysis.

3.2 Research Design

According to Kothari and Gaurav (2014) research design can be seen as coming up with how data will be collected and analyzed and also conditions for the same in order to bring meaning to the research purposes as well as helping to bridge knowledge gap, it can be seen as framework to collect, measure and analyze data.

The study applied cross sectional survey to investigate the effects of capital budgeting appraisal method with financial performance of firms listed in the NSE. Selected design was best for explaining characteristics and association of variables at specified time.

3.3 Population of the Study

Mugenda and Mugenda (2003) states population as object, events and entire group that has similar observable characteristics, the research involved the 66 companies listed in the NSE as at August 2018. The information about these companies were readily available since these companies are publicly quoted therefore publish their annual financial reports.

Sampling was not employed because at the time of study there were only 66 listed companies at NSE therefore the study employed census survey since the whole

population of companies listed were included in the study. The study covered a period of five years from 2013-2017. The choice of the period picked was justified because the period was long enough for the capital budgeting process to be completed i.e selected, implemented and results established as the study used return on Asset to measure financial performance of the companies, as a comparative measure its best to compare it against a company's previous ROA. Previous researchers have also conducted studies that run within similar period for instance the study by Axelsson, et al. (2002) and Farragher,et.al (2001).

3.4 Data Collection

This study used primary and secondary data. Primary data on the capital budgeting techniques was collected using a questionnaire which was dropped and picked at a later date to senior managers of the listed firms. The questions were made of Likert scale questions which assessed the extent to which capital budgeting techniques have been adopted by the listed firms. Secondary data on financial performance were obtained from the listed firms published financial statements. The secondary was collected for a period of 5 years from 2013 to 2017.

3.5 Data Analysis

This concerned making useful, comprehensible and clear information from the collected data and processing it by coding, editing and tabulating in accordance with the objectives set for the study. Percentages were used to facilitate easier analysis of the responses obtained from the issued questionnaires. SPSS version 23 was employed to analyze data that was collected where by descriptive statistics were used to understand better the

findings, the information presented into percentages, pie charts and tables with an analysis while inferential statistics was applied by use of multiple regression model.

3.5.1 Diagnostic Test

Linearity is property of mathematical function that can be represented in a straight line graphically, it shows that the variables X and Y are related by this function y=bx where c is a constant. Linearity test can be obtained in Anova through F statistics or scatter plot test. Normality refers to how the residual variables are normally distributed around the mean determined by Shapiro-walk test. Auto correlation is the measure for similarities between specific time series and lagged value of that time series over time intervals tested using Durbin-Watson statistics. Multicollinearity means there is a very high inter-association among independent variables caused by inaccurate use of variables tested by determinant of correlation matrices which varies from zero to one.

3.5.2 Analytical Model

The study adopted the multiple regression model which examines the effects of capital budgeting appraisal methods to firm's performance. The model was given by the following equation:

$$ROA = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon$$

Where:

ROA = Measure of Return on Assets which is the ratio of net income to total assets

β_0 = constant (y intercept)

X_1= Net Present Value (NPV) technique

X_2= Internal rate of return (IRR) technique

X_3= Payback Method

X_4 = Accounting rate of return (ARR) technique

X_5= Size of the company (measured by log of Total Asset)

X_6= Leverage (Debt/Equity)

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5 \& \beta_6$= Regression coefficients

X_1 - X_4 - Measured by Likert Scale

ε = Error term

3.6 Validity and reliability

Reliability refers to the repeatability of the study, if for instance the same study was to be conducted today will the researcher yield the same results as the study previously conducted? Maintaining same condition of study, the observers should come up with same results and agree on the observations being recorded. Reliability was assessed using the Cronbach's alpha which measures internal reliability for tests with multiple possible answers. According to Nunnally (1978) a coefficient of alpha that is equal to or more than 0.7 was considered acceptable. Validity on the other hand refers to credibility and believability of the study, do the finding make sense, are they genuine, the validity of the study was found by the amount of support from the data collected.

CHAPTER FOUR: DATA ANALYSIS FINDINGS AND DISCUSSION

4.1 Introduction

The chapter analyses the collection of primary and secondary data. Primary data was collected using a questionnaire whereas secondary data was collected from the listed firm's financial reports for a period of 5 years from 2013 to 2017. The main purpose for the research was to determine the effects of capital budgeting techniques on the financial performance of those companies which are listed at the NSE.

4.2 Questionnaire Response Rate

This study sought to determine the response rate since it enables the researcher to know whether it's enough and adequate for analysis and reporting of the findings. The study targeted Investment Managers, Risk managers and Finance managers in all the listed 66 firms. Only a single respondent was targeted in each company. A sum of 50 firms were accessed and completely filled the questionnaires as required of them making up to response rate of 76% which agrees with Mugenda and Mugenda (2012) assertion that 50% response rate is good and rate of response above 70% is very good for any academic report analysis and presentation.

4.3 Diagnostic Tests

Diagnostic tests carried were carried out for data collected during the study. This includes Multicollinearity, Normality and Heteroscedasticity tests.

4.3.1 Multicollinearity Test
This research meant to determine the how collinear the independent variables are using tolerance and variation inflation factor.

Table 4.1 : Tolerance and VIF Measures

Collinearity Measures	Tolerance	VIF
Net Present Value (NPV) technique	0.785	1.227
Internal rate of return (IRR) technique	0.847	1.248
Payback Method	0.811	1.322
Accounting rate of return (ARR) technique	0.801	1.256
Size of the company	0.745	1.221
Leverage	0.711	1.206

a. Dependent Variable: Financial performance of listed companies

The study deployed Menard (2012) threshold which stated that inflation variance factor of 4.0 represented high status of multicollinearity. From Table 4.1 Net Present Value (NPV) technique had a VIF of 1.227, Internal rate of return (IRR) technique had a VIF of 1.248, Payback Method had a VIF 1.322, Accounting rate of return (ARR) technique had a VIF of 1.256, size of the company had a VIF of 1.221 while leverage had a VIF of 1.206.

4.3.2 Normality Test

It meant to determine the normal performance distribution of listed companies examined for the Gaussian distribution through the use of numerals and graphs.

Table 4.2: Kolmogorov-Smirnov and Shapiro-Wilk tests for financial performance of listed companies

	Kolmogorov -Smirnov[a]		Shapiro- Wilk		
	Df	Stats Sig	Dif	Sig	Statistics
Financial performance of listed companies	65	0.088	65	.200[*]	.956

a. Lillierfors Significance Correction

* Lower bound of true significance

The calculated figures of Kolmogorov-Smirnov and Shapiro-Wilk test gives p-value of 0.200 significant levels which illustrates existence of a normal distribution of financial performance of listed companies.
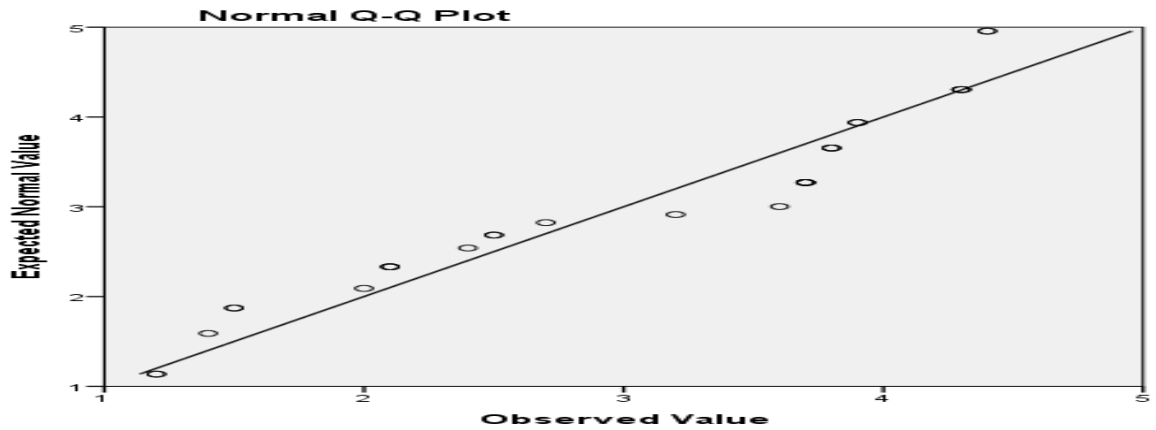
Figure 4.2:Normal Curve Plot

Computations by Kolmogorov-Smirnov and Shapiro-Wilk test implied statistics were insignificant having p=0.200 that showed that Financial performance of listed companies has a normal distribution.

4.3.3 Test for Heteroscedasticity

This study also purposed to examine the presence of heteroscedasticity through Breusch-Pagan test. Here are the results;

Table 4.3: Breusch-Pagan Test

Breusch-Pagan test for heteroscedasticity
Ho: Constant variance
Variables: fitted values of Financial performance of listed companies
$Chi^2 (1) \quad = \quad 0.22$
$Prob > chi^2 = \quad 0.7134$

Breusch-Pagan/Cook-Weisberg was employed. From the outcomes, the chi-square value was small, showing that there was no problem of heteroscedasticity. It was as well shown that p= 0.7134 was above 0.05 significant levels showing that homoscedasticity was not violated.

4.4 Descriptive Results

On the availability of a defined process to be followed during capital budgeting in the listed firms, every other respondent in the research agreed on involvement of guidelines on capital budgeting hence representing the entire population of 100%. The respondents further stated that their respective companies had a well elaborated capital investment manual.

4.4.1 Adherence to Capital Budgeting Statements

The respondents got requested to give an indication on how much the adhered to the following capital budgeting processes in their respective organization. A scale of 1-5 where 1= not at all, 2= to a little extent, 3= moderate extent, 4= great extent and 5= very great extent was used.

Table 4.4 : Adherence to Capital Budgeting Statements

Statement	Mean	Std deviation
Corporate strategic plans guide decisions on capital budgeting decisions in the organization	4.01	0.15
A number of opportunities are identified in earlier in the organization	3.67	0.21
We collect relevant and detailed information on each investment opportunity	3.55	0.14
We do analysis of opportunities to invest on keenly so as to determine how worth they are to the organization	3.49	0.35
We do evaluation of how profitable every opportunity on investment is.	3.76	0.23
We set budgets for each investment project to be undertaken	3.55	0.59
We evaluate the fitness of the investment opportunities against the corporate strategic plan	3.72	0.35
All projects have to be authorized prior to their kick off	3.86	0.43
All projects not meeting the set thresholds are abandoned	3.95	0.32
On being implemented, comparison of actual and budgeted costs are done to determine the variance	3.54	0.23
Information gained from an opportunity on investment is handed on to the next one	3.87	0.34

On the above statement regarding to adherence to capital budgeting processes, a big number of respondents were in agreement at a greater extent that corporate strategic planning guided decisions made concerning capital budgeting organization as shown by a mean of 4.01. They further indicate that all projects not meeting the set thresholds are abandoned as shown by a mean of 3.95. The respondents also agreed to a greater extent that from the information gained from one opportunity of investment is handed on to the next one as shown by a mean 3.87 and that authorization is necessary for all other projects before they are started as shown by a mean of 3.86.

It was further established that the respondents' respective organisations evaluate the profitability of each investment opportunity as shown by a mean of 3.76 and that fitness of the investment opportunities against the corporate strategic plan is evaluated as represented by a mean of 3.72. A number of opportunities for investments are realized earlier as given by mean= 3.67 and that their organisations collect relevant and detailed information on each investment opportunity as shown by a mean of 3.55. As well, they did agree that they set budgets for each investment project to be undertaken as shown by a mean 3.55 and on being implemented, comparison of budgeted and actual costs were done to determine the variance as given by the mean=3.54. Finally, respondents agreed to a greater extent that they analyzed investment opportunities thoroughly to establish their worthiness to the organization   as shown by a mean of 3.49.

4.4.2 Employment of Budgeting Techniques in Evaluating Capital Projects

Respondents were supposed to give an indication of how much capital budgeting methods below were employed in assessing capital projects in their organization. A scale

of 1-5 where 1= not at all, 2= to a little extent, 3= moderate extent, 4= great extent and 5= very great extent was used.

Table 4.5 : Employment of Budgeting Techniques in Evaluating Capital Projects

Statements	Mean	Std Deviation
Net Present Value (NPV) technique (Difference between PV of cash inflows over period of time and cash outlay)	4.08	0.21
IRR method (Rate when the NPV is zero)	2.32	0.13
Payback period Method (Period of time required to recoup the amount invested)	3.85	0.12
Accounting Rate of Return (ARR) Technique(Average rate of return gotten by dividing average annual accounting profit by initial investment)	1.98	0.18

As indicated above, a big number of respondents at a greater extent agreed that Net Present Value (NPV) technique was employed in their respective organisations as represented by a mean of 4.08. This was followed Payback Period methods as shown by a mean of 3.85. The respondents at a low extent did agree that they employed Internal Rate of Return (IRR) as shown by a mean of 2.32 and Accounting Rate of Return (ARR) as shown by a mean of 1.98.

4.4.3 Favorable Technique when Deciding Investment Projects to Pursue

The study wanted to establish the most favoured technique employed in making decisions on what projects should be taken for investment. The findings are presented as follows;
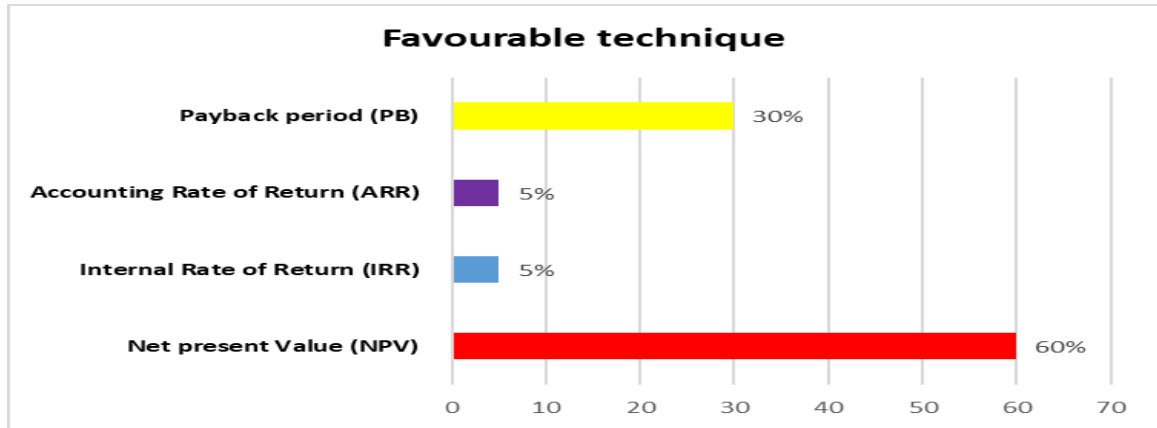
Figure 4.3:Favorable Technique when Deciding Investment Projects to Pursue

As shown in the figure 4.5 above, 60% of the respondents preferred using net Present Value, 30% preferred payback period while 5% preferred the use of IRR and accounting rate of return.

4.4.4 Factors Considered in Selection of Capital Budgeting Techniques

The respondents got requested to give an indication of how much they agreed with following statements on factors considered in selection of capital budgeting techniques by using a scale 1- Strongly disagrees, 2- disagree, 3- Neutral 4- agree, 5 – strongly agree.

Table 4.6 : Factors Considered in Selection of Capital Budgeting Techniques

Statement	Mean	Std deviation
The socio-economic benefits of the project to the shareholders	3.89	0.24
The ability of the method to correctly rank competing projects	3.50	0.34
The ability of the method to correctly identify wealth-increasing project.	3.98	0.18
The ability of the method to recognize the timing of the cash flows and their relative magnitudes	4.15	0.15
The ease with which the management can understand the results.	3.65	0.28

The respondents agreed that they selected a capital budgeting technique based on the ability of the method to recognize the timing of the cash flows and their relative magnitudes as shown by a mean of 4.15. Further they agreed that a capital budgeting technique is chosen based on the ability of the method to correctly identify wealth-increasing project as shown by a mean of 3.98. The socio-economic benefits of the project to the shareholders is also considered as shown by a mean of 3.89, the ease with which the management can understand the results as shown by a mean of 3.65 and the ability of the method to correctly rank competing projects as shown by a mean of 3.50.

4.4.5 Extent to which companies applies the following approaches

The respondents again were supposed to give an indication of how much their companies applied the approaches below in determining the least rate of return acceptable to examine the capital investment analysis proposed. A scale of 1-5 where 1= no extent, 2= little, 3= moderate, 4= Large and 5= Very large extent was used.

Table 4.7 : Extent to which companies applies the following approaches

Approaches	Mean	Std Deviation
WACC	3.55	0.23
Cost of Capital	3.75	0.42
Cost of Equity	3.98	0.16
Arbitrary Chosen Figure	3.01	0.75

As illustrated above, a big number of respondents at a large extent agreed that their companies applied cost of equity at measuring the least rate of return acceptable as shown by the mean of 3.98. This was followed by cost of capital as shown by mean of 3.75, followed by WACC by the mean 3.55. Respondents were neutral on the arbitrary chosen figure approach as shown by a mean of 3.01.

4.5 Secondary Data Results

Table 4.8 :Descriptive Data

Variables/Year		Mean	Standard Deviation
Return on Assets			
	2017	2.5115	2.064
	2016	2.5289	2.029
	2015	2.5831	2.168
	2014	2.5333	2.048
	2013	2.6178	2.26
Size (Log of total assets)			
	2017	5.9744	0.7225
	2016	5.0206	0.6072
	2015	3.7655	0.4554
	2014	3.6149	0.4373
	2013	3.4641	0.4191
Leverage			
	2017	1.0380	0.5686
	2016	0.9693	0.5267
	2015	0.6433	0.4816
	2014	0.4427	0.4292
	2013	0.4193	0.3929

On the listed firms at NSE, the mean ROA decreased from 2.6178 in 2013 to 2.5115 in 2017 however, the results suggest that have a relatively average return on assets. With a standard deviation ranging between 2.25 and 2.06 the implication is that listed firms ROA varies significantly for listed firms in NSE. The descriptive statistics for extent firms measured by log of total assets indicates a rising mean of 3.4641 in 2013 to 5.9744

in 2017, a standard deviation ranging between 0.4191 and 0.7225. This implies that size of the firms for listed firms vary slightly. The leverage measured by debt/ equity showed an increasing mean of 0.4193 in 2013 to 1.0380in 2017, standard deviation ranging between 0.3929 and 0.5686 suggesting that the leverage of listed firms varies slightly too.

4.6 Correlations

Table 4.9 :Correlation Coefficient Table

Variables		Financial performance	NPV	IRR	payback	ARR	Size	Leverage
Financial performance	Correlation Coefficient	1						
	Sig. (1-tailed)	.						
	N	66						
Net Present Value (NPV) technique	Correlation Coefficient	0.712	1					
	Sig. (1-tailed)	0.00	.					
	N	66	66					
Internal rate of return (IRR) technique	Correlation Coefficient	0.654	0.138	1				
	Sig. (1-tailed)	0.002	0.001	.				
	N	66	66	66				
Payback Method	Correlation Coefficient	0.682	0.037	0.046	1			
	Sig. (1-tailed)	0.002	0	0.001	.			
	N	66	66	66	66			
Accounting rate of return (ARR) technique	Correlation Coefficient	0.631	1	0.008	0.124	1		
	Sig. (1-tailed)	0.00	0.001	0.003	0	.		
	N	66	66	66	66	66		
Size of the company	Correlation Coefficient	0.798	0.432	0.008	0.124	0.045	1	
	Sig. (1-tailed)	0.00	0.001	0.003	0	0.0	-	
	N	66	66	66	66	66	66	
	Correlation Coefficient	0.705	0.386	0.004	0.114	0.048	0.321	1
Leverage	Sig. (1-tailed)	0.00	0.001	0.003	0.0	0.0	0.0	-
	N	66	66	66	66	66	66	66

From the outcomes of this research, it portrayed that a strong and positive relationship existed between financial performance and Net Present Value (NPV) technique as indicated by the value of 0.712, which is significant as its significance level was

0.00<0.05. There was also a strong and positive relationship between financial performance and internal rate of return (IRR) technique as indicated by the value of 0.654, the significant level value was 0.002 and hence significant as it is below 0.05.

There as well existed a strong positive relationship between financial performance and payback method as indicated by the correlation value of 0.682 and was termed significant at the value of 0.02 which was below 0.05. There was also a strong positive relationship between financial performance and Accounting rate of return (ARR) technique as indicated by the correlation value of 0.631 and was termed significant at the value of 0.00 which was below 0.05. The research discovered a strong positive relationship between financial performance and size of the company as indicated by the correlation value of 0.798 and was termed significant at the value of 0.00 which was below 0.05. Lastly the research discovered a strong positive relationship between financial performance and leverage as indicated by the correlation value of 0.705 and was termed significant at the value of 0.00 which was below 0.05.

4.7 Regression Model

In the research, a multiple regression analysis was carried out to examine how the predictor variables influenced each other. The SPSS V 23.0 was used to do the coding, entering as well as computation of measurements.

4.7.1 Model Summary

The model summary is presented in the table below

Table 4.10: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.818[a]	.669	.652	.37290

Coefficient of determination technique was deployed to examine the suitability of the model. The model had mean R^2 of 0.652 meaning 65.2% of differences in financial performance of listed firms at NSE are explained by the independent variables under study (Net Present Value (NPV) technique, Internal rate of return (IRR) technique, Payback method, Accounting rate of return (ARR) technique, size of the company and leverage).

4.7.2 ANOVA

The research examined the model's significance through application of Analysis of Variance (ANOVA) method. The outcomes are s illustrated below.

Table 4.11: Summary of One-Way ANOVA results

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	0.588	6	0.098	4.083	.001[b]
1	Residual	1.416	59	0.024		
	Total	2.004	65			

Critical value =1.96

According to ANOVA, the research found the regression model as having a 0.1% significance level that indicated the suitability of the data in coming up with conclusions regarding the parameters of the on the population as p< 5%.

4.7.3 Table of Coefficients

This was used in determining the model of the study and the outcomes are as shown below.

Table 4.12: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.176	0.324		6.71	0.00
Net Present Value technique	0.132	0.032	0.097	4.12	0.00
Internal rate of return	0.089	0.021	0.07	4.23	0.001
Payback Method	0.101	0.025	0.07	4.04	0.00
Accounting rate of return	0.092	0.022	0.013	4.18	0.00
Size of the company	0.569	0.118	0.394	4.82	0.00
Leverage	0.492	0.122	0.413	4.03	0.00

With regard to SPSS output generated on the table above, equation ($Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon$) changes to:

$Y = 2.176 + 0.132 X_1 + 0.089 X_2 + 0.5101 X_3 + 0.092 X_4 + 0.569 X_5 + 0.492 X_6$

As seen from the regression model an additional unit in application of NPV method would result to a 0.132 rise in financial performance; a unit change in usage of Internal rate of return technique will promote financial performance of listed firms by 0.089, an additional unit on usage of payback method would lead to an increase in financial performance of listed firms by 0.101. A unit change in Accounting rate of return usage would lead to an increase in performance of listed firms by 0.092 and vice versa. Size of the company and liquidity will influence performance positively by the following factors;0.569 and 0.492.

A significance level of 5% was used in the analysis. The technique used for comparison of significance of the predictor variables was by comparing the value of probability and $\alpha = 0.05$. If $p < \alpha$, predictor variable was significant and vice versa. In the model, predictor variables had probabilities below 0.05 and were therefore significant since $\alpha = 0.05$.

4.8 Discussion

The main purpose of the research was to investigate the association between capital budgeting techniques and financial performance of firms listed at Nairobi Securities Exchange. So as to achieve the objective, a thorough literature review was done. Based on the literature it got discovered that companies used various capital budgeting methods to appraise investment decisions.

In this study, it was laid out that a big number of respondents who did work for the departments they were entitled to is between 4 to 5 years and followed by respondents who did work for more than 6 years. The study concentrated on risk department, investment department and finance department. A big number of companies preferred the NPV method to be their tool in capital budgeting, followed closely by payback period and then Internal Rate of Return (IRR). None of the companies did unanimously agree to use the ARR method for appraisal of investments but some companies still do use it

A fundamental principle of contemporary capital budgeting theory regards the fact that investment returns required should mirror the risks associated with the investment and investment returns which are elsewhere from investments of the same risk. This results to use ways of analyzing risk. With regard to this research, a big number of the respondents carried out risk analysis. Nearly and above half of respondents preferred using cost of debt and cost of equity in determining acceptable rate of return while more than a quarter of them had no idea which method is used to examine the rate of return that is acceptable. The minority of the respondents however preferred the use of WACC. An overwhelming majority considered capital budgeting process as a strategy of achieving competitive advantage over their competitors.

The regression analysis model determine how capital budgeting methods were related to how the companies listed at NSE performed. The outcomes showed that th e model was significant having the analysis of R^2 of 0.652 showing a 65.2% extent of support. There was linearity between the dependent variable and the six variables. The research as well showed that as compared to other methods, NPV was the most preferred as it had a positive return on the assets then followed by the payback technique.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The chapter presents a summary of the outcomes, conclusions and recommendations to be practiced and expounding research on the same topic. The key purpose was determining the effects of capital budgeting techniques on the financial performance of companies listed at NSE.

5.2 Summary

This investigated how capital budgeting techniques influenced how the companies listed at NSE performed financially. Primary and secondary data collection was performed. Questionnaires were used to carry our primary data. For secondary data, it was collected from listed firm's financial reports for a period of 5 years from 2013 to 2017. Majority of the respondents were investment managers as represented by a 50% response rate and had worked in their respective departments between 4 to 5 years. This study established that capital budgeting decisions in most companies was guided by corporate strategic plan as represented by a mean of 4.01.

It was further established that organisations evaluate the profitability of each investment opportunity. The findings are in line with those of Munyao (2010) who stated that; considering economic rationality, sophisticated capital budgeting procedures has been seen as means by which firms achieve its main objective of ensuring that shareholders gain maximum value of their investments, this fact indicate that firms can maximize or increase its shareholder's wealth through use of sophisticated capital budgeting appraisal method.

The study established that Net Present Value (NPV) method was greatly employed techniques followed by Payback Period methods. It was also revealed that a capital budgeting technique is selected based on the ability of the method to recognize the timing of the cash flows and their relative magnitudes. The findings are in line with those of Singh, Jain and Yadav, (2012) who found that sophisticated capital budgeting techniques have continuously been applied in by many firms all across the globe.

The findings depicted the model as significant with the showing R^2 of 0.652 meaning it supports the relationship to the extent of 65.2%. The was linearity between the dependent variable and the six variables. Despite the growing acceptance of sophisticated capital budgeting techniques, simple regression results did not show a consistent correlation between the techniques but it showed that simply adopting different analytical tools was not enough to improve performance but other factors like product publicizing, product improvement, recruitment and leadership training, employment relations, etc.

From the regression model NPV method had a coefficient of 0.132, Internal rate of return technique had 0.089, payback method had 0.101, Accounting rate of return had 0.092, Size of the company and liquidity had;0.569 and 0. 492.From the above coefficients firm size and liquidity had the largest coefficients. The findings are in line with those of Mathur (1997) who found that the size of the firm can largely affect financial performance for three main reasons: large firms get easier access to cheaper funding as opposed to small firms, large firms use advantage of their firm size to get financial deals in business relations and also easier access to factors of productions. Thus, firms' focus should be on increasing their size by boosting turnover and opening up new markets for existing and new products.

5.3 Conclusion

The purpose of the research was determining the capital budgeting methods used by firms and how the said techniques relate with listed firms at NSE performed. With regard to the outcomes of the study, results indicated that the capital budgeting methods got deployed when they were appraising the projects to invest on. Thus a conclusion was made that NPV, payback period, IRR and ARR were put into place by a big number of companies as their budgeting tools in order of preference

Outcomes from regression analysis indicated that a correlation existed on capital budgeting methods used and how the firms performed financially. Nevertheless, the independent variables rankings in firms showed that NPV was positive on ROA and payback period became second. ARR and IRR were also positively related to ROA. Size of the company and leverage also had a huge effect on financial performance of listed companies.

This study analyzed capital budgeting techniques on firm's financial performance. Financial performance was measured in terms of return on assets. The study used two moderating variables which were regressed together with return on assets. The control variables were found to have a huge effect on financial performance of listed firms in NSE. The study finally concludes that managers in the listed firms need to continuously monitor their techniques in order to maximize the shareholder's wealth and create value

5.4 Recommendations

The research therefore gives recommendations as follows;

This research advocates for sufficient measures to be employed so as to have great progress in their financial performance by considering how the firm spends its capital. Generally, all companies should practice capital expenditure that results to improved value of firms since this depicts improved shareholder wealth that is the key objective of a company.

Training of stuff is key most especially concerning familiarity of the techniques employed and also employing staffs who are experts in capital budgeting so as to maximize on investments. There should be awareness creation even to the rest of the stuffs concerning capital budgeting since some of them did not know its meaning and also the department it belonged to.

Participation of employees is important as well in making decisions regarding capital budgeting since they can bring about areas that the executive managers have oversight over them. In addition, it is necessary to involve full time workers to an important area on analyzing investments and have them in the production sector and give an overview on guidelines concerning capital expenditure. There also exists a necessity to give training to managers regarding competences based on a financial aspect since this would impact greatly on the firm's decision on undertakings and techniques employed both regionally and nationally.

Leverage was also realized to have significant strong outcomes on productivity of listed firms. The study recommends that when firms are setting their capital structure they

should strike a balance between the tax savings benefit of debt and bankruptcy costs associated with borrowing. High levels of debt has been found to reduce profitability of listed firms from the findings of this study and so firm managers should maintain debt levels that do not impact negatively on profitability to ensure the goal of maximizing shareholders' wealth is attained.

The Management should be keen on the cause and effect relationships of the decisions undertaken in order to influence the firms positively, on the other hand the NSE and the capital market authority should organize seminars to educate the existing management as well as the upcoming managers on the changing business and economic environment and also importance of investments decisions towards improving firms performances.

5.5 Limitations of the Study

A big number of respondents did not know the actual method for employed by their companies regarding capital budgeting and basically what it meant. Misinterpretation of terms used in this study might have led to lower dependability of the study. Accessibility of the population targeted was also difficult because for a big number of the companies, information could only be obtained from the headquarters as a result of bureaucracies involved as well as their laid out policies on that.

The third limitation was the use of questionnaire which sometimes the responses are based on the respondent's emotions whereby the respondents collected questionnaires and filled with inaccurate information. The unavailability of secondary data to be used as the measurable for the capital budgeting techniques posed this huge challenge resulting to the use of primary data which sometimes is regarded unreliable.

A big number of respondents did not want to fill in the given questionnaires as a result of sensitivity of the nature of the firms and again they feared that their information could be given to competitors who would use that information for their own benefit and against that firm, this was quite a challenge because the researcher was not able to collect data or find reliable data to be used in the analysis process.

5.6 Suggestions for Further Research

Because the research targeted companies which are listed by NSE, a recommendation is made on conducting such a research for companies outside the brackets of listings by NSE. More studies need to be conducted in order to examine how capital budgeting relates to financial performance of a company through application of different tools of measuring financial performance of a company apart from ROA for example earnings per share (EPS) technique.

More research later in the future could target a specific industry in order to achieve homogeneous outcomes. This is because practices by companies that are listed may not give a full representation of all companies in Kenya in general. The companies not listed were no taken care of in the research conducted. Therefore, the need to conduct a similar research on unlisted firms by the NSE so as to examine the same objectives.

This study further recommends a similar study but with a different respondents setting, the study can target SMES and from it establish the techniques applied by the many SMES which plays a significant role in employment creation in the country and also contributes greatly towards the general economy of the country. Other industries should also be looked into to improve their contributions to the economy

REFERENCES

Arnold, T., & Shockley, R. L. (2002).Real options, corporate finance, and the foundations of value maximization. *Journal of Applied Corporate Finance*, *15*(2), 82–88.

Axelsson, H. Jakovicka, J. & Kheddache, M. (2002).Capital Budgeting Sophistication and Performance, puzzling Relationship.*Unpublished MBA project,* Graduate Business School, Goteborg University.

Barton, S. L., & Gordon, P. J. (1988).Corporate strategy and capital structure.*Strategic Management Journal*, *9*(6), 623–632.

Bititci, U. S., Carrie, A. S., & McDevitt, L. (1997). Integrated performance measurement systems, a development guide. *International Journal of Operations & Production Management*, *17*(5), 522–534.

Branch, B., & Gale, B. (1983).Linking corporate stock price performance to strategy formulation.*Journal of Business Strategy*, *4*(1), 40–50.

Brief, R. P., & Lawson, R. A. (1992).The role of the accounting rate of return in financial statement analysis.*The Accounting Review*, *67*(2), 411–426.

Brigham, E. F., & Ehrhardt, M. C. (1999).*Financial management: theory and practice* (9th Edition). San diego, Harcourt Brace College.

Burksaitiene, D. (2008). Development of divisional performance measures. In *Paper delivered at the 5th International Scientific conference Business and Management* (pp. 16-17).

Chai, T. (2011).The Impact of Capital Budgeting Techniques on the Financial Performance of the Courier Companies in Kenya. *Unpublished MBA Project,* University of Nairobi

Chance, D. M., & Peterson Drake, P. (2002).*Real options and investment valuation*.Charlottesville, Va

Christy, G. A. (1966). Capital budgeting: Current Practices and their efficiency (Vol. 21). Bureau of Business and Economic Research, University of Oregon.

Cooper, K. H. (2001). *Economics: principles in action,* Pearson Prentice Hall.

49

Dean, J. (1951). *Capital Budgeting: Top-management policy on Plant, Equipment and Product development*. Columbia University Press.

Drury, C. (2007). *Management and cost accounting* (6. edition). Thomson Learning, London.

Farragher, E. J., Kleiman, R. T., & Sahu, A. P. (2001).The association between the use of sophisticated capital budgeting practices and corporate performance.*The Engineering Economist*, *46*(4), 300–311.

Fruhan, W. E. (1979). *Financial strategy: studies in the creation, transfer, and destruction of shareholder value*. Homewood, Ill: R. D. Irwin

Gilbert, E. (2005). Capital budgeting: A case study analysis of the role of formal evaluation techniques in the decision making process. *South African Journal of Accounting Research*, *19*(1), 19–36.

Gitman, L. J., & Forrester, J. R. (1977).A survey of capital budgeting techniques used by major U.S Firms.*Financial Management*, *6*(3), 66–71.

Graham, J. R., & Harvey, C. R. (2001). The theory and practice of corporate finance, evidence from the field. *Journal of Financial Economics*, *60*(2–3), 187–243.

Haka, S. F., Gordon, L. A., & Pinches, G. E. (1985). Sophisticated capital budgeting selection techniques and firm performance. *The Accounting Review*,4, 651-669.C

Kadondi, E.A (2002). A Survey of Capital Budgeting Techniques used by Companies listed at the NSE, *Unpublished MBA project*, University of Nairobi.

Kakani, R. K., Saha, B., & Reddy, V. N. (2001). *Determinants of financial performance of Indian corporate sector in the post-liberalization era: an exploratory study* (SSRN Scholarly Paper No. ID 904983). Rochester, NY: Social Science Research Network.

Klammer, T. (1973).The association of capital budgeting techniques with firm performance.*The Accounting Review*, *48*(2), 353–364.

Kothari, C. R., & Garg, G. (2019).*Research methodology: methods and techniques* (Fourth multi colour edition). New Delhi: New Age International (P) Limited, Publishers.

Lebas, M. J. (1995). Performance measurement and performance management.*International Journal of Production Economics*, *41*(1–3), 23–35.

Mathur, S. S., & Kenyon, A. (1997). Our strategy is what we sell. *Long Range Planning*, *30*(3), 455–458.

Merchant, K. A., & Van der Stede, W. A. (2007).*Management control systems: performance measurement, evaluation and incentives*. Pearson Education.

Mooi, S. & Mustapha, M. (2001).Firm Performance and Degree of Sophistication of Capital Budgeting Practice: Some Malaysian Evidence; Proceedings of the Asia Pacific Management Conference, 19 (1) 279-29

Moore, J. S., & Reichert, A. K. (1989).A multivariate study of firm performance and the use of modern analytical tools and financial techniques.*Interfaces*, *19*(3), 79–87.

Mugenda, A. &Mugenda, O. (2003). Research methods - manuals online. (n.d.). Retrieved from http://www.readyviva.com/?s=1300896

Munyao, A. (2010). The Relationship between Capital Budgeting Techniques and Financial Performance of Companies listed at the NSE. *Unpublished MBA project*, University of Nairobi.

Myers, S. C., &Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, *13*(2), 187–221.

Neely, A., Mills, J., Platts, K., Richards, H., Gregory, M., Bourne, M., & Kennerley, M. (2000). Performance measurement system design: developing and testing a process-based approach. *International Journal of Operations & Production Management*, *20*(10), 1119–1145.

Njiru, B. M. (2008). A Survey of Capital Investment Appraisal Techniques Used by Commercial Parastatals in Nairobi, MBA Project, University of Nairobi, Nairobi Securities Exchange (2013).

Olawale, F., Olumuyiwa, O., & George, H. (2010).An investigation into the impact of investment appraisal techniques on the profitability of small manufacturing firms in the Nelson Mandela Metropolitan Bay Area, South Africa.*African Journal of Business Management*, *4*(7), 1274–1280.

Olum,C.,(1976). Capital Investment Appraisal Techniques and Publicity Finances Investment Project in the Private Sector, Unpublished MBA project, University of Nairobi.

Menard (2012). The design of capital budgeting processes and the corporate context.*Managerial and Decision Economics*, *7*(3), 187–195.

Pike, R., & Neale, B. (2009).*Corporate finance and investment: decisions and strategies* (6th ed). Harlow: Financial Times Prentice Hall.

Pindyck, R. S. (1990). *Irreversibility, uncertainty, and investment* (Working Paper No. 3307).National Bureau of Economic Research.

Ross, S. A., Westerfield, R., & Jordan, B. D. (2002).*Fundamentals of corporate finance* (6. ed., alternate ed). Boston, Mass.: McGraw-Hill/Irwin.

Schall, L. D., & Sundem, G. L. (1980). Capital budgeting methods and risk: a further analysis. *Financial Management*, *9*(1), spring 7–11.

Seitz, N. E., & Ellison, M. (1999).*Capital budgeting and long-term financing decisions*. Fort Worth: Harcourt Brace College.

Singh, S., Jain, P. K., & Yadav, S. S. (2012). Capital budgeting decisions: evidence from India. *Journal of Advances in Management Research*, *9*(1), 96–112.

Weston, Fred J. & Brigham, Eugene.(2004). Basics of financial management (5 edition) corporate governance board of directors.(n.d.).

Wokabi W. J (2014). The relationship between capital budgeting techniques and financial performance of firms listed at NSE *Unpublished MBA Project*, university of Nairobi.

Yao,L.,Smid,P., & Hermes, N. (2006).Capital Budgeting Practices: A Comparative Study of the Netherlands and China, *Unpublished Master Business,* University of Groningen

APPENDICES

Appendix 1: Questionnaire

Dear respondent,

The aim of the questionnaire is to collect data on effects of capital budgeting techniques on the financial performance of the companies listed at the Nairobi securities exchange. The study is academic in nature and aimed at the partial fulfillment of the requirements for the award of the degree of master of business at the University of Nairobi. Any information provided will be treated with utmost confidentiality. Please respond where appropriate

Section A: Background Information

1. Firm Name _____

2. Position of the respondent_____

3. The number of years you have been working for the current organization?

i)1 year and below( ) ii) 2-3 ( )   iii) 4-5 ( )   iv) Over 6 ( )

Section B: Capital Budgeting Techniques

4. Does your organization have a defined process to be followed during capital budgeting?

Yes ( )   No ( )

5. Below is a list of activities within the capital budgeting process. To what extent are these processes adhered to in your organization? Use a scale of 1-5 where 1= not at all, 2= little , 3= moderate, 4= great and 5= very great.

Statement	1	2	3	4	5
Corporate strategic plans guide decisions on capital budgeting decisions in the organization					
A number of opportunities are identified earlier in the organization					
We collect relevant and detailed information on each investment					

opportunity					
We do analysis of opportunities to invest on keenly so as to determine how worth they are to the organization					
We do evaluation of how profitable every opportunity on investment is.					
We set budgets for each investment project to be undertaken					
We evaluate the fitness of the investment opportunities against the corporate strategic plan					
All projects have to be authorized prior to their kick off					
All projects not meeting the set thresholds are abandoned					
On being implemented, comparison of actual and budgeted costs are done to determine the variance					
Information gained from an opportunity on investment is handed on to the next one					

6. To what extent do you employ the listed capital budgeting techniques in evaluating capital projects in your organization?

Statements	No extent	little extent	Moderate extent	Large extent	Very large extent
Net Present Value (NPV) technique (Difference between Present value of cash inflows over period of time and cash outlay)					
Internal Rate of Return (IRR) Technique (Rate when the NPV is zero)					
Payback period Method (Period of time required to recoup the amount invested)					
Accounting Rate of Return (ARR) Technique(Average rate of return gotten by dividing average annual accounting profit by initial investment)					

7. Which of the following technique(s) does your company favour when deciding which investment projects to pursue?

Net present Value (NPV)   ( )

Internal Rate of Return (IRR)   ( )

Accounting Rate of Return (ARR)   ( )

 Payback period (PB)   ( )

Any other, specify…………………………………………………………………………

8. Kindly give an indication of how much you are in agreement with the following factors considered in selection of capital budgeting techniques by your company by using a scale 1- strongly agrees, 2- agree, 3- Neutral 4- Disagree, 5 – strongly disagree.

Statement	1	2	3	4	5
The socio-economic benefits of the project to the shareholders					
The ability of the method to correctly rank competing projects.					
The ability of the method to correctly identify wealth-increasing project.					
The ability of the method to recognize the timing of the cash flows and their relative magnitudes					
The ease with which the management can understand the results.					

9. By how much does the firm you work for put into use the approaches below in determining the least rate of return acceptable in evaluation of capital investment analysis proposed.

Statements	No extent	little extent	Moderate extent	Large extent	Very large extent
WACC					
Cost of capital					
Cost of Equity					
Arbitrary Chosen Figure					

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Appendix II: Data Collection Sheet

Data summary for the 66 firms

Variables/Year		
Return on Assets		
	2017	2.5115
	2016	2.5289
	2015	2.5831
	2014	2.5333
	2013	2.6178
Size (Log of total assets)		
	2017	5.9744
	2016	5.0206
	2015	3.7655
	2014	3.6149
	2013	3.4641
Liquidity		
	2017	1.0380
	2016	0.9693
	2015	0.6433
	2014	0.4427
	2013	0.4193

Appendix III: Firms listed at NSE

1. Eaagads Ltd
2. Kapchorua Tea Co. Ltd
3. Kakuzi
4. Limuru Tea Co. Ltd
5. Rea Vipingo Plantations Ltd
6. Sasini Ltd
7. Williamson Tea Kenya Ltd
8. Car and General (K) Ltd
9. Barclays Bank Ltd
10. Stanbic Holdings
11. I&M Holdings Ltd
12. Diamond Trust Bank Kenya Ltd
13. HF Group Ltd
14. KCB Group Ltd
15. National Bank of Kenya Ltd
16. NIC Group
17. Standard Chartered Bank Ltd
18. Equity Group Holdings
19. The Co-operative Bank of Kenya Ltd
20. Express Ltd
21. Sameer Africa
22. Kenya Airways Ltd
23. Nation Media Group
24. Standard Group Ltd
25. TPS Eastern Africa (Serena) Ltd
26. Scangroup Ltd
27. Uchumi Supermarket Ltd
28. Longhorn Publishers Ltd
29. Atlas Development and Support Services
30. Deacons (East Africa)

31. Nairobi Business Ventures Ltd

32. Athi River Mining

33. Bamburi Cement Ltd

34. Crown Paints Kenya

35. E.A.Cables Ltd

36. E.A.Portland Cement Ltd

37. KenolKobil Ltd

38. Total Kenya Ltd

39. KenGen Ltd

40. Kenya Power & Lighting Co Ltd

41. Kenya Power & Lighting Co Ltd

42. Umeme Ltd

43. Jubilee Holdings Ltd

44. Sanlam Kenya

45. Kenya Re-Insurance Corporation Ltd

46. Liberty Kenya Holdings Ltd

47. Britam Holdings Ltd

48. CIC Insurance Group Ltd

49. Olympia Capital Holdings ltd

50. Centum Investment Co Ltd

51. Trans-Century Ltd

52. Home Afrika Ltd

53. Kurwitu Ventures

54. Nairobi Securities Exchange Ltd

55. B.O.C Kenya Ltd

56. British American Tobacco Kenya Ltd

57. Carbacid Investments Ltd

58. East African Breweries Ltd

59. Mumias Sugar Co. Ltd

60. Unga Group Ltd

61. Eveready East Africa Ltd

62. Kenya Orchards Ltd

63. Flame Tree Group Holdings Ltd

64. Safaricom

65. StanlibFahari I-REIT

66. New Gold Issuer (RP) Ltd