

**EFFECTS OF CAPITAL INVESTMENT APPRAISAL TECHNIQUES ON
FINANCIAL PERFORMANCE OF BANKS LISTED AT THE NAIROBI
SECURITIES EXCHANGE**

BY

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DECLARATION

STUDENT'S DECLARATION

This is a declaration that this research project is my original work and has not been presented for a degree in any other university.

Signature Date

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SUPERVISOR'S DECLARATION

I hereby certify that this research project has been presented for examination with my approval as the University of Nairobi supervisor.

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ABBREVIATIONS & ACRONYMS

ARR	Accounting Rate of Return
CBA	Cost Benefit Analysis
CEO	Chief Executive Officer
DCF	Discounted Cash Flow
EPS	Earnings per Share
FIOs	Future Investment Opportunities
IPO	Initial Public Order
IRR	Internal Rate of Return
MFI_s	Micro Finance Institutions
MIRR	Modified Internal Rate of Return
MSE	Micro and Small Enterprise
NOI	Net Operating Income
NSE	Nairobi Securities Exchange
PBP	Pay Back Period
PI	Profitability Index
PV	Present Value
ROA	Return on Assets
ROCE	Return on Capital Employed

ROI	Return on Investment
SMEs	Small and Medium Enterprises
SPSS	Statistical Package for Social Science
UK	United Kingdom
UN	United Nations
UoN	University of Nairobi
WACC	Weighted Average Cost of capital

ABSTRACT

The overall objective of this study was to investigate the relationship between capital investment appraisal techniques and financial performance of Banks listed at Nairobi Securities Exchange. The study employed a descriptive design to determine the relationship between capital budgeting techniques and financial performance of Banks listed at Nairobi Securities Exchange. The target population consisted of all the 11 Banks listed at The Nairobi Securities Exchange as at 31st December 2014 (see appendix II). With this in mind, the study employed a census survey because NSE had only 11 commercial Banks that were listed hence the whole population was included in this study. The study employed both primary and secondary data on the entire population and no sampling procedure was employed. 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 as well as the Central Bank's annual supervision reports shared on the Central Bank of Kenya (CBK) website. Regression analysis was used to test the relationship between capital investment appraisal techniques and financial performance. The study established that all factors used i.e. capital budgeting techniques, size of the firm and age of the company were affecting return on assets and profitability either positively or negatively depending on the specific technique used. The findings presented also show that taking all other independent variables at zero, a unit increase in capital investment appraisal techniques will lead to an increase in the rate of return on assets. A unit increase in size of the firm will lead to an increase in return on assets. On the other hand, a unit increase in age of the company will lead to an increase in the scores of return on assets. This deduces that age of the company influences return on assets mostly followed by capital budgeting techniques and size of the firm. The study also established a significant relationship between return on assets and the independent variables; capital appraisal techniques and age of the company. The results of the regression analysis show that the capital appraisal techniques significantly affect firm performance, measured by return on assets. Ranking of the individual independent variables, it shows that, age of the company is highly related with return on assets, followed by capital budgeting techniques and size of the firm respectively. Theoretically, the use of sophisticated capital appraisal techniques should increase the effectiveness of the firms' performance as justified by an increase in return on assets. Thus, the results of this study concurred with the four theories that underpin the study. Based on the findings the study recommends that in carrying out capital investment appraisal, it is important to plan for the monitoring and post-evaluation. It is equally important that managers of commercial banks listed and the banks willing to be listed in the NSE make sound investment appraisal technique decisions that enhance financial performance so as to maximise the value of the firm.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Capital investment appraisal, also known as capital budgeting is primarily a planning process which facilitates the determination of the concerned firm's investments, both long term and short term. The components of the firm that come under this kind of capital investment appraisal include property, equipment, research and development projects, advertising campaigns, new plants, new machinery etc. Thus in simple words, capital investment appraisal is the budgeting of major capital and investment to company expenditure. For example, capital investment appraisal in small companies decides on future ventures into newer markets as well as expansion and inclusion of new activities. Capital investment appraisal factors are selected based on the priorities of stakeholders and decision makers. This available wide criteria selection of capital investment appraisal or budgeting is based upon long term growth when compared to short term profits. In order to get a full picture and better understanding of capital investment appraisal, various capital investment appraisal techniques are employed to measure capital investment appraisal of a company. The survival of a company depends very much on its ability to generate returns from its investments. Capital expenditures required in investment normally involve large sums of money and the benefits of the expenditures may extend over the future. According to Mooi and Mustapha (2001), utilizing a systematic capital budgeting process would enhance capital expenditure decisions. The terms capital budgeting and capital investment appraisal were used in the literature to refer to one and the same thing.

In Kenya, specifically in Banks listed at the Nairobi Securities Exchange, capital expenditure planning has assumed a new dimension and has been given much attention both in finance literature and in practice. This is because capital expenditures involve committing huge sums

of money, whose benefits extend well ahead into the future which is often 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 Bank. Copeland et al. (2010) notes 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.

Munyao (2010) described capital investment appraisal as the process of evaluating and selecting long term investments to maximize shareholders wealth whereas Kadondi (2002) established that the companies she studied used capital budgeting as a strategy for achieving competitive edge and that CEOs have an influence on the choice of capital investment appraisal technique a company adopts.

1.1.1 Capital Investment Appraisal Techniques

Capital investment appraisal technique is the process with which a firm or company uses to analyse and evaluate investment opportunities in long-term assets which are expected to produce benefits for more than one year (Peterson and Fabozzi, 2002). Hence, capital investment appraisal is the budgeting of major capital and investment to company expenditure. The most common capital budgeting techniques used are Net Present Value, Internal Rate of Return, Payback period, accrual accounting rate of return and the Profitability index. The first four techniques are the most popular.

Pandey (2010) states that capital budgeting decision is an important decision for the firms' survival as profitability centres on capital expenditures, especially the major ones. Capital investment appraisal or capital budgeting decisions are critical to firm's success for several

reasons. First, capital budgeting expenditures require large outlays of funds. Second, firms must ascertain the best way to raise and repay the funds. Third, most capital budgeting decisions require a long-term commitment. Finally, the timing of capital budgeting decision is important. When large amounts of funds are raised, firms must pay close attention to the financial markets because the cost of capital is directly related to the current interest rate.

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 models: NPV, IRR, accounting rate of return (ARR), and Payback Period (PBP) (Bringham et al. 1999). The estimates used to analyse 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 analysts 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.

Bringham & Besley (2002) identified the described methods above as basic methods used by firms to evaluate and decide whether projects should be accepted for inclusion in the capital budget. Kadondi (2002) established the use of capital budgeting techniques in Kenya stating that small companies use IRR and PBP methods while large companies with high net profit margins use NPV, IRR and PBP methods.

1.1.2 Financial Performance

Financial performance is a subjective measure of how well a firm can use assets from its primary mode of business and generate revenues. This term is also used as a general measure of a firm's overall financial health over a given period of time, and can be used to compare similar firms across the same industry or to compare industries or sectors in aggregation.

There are many different ways to measure financial performance, but all measures should be taken in aggregation. Line items such as revenue from operations, operating income or cash flow from operations can be used, as well as total unit sales. Furthermore, the analyst or investor may wish to look deeper into financial statements and seek out margin growth rates or any declining debt.

Financial performance of the banks listed in the Nairobi Securities Exchange can be measured by use of accounting information or stock market values in a capital investment appraisal context. When applying stock market values as a performance measure, one is interested in analyzing the market value changes. Firm performance is measured over time by using the average stock market change per year. This value is usually obtained by calculating the yearly change in stock price. The efficient market hypothesis is often used as tool to create structure when analyzing information contained in stock prices. The implication of efficient capital markets is that security prices fully reflect all available information. However, it might be difficult for financial performance to be measured by use of stock price information due to lack of information on investment practices available to shareholders, impact of changes in capital budgeting practices on accounting returns and managers placing much higher importance on return on capital and profit growth goals than on shareholder goals.

The performance of listed banks at the NSE is also 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. 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 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. According to Chai (2011), ratios are normally employed when using the accounting information. Some accounting ratios used to measure profitability include return on assets (ROA) and return on capital employed (ROCE). ROA establishes how profitable a firm is relative to its total assets and depicts how efficient management is at using available assets to generate its earnings. It is the ratio of a firm's annual earnings to its total assets and overcomes the stock market price limitations. Thus this study employed ROA to measure the operating efficiency of the banking industry at the NSE.

1.1.3 Effect of Capital Investment appraisal Techniques on Financial Performance

When the relationship between capital investment appraisal techniques and corporate performance is analyzed, other factors which account for potential influences on the relationship should also be considered. Although these other variables are not directly related to the relationship between capital budgeting techniques and performance, it is important to take them into account in order to segregate their effect on performance. These variables include; capital intensity, firm size, age of the firm, leverage, degree of risk, and industry

factors like growth, market share, firm advertising, research and development. This study held these variables as control variables.

In his study, Klammer (1973) established that despite the growing adoption of sophisticated capital appraisal methods in the U.S, there was no consistent significant association between financial performance and capital budgeting techniques. Chai (2011) established that the profitability index was highly related to the capital budgeting technique used in his study in the courier companies in Kenya.

Munyao (2010) suggested that sophisticated capital budgeting procedures can, under the assumption of economic rationality, be regarded as a means a firm uses in order to fulfil its objective of shareholders wealth maximization. This fact indicates that firms can increase or maximize their shareholders wealth by using sophisticated appraisal techniques. Thus from a finance theory perspective, it is expected that the relationship between sophisticated capital appraisal techniques and financial performance is positive.

1.1.4 The Banking Industry at the Nairobi Securities Exchange (NSE)

According to Nairobi Securities Exchange (2013), the Banking Industry in Kenya is governed by the Companies Act, the Banking Act, the Central Bank of Kenya Act and the various prudential guidelines issued by the Central Bank of Kenya (CBK). The banking sector was liberalized in 1995 and exchange controls lifted. Players in this sector have increased innovations and competition among the players and new entrants into the market.

The banking sector profit before tax increased by 20.6% from Ksh. 89.5 billion in December 2011 to Ksh. 107.9 billion in December 2012, underpinning the increased demand for bank shares at the NSE. The sector also recorded improved performance in 2014 compared to 2013. Total net assets rose by 18.5 per cent from Ksh. 2.7 trillion in December 2013 to Ksh.

3.2 trillion in December 2014, according to CBK annual supervision report. The increase in assets was largely driven by a higher demand for credit in 2014 as compared to 2013 occasioned by expanded outreach drives to tap unserved segments of the market.

Bank shares outperformed the NSE 20-Share index in the one year to May 2014 reflecting investors' confidence in the potential of the sector to maintain its robust growth momentum of the currently eleven banks listed in the NSE (Nairobi Securities Exchange, 2014).

1.2 Statement of the Problem

Based on financial theory, the objective of the firm is to maximize the wealth of its shareholders. The optimal investment decision is hence the one that maximizes the shareholders' wealth. Sophisticated capital budgeting procedures assume economic rationality as means which a firm uses in order to fulfil its objective of maximizing shareholders wealth. This fact indicates that firms can increase or even maximize their shareholders wealth by using sophisticated capital appraisal procedures. Hence from the finance theory perspective, the relationship between capital investment appraisal sophistication and financial performance is expected to be positive. 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 and financial sectors which are very capital intensive (Hamilton, 2010). 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. Studies on the relationship between capital budgeting sophistication and financial performance of a firm have presented mixed results.

Brealey & Myers (2010) referred to investment and financing decisions and their interactions as the corporate financial principles addressed by financial managers to help them in providing accurate answers to the two fundamental pre-occupations of the investments the firm should make and how it should pay for the investments as that was the secret of success in financial management. In principle, a firm's decision to invest in a new project should be made according to whether the project increases the wealth of the firm's shareholders. Graham & Harvey (2001), realized that this rule had steadily gained in popularity since Dean (1951) had formally introduced it, but its widespread use has not eliminated the human element in capital budgeting because the estimation of a project's future cash flows and the rate at which they should be discounted is still a relatively subjective process, the behavioural traits of managers still affect this process.

Locally, Munyao (2010) established a significant positive relationship between the two variables in companies listed at the NSE. He found out that the four capital budgeting techniques; PBP, ARR, NPV and IRR were used by companies listed in the NSE. He established there was a significant positive relationship between the techniques and corporate performance as measured by the return on assets. He however recognized that little or no research had been conducted to establish whether the case would apply for companies outside NSE. He endorsed the need to test the relationship between capital budgeting techniques and firm performance by use of EPS. Chai (2011) established a positive relationship in the courier companies in Kenya. This raised the concern as to how capital budgeting and financial performance correlate with each other in different industries and segments under different economic conditions. Njiru (2008) indicated that the commercial parastatals preferred IRR, NPV and PBP in order of usage. He stated that the amount of funds required for investment, size of organization, government policy and industrial practices mainly influence the choice

of the appraisal technique. This raised the concern to identify whether these appraisal techniques are applicable by listed commercial Banks, to what extent and whether those techniques would have an impact to the Banking institutions.

Due to the importance and representativeness of the banking sector in financial matters in any macro-economic status of a country, it would be essential to establish the relationship between capital investment appraisal techniques and the financial performance of the banking industry. This then begs the questions: which capital investment appraisal techniques has the banking industry in Kenya adopted and what effect has the association between those capital investment appraisal techniques and financial performance?

1.3 Objectives of the Study

- i. To establish the effect of capital investment appraisal techniques on the financial performance of the banks listed at the Nairobi Securities Exchange.

1.4 Significance of the Study

This research provides a comprehensive theory and opinions for listed commercial banks to set up capital investment appraisal processes that fit their own developing need, and will help in checking faults in their respective companies. The main benefits of the study are; doing sufficient research will reduce some avoidable mistakes in the practical application of the capital appraisal process, during the research study, the advantages and disadvantages of various capital appraisal methods will be identified to deal with practices of the listed commercial Banks, and capital budgeting processes will be better understood. The study focussed 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 hinges 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.

This study may assist bank managers to benchmark their current practices and those of other surveyed banks. This study will help managers in the banking industry evaluate their current companies' capital appraisal practices as well as establish the relationship between the capital appraisal techniques employed and the firms' financial performance. To achieve this, the company will possibly need the most reliable tool to assist in investment decision making and hence shareholders' wealth maximization.

This study will be significant to academicians/ researchers with special interest in the banking sector as it will divulge information regarding capital appraisal techniques and the association they have with financial performance. It will also appreciate that techniques taught in class cannot just be implemented directly without considering their effect on firm performance.

Furthermore, researchers who may wish to carry out further research in capital budgeting for other industries both within and without the NSE may use this study as their basis and add more to the existing body of knowledge.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter summarized the literature review used in the study. Section 2.2 analysed the theoretical review; section 2.3 established the determinants of financial performance of listed commercial banks; section 2.4 dug deep into the evolution of appraisal techniques through the empirical review and section 2.5 summarized both the critical review as well as the literature review.

2.2 Theoretical Review

There are several theoretical perspectives pertaining to the study of capital budgeting techniques. However, for the purposes of this study, the researcher considered four theories namely the ‘q’ theory of investment, contemporary, real options and conventional capital budgeting theories.

2.2.1 “q” Theory of Investment

Yoshikawa (1980) described the rate of investment as the speed at which investors wish to increase the capital stock should be related to “q” which is the value of capital relative to its replacement cost. Economic logic indicates that a normal equilibrium value for “q” is one for assets which are being reproduced, and less than one for others. Values of “q” above one should stimulate investment, in excess of requirements for replacement and normal growth, and values of “q” below one discourage investment.

The “q” theory of investment has recently become quite popular despite the fact that there seems to be considerable confusion about how the theory is to be interpreted. For example, Robert Hall argued that the “q” theory is basically neo-classical and only incomplete

information and delivery lags can account for "disequilibrium" values of "q" and for their relation to investment.

Otherwise, investment would keep "q" equal to one. In spite of this, the "q" theory can be derived from a choice-theoretic framework which explicitly takes account of adjustment costs associated with investment (Yoshikawa, 1980).

2.2.2 Contemporary Capital Budgeting Theory

Graham & Harvey (2001) stated that in capital budgeting decisions, five important elements are considered: initial investment, operating cash flow, life of the project, salvage value and cost of capital. The closure of a project implies the venture is to be dissolved and the firm must pay back the par value of bonds and common shares to the bond and stock holders respectively.

Depreciation is not accumulated from year to year to replace the capital asset but is instead added back to the NOI to increase operating cash flow for the investors. Initial investment includes but not limited to purchase price of capital asset, sales taxes, transportation and installation costs and working capital needs and is recovered through the operating cash flows from the project. The operating cash flow is the inflow of cash to investors from the project (Graham & Harvey, 2001).

2.2.3 Real Options Theory

Black & Scholes (1973) offered a standard pricing model for financial options. Together with Stewart Myers, they recognized that option-pricing theory could be applied to real assets and non-financial investments. To differentiate options on real assets from 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, real options approach acknowledges the importance of managerial flexibility and strategic adaptability. Its superiority over other capital budgeting methods like discounted cash flow analysis has been widely recognized in analyzing the strategic investment decision under uncertainties (Luehrman, 1998).

2.2.4 Conventional Capital Budgeting Theory

Woods & Randall (1989) established that in capital budgeting, the NPV criterion is used to measure shareholders wealth which is the main objective in financial management. The riskiness of projects cash flows is equal to the firms' riskiness of other assets cash flows and the firms WACC is used to calculate NPV. Some future investment opportunities (FIOs) are acknowledged by the market due to their uncertainty and risk perceptions.

Conventional Capital budgeting approaches are biased towards FIOs in the long term in potential opposition to shareholders interests. Therefore discounting ought to be done at the required return on equity (K_e) rather than WACC (K_a) to determine shareholders wealth attributable to FIOs. The ability to borrow on FIOs basis would increase shareholders wealth by quantifiable amount, if the management has a clear incentive to increase its credibility in the financial markets. When management is either unwilling to divulge information or unable to convince markets of future cash flows, a divergence will exist between the market value of shares and true shareholder wealth (Woods & Randall, 1989).

2.3 Determinants of Financial Performance of Listed Commercial Banks

Commercial Banks' 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 Bank'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 behaviours 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 (Linet 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. A Kenyan example of a Bank that has taken to risk and yielded results would be Equity Bank Ltd. Through expansion of its branch network, the Bank took a capital investment risk which has yielded results as the Bank has grown in terms of customer statistics and deposits. This has propelled the Bank to be among the top tier lenders in the country.

2.4 Empirical Review

In the period between 1930s and 1950s non-owner managed firms put in place capital budgeting control systems that identified planned capital investments going forward. The size of non-financial investments and the number of non-owner managed firms increased during the industrial revolution. These simultaneous changes created fertile ground for use of more sophisticated evaluation techniques and for the capital budgeting processes in use today (Chapman & Hopwood, 2007).

During the 1950s, practicing financial controllers began to network with each other, with consultants and with academicians to develop models for capital budgeting (Chapman & Hopwood, 2007). Dean (1951) advanced the implementation of Discounted Cash flows (DCF) methodology in its current form by enhancing a specific objective process by which firms can assess the value that new capital investments are expected to create.

Agency theory in the late 1970s and early 1980s gave rise to analytical models of capital investment process. These models suggest that current capital budgeting procedures are a means of reducing agency costs that emanate from the conflict of interest between owners of

firms and management. A consistent capital budgeting method must be robust when correctly ranking and selecting superior investments in varying investment environments, remain theoretically sound by maintaining the assumption of wealth maximization, and be expressed as a yield based measure as preferred by corporate management (Chapman & Hopwood, 2007).

Mao (1970) recognized that there was a wide disparity between the capital budgeting theory and practice by analyzing the risk in investment decisions and the profitability criteria for investment selection. He however established that the theory and practice disparity in capital budgeting could be modified to make it more meaningfully operational by maximizing firms value as the main objective of investments decisions and improvising a criterion for choosing between time patterns of share prices. He confirmed the prevalent use of PBP and AP unlike the IRR and the NPV in the observed companies he did and the need to establish a reason behind the executives' choice and how to modify the IRR and NPV to make them more applicable.

Grinstein & Tolkowsky (2004) carried out a Survey in USA to determine the role of the board of directors in capital budgeting process. The sample consisted of "S&P 500" firms and covered the period from 1995 to 2000. Their final sample consisted of 2,262 firms after excluding financial institutions due to their special governance regulations and requirements and a further 292 firms for whose proxy statement information was not obtained. They used both univariate and multivariate data analysis methods in their survey. They found 17% of the board of directors of the sampled firms disclosed to having established committees with a capital budgeting role. The study revealed that board of directors have four main roles in capital budgeting including review of annual budgets, large capital expenditure requests, merger and acquisition proposals and performance of approved budgets. Some committees

have an advisory role in capital budgeting process. The main finding of the study was that boards of directors have a dual role in capital budgeting process, which is the disciplinary and advisory role.

Pradeep & Quesada (2008) in a study on the use of capital budgeting techniques in businesses in the Western Cape Province of South Africa investigated a number of variables and associations relating to capital budgeting practices. The sample consisted of 600 firms but only 211 interviews were conducted successfully giving a response rate of 35%. A descriptive approach to the research finding was adopted. The study revealed 64% of the businesses surveyed used only one method of capital budgeting while 32% used between two and three different techniques to evaluate capital budgeting decisions. The more complicated methods such as NPV and IRR were favoured by large businesses compared to small businesses.

Brealey & Myers (2010) refer to investment and financing decisions and their interactions as the corporate financial principles addressed by financial managers to help them in providing accurate answers to the two fundamental pre-occupations of the investments the firm should make and how it should pay for the investments. They qualify that this is the secret of success in financial management.

In principle, a firm's decision to invest in a new project should be made according to whether the project increases the wealth of the firm's shareholders. The way capital budgeting is taught and practiced presents a paradox. Typically, students in corporate finance are taught that a project will increase the shareholder value if its NPV is positive. For investors with well diversified portfolios, only the project's systematic risk affects its value: its idiosyncratic risk should not be considered. Capital market imperfections such as costly external financing

and bankruptcy costs are mostly ignored in teaching capital budgeting (Graham & Harvey, 2001).

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 concluded 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.

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).

In Kenya, Olum's (2006) study sought to view capital budgeting from the stand point 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. 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.

Kadondi (2002) surveyed capital budgeting techniques used by companies listed at NSE, the objectives being to document the capital budgeting techniques used in investment appraisal by corporations in Kenya, to determine whether the techniques used conform to theory and practices of organizations in developed countries and to determine how firms and CEO

characteristics influence the use of a particular technique. She intended to conduct the study on 54 companies listed at the NSE but the analysis included only 43 companies whose annual reports and accounts were available. Of these only 28 companies responded of which 50% were small companies and 50% large companies. The study found 31% of the companies used PBP, 27% used NPV while 23% used IRR. 71% of the respondents considered capital budgeting process a strategy for achieving competitive edge advantage. She also found that small companies use IRR and PBP methods while large companies with high net profit margins use NPV, IRR and PBP methods.

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 pay back 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

Capital budgeting theory has concentrated mainly on improving the techniques for the evaluation of capital projects. Results of previous surveys (mainly in USA or UK based on large companies) show the gap between corporate finance theory and practice is closing and DCF techniques are used almost universally. Although capital budgeting has been studied widely and various recommendations made on the most preferable methods, a lot needs to be done. Real options though explored widely, has not been studied locally and this would form very good grounds for a local study. Further real options analysis should be conducted to explore the functions of open standard and technology interoperability in fostering IT investment.

Locally, studies conducted by earlier researches have shown that there exists a significant positive relationship between capital budgeting techniques and corporate performance as measured by profitability. Studies also exhibit the fact that capital budgeting techniques have been embraced widely by many companies operating in the country. The relationship between capital budgeting techniques and financial performance across the commercial banks represented in the NSE has not been explored. Studies ought to be done to depict whether the relationship has the same effect on the commercial banks as compared to different industries in the NSE.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlined the research methodology used in the research study. Section 3.2 outlined the research design; section 3.3 established the target population. Section 3.4 further described the design of the sample whereas section 3.5 discussed the data collection technique(s). Section 3.6 spelt out how data would be analysed as well as the expected output through presentation.

3.2 Research Design

According to Babbie (1990), research design is an understanding of conditions for collection and analysis of data in a way that combines their relationships with the research to the economy of procedures.

The study employed a correlational cross-sectional survey research to determine from the members of the population the effect capital appraisal techniques have on the financial performance. A survey study aims at determining the current status of the said population with respect to one or more variables and is therefore a self-report study involving the collection of quantifiable information from the sample hence descriptive in nature. This is best suited for explaining or exploring the existence of two or more variables at a given point in time and will give the researcher an opportunity to collect relevant data to meet the objective(s) of the study. The research study emulated similar studies that used this design such as Klammer (1973) and Moore & Reichert (1989).

3.3 Population

Population refers to an entire group of individual's events or objects having a common observable characteristic. In other words, population is the aggregate of all that conforms to a

given specification (Mugenda & Mugenda, 2003). Kiess (1989) argues that population is some set of measurements of people, animals, objects, or events, that in principle can be identified. According to Kumar (2005), population is the class, families, living the city or electorates from which you select a few students, families, electors to question in order to find answer to your research questions.

The target population of this study consisted of all the eleven banks listed at the NSE (Nairobi Securities Exchange, 2014). The choice of quoted banks was preferred because they represent the main sectors of the Kenyan economy, and therefore considered as adequate representation of companies in Kenya. In addition since they are publicly quoted and publish their annual reports, information about their profitability will be readily available, unlike of those unlisted companies. The study employed a census survey, because NSE has only 11 listed commercial banks therefore the whole population of the companies were included in this study. Thus, no sampling procedure was conducted.

3.4 Data Collection

The data was collected from both primary and secondary sources from the eleven banks listed in the NSE. Primary data was obtained via questionnaires which were administered specifically to officers directly involved in the day to day capital investment appraisal procedures to establish appraisal techniques employed by them. The questionnaires were formulated into three sections and were dropped and picked later in all the eleven listed banks. The data collection procedures had been formerly employed by Munyao (2010) and Chai (2011). Secondary data was derived from the published accounts of the banks since it is verifiable and authentic and can be used to derive conclusive information as far as the companies are concerned. The published accounts were also obtained from Capital Markets Authority (CMA) and NSE library.

3.5 Reliability and Validity

Pre-test questionnaires were distributed equitably to the selected respondents in order to gather a cross-sectional feeling of respondents. This helped in ascertaining the effectiveness of the instrument. The questionnaire was improved to eliminate any vagueness identified during the pilot-test. The post-test questionnaires were redesigned in close consultation with the assigned supervisor to ensure errors are 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

Data obtained was analyzed in general for banks listed at the NSE. Regression analysis was used to test the effect of capital budgeting techniques on the financial performance of banks. The study employed a model formerly used by Olawale et al, (2010), Munyao (2010) and Klammer (1973). The regression equation below was used;

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Where:

Y = Return on Assets, ROA (Profitability)

α = Constant Term

β = Beta coefficients

X_1 = Capital Investment appraisal 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

ε = Random error term

The statistical package for social sciences (SPSS) version 17 was used to analyze the data into frequency distribution. Robustic tests for significance that is t- test and f- test was used to test the significance of independent variables with the dependent variable. Inferential statistics tests were also used to help deductions to be made from the data to be collected so as to relate the findings to the sample. T- test was used since the sample size is small. For the research question to be accepted or rejected comparison was done between the critical t and the calculated t. Analysis of variance (ANOVA) test was then 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 was used because it makes use of the F-test in terms of sums of squares effects over sums of squares residual (Mugenda, 2008). The researcher assumed a 95% confidence level while testing the variables. The data was 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, FINDINGS AND DISCUSSION

4.1 Introduction

This chapter is divided into introduction, response rate, quantitative analysis, qualitative analysis, conclusion and summary. The research findings were presented in form of tables and charts. The findings are based on the responses from the questionnaires filled and information gathered on the research questions as well as secondary data from published accounts available through the published accounts.

A total of 25 questionnaires were given out to each of the selected listed bank making up a total of 275 questionnaires. Out of the issued questionnaire, 48 questionnaires were returned giving a response rate of 76% while 24% questionnaires comprised of non-responded questionnaires and questionnaires whose information was not valid and thus not reliable.

4.2 Descriptive Statistics

This was made possible through the responses given from the distributed questionnaires.

4.2.1 Response Rate

According to Mugenda and Mugenda (1999) a 50% response rate is adequate, 60% good and above 70% rated very good. Based on this assertion the response rate for this study can be said to be very good at 76%. This response rate was made possible

Table 4.1: Response Rate

Category	Frequency	Percentage
Responded	210	76
Not responded	65	24
Total	275	100

Source: Survey Data (2015)

4.2.2 Financial Performance

The findings as shown in Table 4.2 indicate the trend of Return on Assets (ROA) values over the 5 year period. The lowest value for ROA was a mean of 1.76 in year 2011 while the highest value for ROA was a mean of 4.45 in year 2013. This represented a positive change in the ROA mean values of 2.69 over the 5 year period. The steady rise in ROA values over the 5 year period indicates that the financial performance of the firms has been on the increase over the last 5 years. On the other hand, the standard deviation indicates variation in the financial performance among the commercial Banks listed at The Nairobi Securities Exchange.

Table 4.2: Return on Assets (ROA) and Capital investment Appraisal Techniques

	Return on Assets (ROA)	Capital investment Appraisal Techniques
Std. Dev	1.236	0.196
Mean	2.774	4.379
Lowest	1.76	2.45
Highest	4.54	6.05
Median	2.07	4.23

Source: Survey Data (2014)

4.2.3 Capital investment Appraisal Techniques

The findings as shown in Table 4.2 above indicate the trend of capital appraisal techniques over the 5 year period. From the findings, the lowest value of capital appraisal techniques was a mean of 2.35 in year 2011 while the highest value of capital appraisal techniques was a mean of 6.04 in year 2013. This shows a steady increase in the utilization of capital appraisal techniques by firms between year 2011 and year 2013. Thus, capital appraisal techniques had

a positive influence on the financial performance of the commercial Banks 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 investment appraisal techniques and financial performance.

4.3.1 Correlation Analysis

Bivariate correlation analysis was done on the variables. Table 4.3 shows the bivariate correlations among the variables: financial performance (Fp), internal rate of return (IRR), payback period (PBP), average rate of return, size of the firm (Sz) and profitability index (T).

The results showed a positive correlation among all the variables except between dividends per share and P/E ratio that had a correlation coefficient (r) of -0.014 that was not significant at 0.01 level. IRR, PBP and T (age in years) had significant correlation with financial performance at 0.01 level while the other independent variables: NPV and Sz had no significant correlation with financial performance at 0.01 level. PBP and IRR were positively correlated with a correlation coefficient of 0.35 significant at 0.01 level. Sz and NPV also had a positive correlation coefficient of 0.507 significant at 0.01 level.

Table 4.3: Pearson Correlation Coefficients

		Y	IRR	PBP	NPV	Sz	T
Y	Pearson Correlation	1	.514(**)	.675(**)	.064	.046	.196(**)
	Sig. (2-tailed)	.	.000	.000	.355	.510	.004
	N	210	210	210	210	210	210
IRR	Pearson Correlation	.514(**)	1	.350(**)	.020	.044	.051
	Sig. (2-tailed)	.000	.	.000	.775	.522	.462
	N	210	210	210	210	210	210
PBP	Pearson Correlation	.675(**)	.350(**)	1	-.014	.130	.092
	Sig. (2-tailed)	.000	.000	.	.835	.060	.185
	N	210	210	210	210	210	210
NPV	Pearson Correlation	.064	.020	-.014	1	.507(**)	.051
	Sig. (2-tailed)	.355	.775	.835	.	.000	.458
	N	210	210	210	210	210	210
Sz	Pearson Correlation	.046	.044	.130	.507(**)	1	.045
	Sig. (2-tailed)	.510	.522	.060	.000	.	.520
	N	210	210	210	210	210	210
T	Pearson Correlation	.196(**)	.051	.092	.051	.045	1
	Sig. (2-tailed)	.004	.462	.185	.458	.520	.
	N	210	210	210	210	210	210

Source: Survey Data (2014)

** Correlation is significant at the 0.01 level (2-tailed).

4.3.2 Multi-Collinearity Analysis

Multi-collinearity is likely to exist when there is a correlation coefficient (r) above 0.8 between the independent variables (Fox, 1991).

Table 4.4 Collinearity Diagnostics

Model	Dimension	Eigen value	Condition Index	Variance Proportions					
				(Constant)	IRR	PBP	NPV	Sz	T
1	1	2.549	1.000	.05	.05	.05	.01	.01	.05
	2	1.426	1.337	.01	.01	.01	.23	.23	.01
	3	.730	1.869	.02	.24	.08	.01	.02	.54
	4	.519	2.217	.00	.23	.17	.46	.43	.01
	5	.429	2.436	.17	.47	.26	.17	.18	.22
	6	.347	2.711	.75	.00	.43	.12	.12	.18

a Dependent Variable: Y

There was no problem of multicollinearity among the independent variables as indicated by the collinearity diagnostics (table 4.4). The condition indices were very low, within the preferred value of below 15. Absence of multicollinearity was also indicated by the correlation coefficients (table 4.4) between the variables. The highest correlation was observed between Sz and PE with correlation coefficient of 0.507 significant at 0.01 level which was low enough to indicate absence of multicollinearity. The low VIF and high tolerance values (table 4.5) indicate that there was no multicollinearity among the independent variables. To avoid multicollinearity the VIF values should be less than five and tolerance above 0.2 (Cohen et al., 2003).

4.3.3 Regression Analysis

A multiple linear regression analysis was conducted with financial performance as the dependent variable while earnings internal rate of return (IRR), payback period (PBP), net present value (NPV), size of the firm (Sz) and age in years (T) were independent variables. The hierarchical multiple regression was used to control for payback period (PBP), net present value (NPV), size of the firm (Sz) and age in years (T) so as to measure the independent effect of earnings internal rate of return (IRR). The enter method in SPSS was used and all the variables were entered and there was no variable removed.

The minimum ratio of valid cases to independent variables for multiple regression is 5 to 1. With 210 valid cases and 5 independent variables, the ratio for this analysis was 42 to 1, which satisfied the minimum requirement. In addition, the ratio of 42 to 1 satisfied the preferred ratio of 15 to 1(Kothari, 1990).

Table 4.5: Coefficients of Regression Equation

Model		Unstandardized Coefficients		Standar dized Coeffic ients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Toler ance	VIF
1	(Consta nt)	18.134	5.136		3.531	.001					
	IRR	2.094	.331	.310	6.328	.000	.514	.405	.290	.876	1.141
	PBP	11.100	.969	.570	11.452	.000	.675	.626	.525	.850	1.176
	NPV	.136	.064	.113	2.109	.036	.064	.146	.097	.734	1.362
	Sz	-.034	.018	-.105	-1.948	.053	.046	-.135	-.089	.723	1.382
	T										
	(years)	3.064	1.118	.126	2.740	.007	.196	.188	.126	.988	1.012

a Dependent Variable: Y

From the unstandardised regression coefficients in table 4.5 above, the following

regression equation was obtained:

$$Y = 18.134 + 2.094IRR + 11.100PBP + 0.136NPV - 0.034Sz + 3.064T + \varepsilon$$

The unstandardised coefficient associated with IRR (2.094) was positive, indicating a direct relationship in which higher numeric values for IRR were associated with higher numeric values for financial growth. Controlling for other variables, if IRR increased by 1 unit financial growth would increase by 2.094 units. All the independent variables had a direct relationship with financial growth except Sz which had an inverse relationship with unstandardised coefficient of -0.034.

4.3.4 Test of Significance of Predictor Variables

The null and alternative hypotheses for IRR were stated as:

$H_0: \beta_1 = 0$ (IRR was not a significant predictor of financial performance/ return on assets).

$H_A: \beta_1 \neq 0$ (IRR was a significant predictor of financial performance/ return on assets).

Significance level: $\alpha = 0.01$.

The rejection region: reject the null hypothesis if p-value ≤ 0.01 .

Since p-value < 0.01 , the null hypothesis was rejected at the 0.01 level of significance. At the $\alpha = 0.01$ level of significance, there existed enough evidence to conclude that the slope associated with the IRR variable was not zero and hence IRR was a significant predictor of financial performance.

Similarly the significance tests for other predictor variables were done using the following null and alternative hypotheses:

$H_0: \beta_1 = 0$ (The independent variable was not a significant predictor of return on assets).

$H_A: \beta_1 \neq 0$ (The independent variable was a significant predictor of return on assets).

Significance level: $\alpha = 0.01$.

The rejection region: reject the null hypothesis if p-value ≤ 0.01 .

Given the p-values in table 4.5 the predictor variables IRR, PBP, and NPV were significant at 0.01 level while Sz and T (age in years) were not significant at 0.01 level. The null hypotheses were rejected that the slopes associated with IRR, PBP, and NPV were equal to zero ($\beta = 0$). It could be concluded that there was a statistically significant relationship

between each of the independent variables: IRR, PBP and NPV and the dependent variable (ROA) at 0.01 level of significance. The null hypotheses could not be rejected for Sz and T (age in years). There was no significant relationship between each of the predictor variables Sz and T (age in years) and the dependent variable (financial performance) at 0.01 level.

4.3.5 Test of Significance of Model

Table 4.6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
					R Square Change	F Change	df1	df2	Sig. Change	F
1	.697(a)	.486	.476	57.07191	.486	48.553	4	205	.000	
2	.755(b)	.571	.560	52.30789	.084	40.042	1	204	.000	

a Predictors: (Constant), T, Sz, PBP, NPV

b Predictors: (Constant), T, Sz, PBP, NPV, IRR

Hierarchical regression model was used in which T, Sz, PBP and NPV were used as control variables. The SPSS regression output gave two model results, model 1 with control variables only and model 2 containing control variables and IRR so as to test the independent effect of IRR in the model. Model 1 of table 4.6 with the control variables NPV, PBP, Sz and T (age in years) gave multiple regression coefficient of correlation (r) of 0.697 and R^2 of 0.486. Since from table 4.6 above F statistic had p-value < 0.01 there was a strong positive relationship between return on assets and the set of the independent variables NPV, PBP, Sz and T (age in years) which was significant at 0.01 level. The model accounted for 48.6% of

the variance in the dependent variable (Return on Assets).

Model 2 in table 4.3b on addition of IRR as an independent variable the model had a multiple correlation coefficient of 0.755. Since the p-value < 0.01 there was a strong positive correlation between the dependent variable (Return on Assets) and the set of independent variables IRR, PBP, NPV, Sz and T at 0.01 level. The model had adjusted R square of 0.560. This indicates that the model accounted for 56% of the variance in the dependent variable (Return on Assets).

For the R square change on addition of the independent variable IRR the null and alternative hypotheses were stated as:

H_0 : R^2 change = 0 (there was no significant improvement in the relationship between the set of independent variables and the dependent variable).

H_A : R^2 change $\neq 0$ (there was a significant improvement in the relationship between the set of independent variables and the dependent variable). Significance level: $\alpha = 0.01$.

The rejection region: reject the null hypothesis if p-value ≤ 0.01 .

Since p-value < 0.01 , the null hypothesis (R^2 change = 0) was rejected at 0.01 level of significance. The R Square Change statistic for the increase in R^2 associated with the added variable (IRR) was 0.084. Using a proportional reduction in error interpretation for R^2 , information provided by the added variable reduced the error in predicting financial performance by 8.4%.

The probability of the F statistic for the change in R^2 associated with the addition of the predictor variable (IRR) to the regression analysis containing the control variables was significant at 0.01 level. There was significant improvement in the relationship between the set of independent variables and the dependent variable when the predictor (IRR) was added. This shows that there was a significant relationship between earnings and the financial performance at 0.01 level of significance.

Table 4.7: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	632593.116	4	158148.279	48.553	.000(a)
	Residual	667726.591	205	3257.203		
	Total	1300319.707	209			
2	Regression	742152.197	5	148430.439	54.249	.000(b)
	Residual	558167.510	204	2736.115		
	Total	1300319.707	209			

a Predictors: (Constant), T, Sz, PBP, NPV

b Predictors: (Constant), T, Sz, PBP, NPV, IRR

c Dependent Variable: Return on Assets (Y)

The null and alternative hypotheses were stated as:

$H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$ (none of the independent variables were significant predictors of the dependent variable).

H_A : at least one $\beta_i \neq 0$ (at least one of the independent variables was a significant predictor of the dependent variable).

Significance level $\alpha = 0.01$.

Rejection region: reject the null hypothesis if p-value ≤ 0.01 .

Since from table 4.7 above $F(5, 204) = 54.249$, p-value < 0.01 , the null hypothesis was rejected. It could be concluded that at least one of the independent variables was a significant predictor of financial performance. The model was therefore significant at 0.01

level. There was a significant relationship between financial performance – return on assets and the set of independent variables: IRR, PBP, NPV, Sz and T (age in years).

4.4 Chapter Summary

The objective of the study was to find out if there is a relationship between capital investment appraisal techniques and financial performance of banks quoted at the NSE. Empirical results from the study revealed that there is a significant positive relationship between investment appraisal and financial performances. The results of the study show that majority of respondents employ the three capital appraisal techniques in the capital appraisal process these are; internal rate of return, net present value, 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 and the duration taken to realize capital gains.

The results of a hierarchical multiple regression analysis gave a regression model with multiple correlation coefficient of 0.755 and R square of 0.571 significant at 0.01 level. The R square change of the model on addition of IRR as a predictor variable after controlling for the PBP, NPV, Sz and T was significant at 0.01 level. The t-statistic for the predictor IRR also showed it was significant at 0.01 level.

The findings have revealed that PBP has a shorter significant positive correlation with financial performance than IRR. This shows that banks in the securities market value

dividends more than capital gains. This agrees with the bird in hand theory of dividend policy which postulates that investors would rather access dividends which is more certain than capital gains. Gordon (1959) found that although IRR is a strong predictor of financial performances PBP had stronger explanatory power than IRR.

The study also depicted in the order of preference that with banks, the payback period (PBP) method was positively related to return on assets. This method was closely followed by the Internal Rate of Return (IRR) method. However, a deviation from the previous studies showed that where banks are concerned, the Net Present Value (NPV) is negatively related to the return on assets alongside the Size (Sz) of the listed Bank.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This section contains the summary of the study, conclusion, recommendations, limitations of the study and suggestions for further research.

5.2 Summary of the Study

The study was done to find out if there is a relationship between capital investment appraisal techniques and financial performances of banks listed at the NSE. Empirical results from the study revealed that there is a significant positive relationship between capital investment appraisal and financial performances of banks listed at the NSE. Bivariate correlation analysis was done and it revealed that there was a significant and strong positive relationship between capital investment appraisal and financial performance. However there was found to be correlations between IRR and the control variables PBP, NPV, Sz and T which were also correlated with financial performance.

Hierarchical multiple linear regression was done so as to isolate the individual impact of capital investment appraisal on financial performance independent of the other predictor variables. The resulting regression model had a multiple correlation coefficient of 0.755. This showed that there was a strong positive correlation between the dependent variable (financial performance) and the set of independent variables IRR, PBP, NPV, Sz and T. The model had a coefficient of multiple determinations (R^2) of 0.571 and adjusted R square of 0.560 which indicate the proportion of the variance in the criterion variable which was accounted for by the model. This showed that the model accounted for 56% of the variance in the dependent variable (financial performance).

The R Square Change statistic for the increase in R^2 associated with the added variable (IRR) was 0.084. Thus the addition of the predictor variable IRR reduced our error in predicting and increased the predicting power of the model by 8.4%. The F-statistic showed that the change in R square associated with the addition of the variable to the model containing the control variables was significant at 0.01 level. There was significant improvement in the relationship between the set of independent variables and the dependent variable when the variable IRR was added.

The following regression was obtained from the regression results:

$$Y = 18.134 + 2.094IRR + 11.100PBP + 0.136NPV - 0.034Sz + 3.064T + \varepsilon$$

Using the p-values obtained from the regression output the predictor variable IRR was found to be significant at 0.01 level. There was a statistically significant relationship between IRR and financial performance at 0.01 level. The unstandardized coefficient associated with IRR (2.094) was positive implying that controlling for other variables constant, if IRR increased by 1 unit financial performance would increase by 2.094 units.

IRR had a beta of 0.310 showing that a change of one standard deviation in the predictor variable (IRR) would result in a change of 0.310 standard deviations in the criterion variable (financial performance). IRR also had high partial and part correlations showing that it had high correlation with financial performance independent of the other predictors in the model. PBP had the greatest influence on the dependent variable as shown by its beta value of 0.570 and its high part and partial correlations while Sz had the lowest negative influence of -0.105.

5.3 Conclusion of the Study

The present study was undertaken to examine the empirical relationship between capital

investment appraisal techniques and financial performance of banks listed at the NSE. The results revealed that there is a significant relationship between investment appraisal techniques and financial performance.

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.

5.4 Recommendations of the Study

Capital investment appraisal process is very useful in order to make right financial and consequently management decisions. The final step in the appraisal of options is to evaluate together the financial and the non-financial costs and benefit of each option to determine which is the best value for money, taking account, not only the key criteria of effectiveness, efficiency and economy, but also: The capital resources available, the effect on the revenue budget and other financial constraints; and the dependence of some of the options on uncertain elements and sensitivities. In carrying out an appraisal, it is important to plan for the monitoring and post-evaluation.

Traditional appraisal techniques are a powerful way of appraising investment projects. There is a need though for all decision makers, when evaluating projects, to clearly understand of the pitfalls arising from the use of traditional appraisal techniques. The problems of traditional appraisals are not the techniques themselves. Instead, decision makers should recognize the techniques' limitations and be careful to make sure that the appraisal techniques are performed properly. It is important that managers of banks listed and the banks willing to be listed in NSE make sound investment appraisal technique decisions that

enhance financial performance so as to maximise the value of the firm.

In addition, low levels of financial literacy can impact the degree to which Banks use investment appraisal techniques. The government through the Ministry of Finance in collaboration with the industry regulator, Central Bank, should broaden its efforts to ensure that a high level of financial literacy is universal to Bank managers. Government agencies such as NSE and capital markets authority should therefore organize training for newly listed Banks and 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.

5.5 Limitations of the Study

One of the limitations of the study is that capital investments appraisal is an ongoing process and most banks are introducing other ways of investing their capital to maximize returns while using appraisal techniques that best suits their interests. So there could be a lot of information about capital investments that was not captured in the study.

The research only examined data for five years. The period could potentially be too short and therefore capable of yielding biased results especially where capital appraisal, which is long-term in nature, is concerned.

Respondents were also reluctant to give information about their operations; this they thought was too much beyond what is required by law and were therefore 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.

Lastly, the research design used in this research was mainly quantitative and failed to capture qualitative issues. Perhaps an interview with the bank officers on how they perceive the derivatives and its effects on the banks performance. Some hidden information would have been brought to the fore.

5.6 Suggestions for Further Research

The study was based on the Kenyan market, NSE. Further research should be done covering a larger region and more capital markets to establish whether similar results will be obtained.

The study was confined to the period from January 2010 to December 2014. Further research needs to be done covering a longer period as capital appraisal can take longer than five years.

The research studied listed Banks only despite there being more market segments within the economy without distinguishing between them. Further research is recommended in which the companies are segmented according to economic industries and studied or analysed to check how the various economic areas are financially affected by capital appraisal. This will reveal any industry effect on the relationship between capital investment techniques and financial performance.

The capital budgeting practices of listed Banks are not likely to be representative of all Kenyan commercial Banks. This is so because the study only focused on listed Banks at the

Nairobi Securities Exchange ignoring the unlisted Banks. Thus it is recommended that another study be done in commercial Banks not listed at the NSE to test the same objective.

Lastly, further research should also be done on the effect of capital investment techniques on financial performance while controlling for some other factors like political environment and economic crisis which may also affect financial performance.

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APPENDICES

APPENDIX I: QUESTIONNAIRE

This questionnaire contains three sections and is to be filled in by the officers from the eleven listed banks in the NSE involved in the capital budgeting procedures. 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. Position held
 3. How long have you worked with this organization?
 - a) Less than a year ()
 - b) 1 – 5 years ()
 - c) 5 – 10 years ()
 - d) Over 10 years ()
 4. Is the company a foreign company?
Yes () No ()
 5. What is the ownership status of your organization?
 - a) State owned ()
 - b) Public owned ()
 - c) Private owned ()
- Others (specify)

PART II: INFORMATION ON CAPITAL BUDGETING

1. Does the company have procedures on capital appraisal techniques?

Yes () No ()

2. State the capital appraisal technique your company prefers when deciding which investments to undertake?

IRR ()

PBP ()

ARR ()

NPV ()

3. Turnover of the Company (Kshs. B)

Year 2010 ()

Year 2011 ()

Year 2012 ()

Year 2013 ()

Year 2014 ()

4. How many years has the company been in operation? – () years.

5. Non-Current Assets of the Company (Kshs. B)

Year 2010 ()

Year 2011 ()

Year 2012 ()

Year 2013 ()

Year 2014 ()

6. Current Assets of the Company (Kshs. B)

Year 2010 ()

Year 2011 ()

Year 2012 ()

Year 2013 ()

Year 2014 ()

7. Non-Current Liabilities of the Company (Kshs. B)

Year 2010 ()

Year 2011 ()

Year 2012 ()

Year 2013 ()

Year 2014 ()

8. Current Liabilities of the Company (Kshs. B)

Year 2010 ()

Year 2011 ()

Year 2012 ()

Year 2013 ()

Year 2014 ()

PART III: USE OF CAPITAL BUDGETING TECHNIQUES

1. Has there been a time when the company changed from one budgetary technique to another? Specify (if yes) to which one and when

Yes () No ()

2. Which approach does the company use in determining minimum acceptable rate of return to evaluate proposed capital investment analysis?

- a) WACC ()
- b) Cost of debt ()
- c) Cost of equity ()
- d) Arbitrary chosen figure ()

3. What difficulties does your organization face in its capital budgeting process?

- a) Estimating cash flows ()
- b) Determining discount rate ()
- c) Incorporating risk ()
- d) Adjusting inflation ()

Others (Specify)

4. Do you consider your capital budgeting process as a strategy for achieving competitive advantage over your competitors?

Yes () No ()

APPENDIX II: BANKS LISTED AT THE NSE

BANKS LISTED AT THE NSE (NAIROBI SECURITIES EXCHANGE, 2014)

1. Barclays Bank Ltd (Ord 0.50)
2. CFC Stanbic Holdings Ltd (Ord.5.00)
3. Diamond Trust Bank Kenya Ltd (Ord 4.00)
4. Housing Finance Co Ltd (Ord 5.00)
5. I&M Holdings Ltd (Ord 1.00)
6. Kenya Commercial Bank Ltd (Ord 1.00)
7. National Bank of Kenya Ltd (Ord 5.00)
8. NIC Bank Ltd (Ord 5.00)
9. Standard Chartered Bank Ltd (Ord 5.00)
10. Equity Bank Ltd (Ord 0.50)
11. The Co-operative Bank of Kenya Ltd (Ord 1.00)