

**CAPITAL BUDGETING TECHNIQUES AND PROFITABILITY OF
MANUFACTURING AND ALLIED FIRMS LISTED AT THE NAIROBI
SECURITIES EXCHANGE**

BY

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D61/5262/2017

**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENT FOR THE DEGREE OF MASTER'S IN
BUSINESS ADMINISTRATION FINANCE, UNIVERSITY OF NAIROBI**

DECEMBER 2021

DECLARATION

I declare this project is my original work and has not been presented to any other college, institution, or university for award of a degree or any other qualification.

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

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ACKNOWLEDGMENT

I first wish to thank God for the ability to undertake my MBA studies. Secondly, I wish to thank my Supervisor Dr Nixon Omoro for the guidance throughout this project. I also want to appreciate other faculty members at the school of Business Kisumu campus who had an input in my project. Without forgetting my family and friends for encouragement throughout my project.

DEDICATION

To Almighty God in whom we live, move, and have our being. To my Family and Friends.

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ABBREVIATIONS AND ACRONYMS

ARR	Accounting Rate of Return
DCF	Discounted Cash Flows
IRR	Internal Rate of Return
MBA	Master's in Business Administration
NPV	Net Present Value
NSE	Nairobi Securities Exchange
PBP	Pay Back Period
ROA	Return on Assets
ROCE	Return on Capital Employed
ROI	Return on Investment

ABSTRACT

The manufacturing sector has been a big focus in the country's development agenda, yet it has stagnated at 10% contribution to the GDP over the years. The study aim was to establish the capital budgeting techniques and Profitability levels among manufacturing and allied firms listed at the Nairobi Securities Exchange. Both the descriptive and longitudinal research designs were employed. The population was made up of 7 manufacturing and Allied firms listed at the NSE. Structured questionnaires were used to collect primary data which was administered to staff in charge of risk, investment, or finance. Additionally, secondary data which constitutes the published financial statements was downloaded from the firm's website. The secondary data covered a period of 5 years from 2016-2020. Descriptive statistics was used to analyse quantitative data by way of tables, figures, charts, and percentages. The study found that capital budgeting techniques are embraced by the Manufacturing and Allied organisations with Payback Period and Internal Rate of Return being highly preferred. The study also found that capital budgeting techniques do not significantly influence profitability of manufacturing and allied firms listed at the NSE in Kenya. The study recommends that staff should be trained and involved in the capital budgeting process of the organisation. Management should also allocate full-time staff to capital investment analysis in order to harness all the expertise at its disposal for better decision making.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Capital budgeting is a tool modern firms use to help minimise cost and maximise revenue and in turn generate profit and return for the capital investments undertaken by the organisation. Capital budgeting decisions involves outlays of big investment of Capital and are expensive and irreversible. Businesses exist to make profit and maximize on shareholders wealth, (Borad, 2019). Capital budgeting is one means by which a firm can achieve the goal of shareholder wealth generation. Capital budgeting decisions in manufacturing firms include acquisition of new assets, replacement of existing ones or expansion of facilities, (Farah and Altinkaya, 2018). The long-term aim of capital investments is to find profitable opportunities for the company to promote business growth. Capital budgeting techniques help to evaluate investment opportunities that the firm may be interested in, and when done right it improves long term profitability and growth of the business.

There are two theories that will be discussed which look at the correlation between capital budgeting techniques, investment decisions and profitability in a firm. They include Contingency theory and Real Options theory. Contingency theory is a management theory that states that there is no one best management approach. Pike (1986) advances that the choice of a capital budgeting method is dependent on the environment the organisation operates in. The management must settle on the capital budgeting technique that best suits its internal and external factors. The capital budgeting policy of the organisation should be reflective of the objectives of the firm and should consider the challenges that the firm may go through because of internal and external factors. These external and internal factors include environmental uncertainty, leadership style, financial status and organisational structure and therefore management must be aware of all these different challenges even as they settle on a capital budgeting technique. Real options theory advanced by Myers (1977) gives an alternative to usage of DCF techniques in appraisal of investment of tangible assets. It introduces flexibility that a firm may accrue due to a choice to abandon or invest in a project in future. This theory gives another route that an organisation can take while choosing a project and gives an alternative to counter challenges that are experienced when traditional capital budgeting techniques are employed.

The research will be conducted on Manufacturing and Allied organisations listed at the Nairobi Securities Exchange (NSE). The manufacturing industry is the second biggest contributor to GDP only behind the Agricultural sector and the firms listed give a very good representation of the economy. This paper undertook to establish the capital budgeting techniques among the manufacturing and allied firms listed and the effect of the same on profitability. There are a total of 9 manufacturing and allied sector organisations listed at the NSE.

1.1.1 Capital Budgeting Techniques

Peterson and Fabozzi, (2002) describe Capital budgeting as the process of appraising capital projects whose lifetime is over a year. Capital budgeting techniques are the tools used by companies when evaluating projects to find out if they are worth investing in or not. Companies use capital budgeting techniques to evaluate projects and see which projects are more profitable than others. Capital budgeting methods are generally classified into non-discounted or discounted.

Non-discounted techniques are traditional techniques that are not sophisticated such as Accounting Rate of Return (ARR) & Payback method. ARR measures the expected return over the lifetime of the project by dividing the average revenue by the initial investment, (Murphy, 2020) whereas payback simply computes the period it takes to recoup the initial outlay. The non-discounted techniques do not factor time value of money and hence the cash streams are not discounted. Therefore, cash inflows from different periods are all treated the same. The discounted techniques consider time value of money and apply an appropriate discount to calculate the net present value for expected cash inflow. Brigham and Ehrhardt, (2002) listed discounted cash flows including Modified Internal Rate of return (MIRR), Internal rate of Return (IRR) Discounted Payback period, Net present value (NPV) and profitability Index (PI). NPV gives the net difference between the present value of cash inflows and outflows. Projects with positive NPV should be considered for investment. IRR on the other hand equates present value of inflows with the present value of outlay, (Brigham and Ehrhardt, 2002). MIRR is a modified IRR that allows setting of a reinvestment rate for cash inflows whereas Profitability index is arrived at when the net present value of total cash inflows is divided by the initial outlay and just like NPV a positive Index indicates the firm should invest.

In this study, information on capital budgeting techniques employment in the organizations was collected from the organizations through questionnaires and if possible, investment manuals. Return on Assets (ROA) was the measure by which the impact of the capital budgeting techniques was measured.

1.1.2 The Concept of Profitability

Nimalathan, (2009) described profitability as excess of returns over outlay. Profitability helps to measure efficiency of operations and productivity of assets deployed, (Tulsian, 2014). The profit of an organization can be looked at in three aspects. First, the size of the profit, second the portion of the total income and thirdly the rate of profit in comparison with initial investment. Profit represents the opportunity cost as the time the business owner spends running the business could be spent on another venture.

Profitability ratio gives managers and other financial information users feedback on how a firm is performing regarding return on invested equity and the general financial health of the firm. Kenton, (2019) categorizes profitability into return and margin ratios. Margin ratios reflect how a company turns sales into profit whereas return ratios show how a firm generates returns for its owners or investors. Profitability will be represented by Return on Assets. The profitability is categorised into low, medium, and high and we will deploy the Chi-square statistics to determine the effect of each capital budgeting technique on the profitability of the firm.

1.1.3 Capital Budgeting Techniques and Profitability

Sophisticated capital budgeting techniques as demonstrated by use of discounted cash flow in computation of capital budgeting has become more preferred tool across the world. Studies done in North America and UK have substantiated this, (Bennouna et al., 2010). Various studies done in Kenya such as Namahoro et al. (2019), Kinyua (2018), Yator (2018), Irungu (2014) and Munyao (2010) among others have also found that DCF techniques are preferred. While the use of discounted capital budgeting techniques is generally expected to improve profitability of the firm, the studies done Locally and abroad have found either no relationship at all, a positive relationship or a negative relationship between the two variables.

Namahoro et al. (2019) found a positive correlation between NPV, ARR, IRR and Payback Period and financial performance of manufacturing organisations listed at the NSE. Kinyua (2018) established a weak negative correlation between NPV and financial performance and a weak positive relationship between IRR, PBP and ARR and financial performance of manufacturing companies listed at the NSE. Munyao (2010) and Yator (2018) found a correlation between capital budgeting techniques and financial performance for firms listed at the NSE whereas Irungu (2014) established no significant correlation between the two variables. Axernold et al. (2002) established a negative correlation between capital budgeting sophistication and financial performance and recommended taking a contingency theory approach to help understand this relationship better.

1.1.4 Manufacturing and Allied Firms Listed in the NSE

The manufacturing industry is one of the Important Sector in Kenya and is part of the focus in the current government's big four Agenda. The contribution of the manufacturing sector has stagnated at an average of 10% according to Kenya Business Guide 2018 report by Kenya Association of Manufacturers. The current government had set a target of 15% GDP Contribution by 2022 under the Big four Agenda which will likely not be achieved as per current trends. The manufacturing sector is the second main contributor to the economy behind the Agricultural sector and hence the focus on it as part of growth opportunity. The sector's nature requires heavy investment in capital machinery and therefore the concept of capital budgeting will be well demonstrated.

They are nine listed firms at the NSE, but this study will focus on seven as two firms, Mumias Sugar and Eveready East Africa Plc are going through prolonged financial losses which impact on the period of the study which is 2016 to 2020 and will be excluded from the study. The current economic outlook reveals underlying challenges facing manufacturing firms as demonstrated by the serious financial challenges that some firms listed are experiencing and the minimal growth as demonstrated by the stagnant GDP Contribution. This study will seek to study the benefits in terms of profitability that the firms accrue by use of capital budgeting techniques. The firms listed under manufacturing spun several sub-sectors including FCMG, plastics, industrial gases, beer production, tobacco products, flour milling and fruit canning.

1.2 Research Problem

The manufacturing sector has been a big focus in the country's development agenda, yet it has stagnated at 10% contribution to the GDP over the years. Kenyan manufacturing firms face competition of the market share from cheaper imports that flood the market leading to halting of operations by firms such as Eveready East Africa Plc. Organizations listed at the NSE are expected to have at their disposal more resources to adopt sophisticated capital budgeting techniques which according to finance theory would lead to better profitability as the firms will be able to reduce production costs. However, several studies done both in Kenya and abroad on the effect of capital budgeting techniques on the firm's profitability or general financial performance have given conflicting results.

Irungu (2014) in her study of capital budgeting techniques effect on financial performance of organizations Listed at the NSE did not find correlation between the two variables a similar finding to that of Klammer (1973) in his study in the USA. Munyao (2010), Yator (2018) and Kinyua (2018), on the other hand established a positive correlation between capital budgeting methods and financial performance. Namahoro et al. (2019) in their paper on capital budgeting techniques on Manufacturing organizations listed established a positive correlation with financial performance and established firm size to be a partial moderator of the relationship. Internationally, research done by Axernold et al. (2002) established a negative correlation between use of discounted capital budgeting methods and organization's performance and introduced the concept of contingent and behavioural factors also affecting financial performance.

The various studies done in the Kenyan context have found differing conclusions on this topic. The study by Namahoro et al. (2019) which was also on Manufacturing firms listed at the NSE established a positive correlation between the variables. This paper will focus on the capital budgeting techniques of the listed Manufacturing and Allied firms and determine if profitability levels are affected by deployment of the techniques. The profitability will be further grouped into low, medium, and high to determine the impact of each technique employed by use of chi-square statistics. This study will seek to determine if deployment of Capital Budgeting helps the manufacturing and Allied firms remain profitable even in the face of other threats like cheap imports from other countries. The main difference between this

study and Namahoro et al. (2019) is that it focusses on profitability levels of the manufacturing and allied firms and the methodology used will be chi-square statistics to accommodate this variable. Due to the current state of the manufacturing and allied sector, this research undertakes to find out, what are the capital budgeting practices applied in the manufacturing and allied sector and if these techniques affect the profitability levels of the firms?

1.3 Research Objectives

- (i) To establish capital budgeting practices among manufacturing and allied firms listed at the Nairobi Securities Exchange.
- (ii) To establish capital budgeting techniques and Profitability levels of Manufacturing and allied firms listed at the Nairobi Securities Exchange.

1.4 Value of Study

This paper would give an insight into the current state of the manufacturing and allied sector as represented by listed firms and the extend of usage of the different capital budgeting techniques. This would help future scholars in establishing the practices in capital budgeting employed in the firms and therefore make it easier to find out the effect of capital budgeting techniques against other parameters they may wish to study.

This study would also be important for managers across different organizations who can use the findings to implement capital budgeting practices that would be beneficial to their firms and avoid pitfalls in capital budgeting that have put other firms at a disadvantage.

Lastly this study would be useful to the country decision making bodies such as Parliament who can use it in making policy decisions. Policies that encourage the adoption of advanced practices in capital budgeting such as allowing purchase of such software tax free and so on to improve adoption by organisations and hence leading to better performance by organizations.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Literature behind capital budgeting techniques and practices is discussed in this chapter. Theories underpinning capital budgeting and the several studies that have been undertaken in Kenya and abroad regarding this topic will also be explored. The paper will also highlight the gaps arising from these studies.

2.2 Theoretical Framework

Different theories relating to capital budgeting have been advanced across the years. For this study, the theories we were looking at include Contingency theory and Real Options Theory. Contingency theory advances that the choice of capital budgeting technique should depend on the specific factors that are unique to the situation of the organization whereas Real options theory proposes that the organization can have the flexibility of investing or abandoning future capital projects.

2.2.1 Contingency Theory

Contingency theory as applied in capital budgeting was advanced by Richard H. Pike (1986) and opines that there is no best way a corporation can be organised or run but the best outcome is dependent on both internal and external circumstances an organization may find itself in. Pike states that traditional capital budgeting approaches always assumed that adoption of formalized and sophisticated capital budgeting will lead to better resource allocation. However, studies done by scholars such as Klammer (1973) find this assumption indefinite.

Rosenweig (1981) studied 146 firms across the UK with the contingency framework approach to examine the capital budgeting process to establish the effect of environmental and company specific factors on capital budgeting. The study finds that a company's investment process is impacted by various variables in the form of the external environmental, organisational structure, financial strength, and leadership style.

Axelsson et al. (2002) in their study on Capital budgeting sophistication and performance of organisations listed at the Stockholm Stock Exchange reiterated Pike's stance that the capital budgeting efficiency of a technique is dependent on its fit with the organization rather than its

sophistication. However, they found a challenge incorporating contingent factors in their study as the contingent factors were firm specific while their study was carried out across various industries.

In conclusion this theory brings to light internal and external factors may influence organisational performance despite the capital budgeting techniques employed by the management. Criticism of the contingency approach is that it gives decision makers too much leeway to make capital budgeting choices by implying that capital budgeting decisions should be made as the situation dictates.

2.2.2 The Real Options Theory

The concept of real options was proposed by Stewart Myers in 1977. Real options apply in investment of tangible assets whereby the firm has an opportunity in the future to invest in a project or abandon it entirely. This gives the firm more flexibility as compared to traditional investment theory which proposes that the firm takes the project with a positive NPV.

Myers (1984) indicated that smart managers would only accept positive or negative NPV if they can identify the reason as there is a danger of random error in calculations. He derived four challenges that application of DCF will encounter including approximating the discount rate, the project cash flow, the project's impact on other cash flows, and the projects impact on future activities. Two important pitfalls of DCF identified by Myers is that DCF is not useful in valuing companies with intangible assets or significant growth opportunities, or those in pure research and development. The above three scenarios according to him are better valued by option valuation.

Chance and Peterson (2002) argue that real options valuation shows advantages such as managerial flexibility that may be available in investments which may not be factored in traditional methods of valuation such as DCF. Arnold and Shockley (2003) state that once market conditions are arbitrage free and managers are price takers, DCF or option pricing can be used in valuing illiquid investment assets.

This theory brings to light the use of Real options an alternative or together with DCF techniques in valuation of potential new investments. Criticism of real options theory is that

managers and other decision makers may find it too complex and there is a risk of sub-optimal exercising of options, (Copeland and Tufano, 2004)

2.3 Determinants of Profitability

Determinants of profitability in a firm can be grouped into three factors firm-specific, industry-specific, and macro-economic factors, (Pervan et al., 2019). Under firm characteristics we have age, liquidity, labour costs, and firm size. Firms' profitability declined over the years as the firm matures, (Coad et al., 2013). This decline was because the decision making of older firms make them bureaucratic reducing organization flexibility and ability for quick change. However, on this factor some scholars found an insignificant correlation between age of the firm and profitability Gaur (2011) while others found a positive relationship Bhayani (2010).

Liquidity is the capability of an organisation to settle its short-term debts when they accrue. If it is unable to do so, then it is considered risky. In addition to this, liquidity also determines a firm's future ability to continue as a going concern. Empirical studies on short term performance effect of liquidity have given differing results. Eljelly (2004) found a negative relationship, Sur & Chakraborty (2011) found no relationship at all, while Schiefer et al. (2014) found a positive relationship.

Labour cost is another factor affecting firm profitability. This is especially the case in capital intensive sectors such as manufacturing. Labour costs can be looked at from two lenses, that of cost reduction or revenue expansion. Rust et al. (2002) study shows firms that increase their revenue streams perform better financially compared to companies that focus on cost reduction. Oliva and Sterman (2001) in their study found out that firms that increase the workforce have increased employee productivity as they are not overworked. When looking at labour costs as a function of cost and in accordance with economic theory, an increase in labour cost results to a decrease in profitability.

Firm size is an important aspect affecting profitability. There are advantages that a firm has by the nature of their size. Mathur (1997) points out that large firms have a competitive advantage in accessing factors of production and have access to cheaper finances therefore are equipped to compete better and be more profitable.

In terms of industry specific factors, we have firm concentration and capital intensity. Market structure as defined by industrial organizational literature is the main determinant of firm or industry performance, (Pervan et al., 2019). This is illustrated in the structure, conduct, performance (S.C.P.) hypothesis, advanced by the studies of Bain (1951) and Mason (1949). By colluding together, firms can set up prices that will ensure they earn huge profits.

Capital intensity relates to industries where there is a barrier to entry due to capital assets requirement. The capital employed in the production process is more compared to other factors like labour. Capital intensive industries require substantive financial resource that limit new entrants into the industry. The nature of the industry requires heavy use of capital assets in running of the firms, (Pervan et al., 2019). Investing in more superior and advanced equipment and machinery enables firms achieve more output and increases productivity resulting in profitability, (Grazzi, et al., 2016).

The last factor is the macro-economic factor. This consists of two variables, economic growth, and inflation. Economic growth reflects the macroeconomic condition of a country. It is expected that changes in economic conditions affects firm's performance which is demonstrated in the business cycles of recession and economic boom. In the times of economic growth, demand for the company's products is high leading to an increase in sales and hence higher profitability. During periods of economic contractions, firm's profitability drops. Domowitz et al. (1986) also found in manufacturing firms in the US the impact of business cycle on industry profits.

The other macroeconomic factor affecting firm profitability is inflation. Inflation is caused by monetary instability. A rise in prices caused by inflation affects both the firms cost and revenues. The effect of inflation depends on whether it is planned for or not, (Perry, 1992). A firm that anticipates inflation can adjust prices to bring in more revenue and practice cost management measures to control costs and therefore ensure profitability. On the other hand, a firm that did not anticipate inflation does not adjust its prices on time and therefore reduction of revenue and increased costs leading to reduced profitability. Inflation also leads to a decrease in purchasing power of the consumers and therefore demand for a firm's products are reduced reducing profits.

2.4 Empirical Studies

Various Research papers have been published in Kenya and abroad regarding capital budgeting practices of firms and others have tried to establish if the techniques have an effect on the financial performance. The emphasis has been on adoption of advanced capital budgeting techniques for analysing investments. International and local studies alike have highlighted the prominence of DCF techniques as a preferred method in capital budgeting.

Arnold and Hatzopoulos (2000) surveyed the adoption of modern investment appraisal techniques and the continued use of traditional techniques alongside DCF techniques in UK Firms. The study was conducted on 300 companies of which 32.4 % responded. The research found that IRR & NPV was used by 90% of SMEs whereas NPV was used by large firms at 97% while IRR is employed by 84%. NPV was found to be a more popular DCF method than IRR. The adoption of risk analysis technique was also found to be low.

Graham and Harvey (2001) studied corporate practices of firms in the US by surveying 392 chief financial officers (CFOs). The CFOs were questioned on the capital budgeting techniques used in the firm. NPV was top at 74.9 and IRR at 75.7%. Others used payback method at 56.7 %. The study confirms that companies use multiple approaches to evaluate capital projects. The study also found that larger firms (sales over \$1 billion) use a different approach as compared to smaller firms (sales less than \$ 1 million). Small firms used payback approach more while large firms used more of NPV and IRR. The study also found that companies with higher debt portfolio are inclined to use IRR and NPV compared to firms with lower debt portfolio. Firms that had CEOs with master's in business administration were inclined to use NPV than non-MBA CEOs.

Ryan and Ryan (2002) studied Fortune 1000 companies in the United States on their capital budgeting decisions. NPV ranked highest at 96%. Firms with more financial resources for capital budgeting prefer NPV and IRR. PBP was ranked third at 74.5% while discounted payback model was employed by 56.7% of the companies. PI was used by 43.9%, ARR by 33.3% and lastly MIRR at 21.9%. Risk analysis techniques of sensitivity analysis and scenario analysis were also highly used. Cash flows adjusted for inflation was used by 46.6% firms regularly. Discounted capital budgeting techniques (DCF) were favoured over non-DCF techniques reflecting sophistication in the capital budgeting process. Most respondents

concluded that the cost of capital was best calculated by using the weighted average cost of capital (WACC) approach.

Irungu (2014) in her study of listed firms at the NSE established that most companies used NPV as their capital budgeting technique followed by PBP then IRR. The ARR was used by several companies though not preferred. The study also found that no company switched budgetary techniques. The study recommends staff training on capital budgeting as most of the response showed a lack of knowledge.

Namahoro et al. (2019) conducted a similar study on capital budgeting techniques and financial performance of manufacturing firms listed at the NSE. The study looked at the individual effect of the budgeting methods on performance of the organisation by correlating the variables. The outcome was that NPV, ARR and PB positively and significantly affected financial performance while IRR affected financial performance positively but not significantly. Firm size was found to be a partial moderator of relationship between capital budgeting techniques and financial performance of the firms.

Ahmed (2013) in his study of determinants of capital budgeting methods in companies listed at the Dubai Financial Market indicated that industry has a big effect on the adoption of capital budgeting methods. He noted that organisations in the manufacturing sector will more likely adopt recommended practices because of the huge capital investments. The Study noted that various factors such as size and profitability of the organisation, the generated revenues, the liquidity level, project familiarity, level of expenditure in the project, the debt level and education levels of decision makers plays a huge role in the choice of capital budgeting methods. The study found a positive relation between profitability, size of the firm, leverage, and revenue with the NPV, IRR, PB and PI.

2.5 Summary of Literature Review

The objective of any firm is to maximize shareholder's wealth. The adoption of advanced capital budgeting techniques is expected according to finance theory to affect the company's financial performance. Various studies have been carried out regarding this topic with varying results. Klammer (1973) did not establish a clear correlation between capital budgeting techniques and financial performance. His study suggests that there are other variables such as labour relation, executive recruitment and training, product development and marketing may

have a greater effect on profitability. Munyao (2010) found a strong correlation between capital budgeting methods and firm's financials as measured by ROA. His research established a correlation between IRR, NPV, ARR and PBP as related to ROA. Namahoro et al. (2019) also established a positive correlation between NPV, ARR, IRR and PB with financial performance of manufacturing firms. Irungu (2014) found no correlation between capital budgeting methods and organisation's performance. However, NPV and ARR were highly related to ROA while PBP and IRR were negatively related therefore giving mixed results. The biggest gap in local studies was that the determining factor of selecting one technique over the other was not fully explored and therefore this study sought to include this topic.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The research methods employed in this paper is discussed in this chapter. The chapter also looked at how the population will be determined, sampling design that may be used, the data collection tools, and the data analysis methods to be used using the various statistical tools.

3.2 Research Design

In this paper, both the descriptive and longitudinal research design was employed. A descriptive study helps to describe the variables in the study, (Sekaran, 2003). Akhtar (2016) defines descriptive design as helping to describe social events, structure and situations and is also referred to as statistical research. A longitudinal study is whereby data on dependant variable is gathered over a two point or more period, (Sekaran, 2003). These two designs clearly capture the nature of the research as one helps to describe the variables while the other captures the time frame of the study.

The descriptive design was used to help understand capital budgeting techniques and profitability of manufacturing and allied companies listed at the NSE whereas the longitudinal research design explains the 5-year period of 2016 to 2020 which the study took place. This design follows that of similar studies on this topic such as (Irungu, 2014).

3.3 Population

There are 9 manufacturing and Allied firms listed at the NSE as of 18th August 2021. The population was made up of only 7 as two of them, Mumias Sugar Co Ltd and Eveready East Africa Ltd are going through a prolonged financial difficulty. Since these companies are publicly quoted, a published financial statement about them is readily available.

3.4 Data Collection

Structured questionnaires were deployed to collect primary data which was administered to management staff in charge of Risk, Investment, or finance. This data was on capital budgeting practices and techniques of the firm. Additionally, secondary data which constitutes the published financial statements is to be obtained from the NSE library or/and downloaded from

the firm's website. This data provided information on financial performance and more so profitability of the firms. The secondary data covered a period of 5 years from 2016-2020.

3.5 Data Analysis

Data analysis was carried out after gathering of primary and secondary data. Data analysis was carried out by use of Microsoft excel package and Statistical Package of Social Sciences (SPSS). Descriptive statistics was used to analyse quantitative data which showed relationships between variables by way of tables, charts, and percentages. Inferential statistics through chi-square statistics also helped establish relationship between the variables.

The chi-square test formula is as follows.

$$\chi^2 = \sum \frac{E_i (O_i - E_i)^2}{E_i}$$

Where:

c =Degrees of freedom

O =Observed value(s)

E =Expected value(s)

3.5.1 Reliability and Validity

Reliability of a measure relates to the extent to which it is error free, (Sekaran, 2013). The reliability of a measure indicates stability and consistency with which it measures the concept and helps to determine its suitability. Reliability can be measured either through stability or consistency. In this study the interim consistency reliability was measured using Cronbach's coefficient alpha. This is best for items with multiple answers. Validity ensures the instrument measures the intended concept, (Sekaran, 2013). The validity of the data was demonstrated with the findings from the data collected.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

Data analysis, results, and discussions will be explained in this chapter. Primary data was collected through structured questionnaires while secondary data which consisted of financial statements was downloaded from the firm's website. The study targeted one respondent from each of the manufacturing firms and was presented through frequency tables.

4.2 Background Information

4.2.1 Response Rate

The study population was 7 manufacturing and allied organizations. Seven questionnaires were issued to the finance managers, risk managers, investment managers and other staff in finance department. All of them were filed and returned forming a 100 % response rate.

4.2.2 Position of Participant

The outcomes are as illustrated in Table 4.1.

Table 4.1: Position of Participant

Category	Frequency	Percent
Investment manager	2	28.6%
Risk manager	2	28.6%
Finance Manager	2	28.6%
Others	1	14.3%
Total	7	100%

The outcomes show that 28.6% of the respondents were finance managers, 28.6% were risk managers, 28.6% were investment managers and other (accountant) were 14.3%.

4.2.3 Participant Years of Experience

The participants were required to highlight the period they have worked for the organisation. The outcomes are as illustrated in Table 4.2.

Table 4.2: Participant Years of Experience

Category	Frequency	Percent
0 to 2 years	0	0%
3 to 5 years	4	57%
Over 6 years	3	43%
Total	7	100%

From the findings in Table 4.2, 57% of the participants had 3 to 5 years of experience while 43% had over 6 years of work experience.

4.2.4 Capital Budgeting Techniques

The participants were required to highlight whether their organisation use capital budgeting techniques to appraise investments. The outcomes are as shown in Table 4.3

Table 4.3: Use of Capital Budgeting Techniques to Appraise Investments

Category	Frequency	Percent
Yes	7	100%
No	0	0%
Total	7	100%

From the results, 100% of the respondents indicated that their organisation uses capital budgeting techniques to appraise investments.

4.2.5 Capital Budgeting Manual

The participants were required to indicate if their organisation has a capital budgeting manual to guide the process. The outcomes are as indicated in Table 4.4.

Table 4.4: Capital Budgeting Manual to Guide the Process

Category	Frequency	Percent
Yes	6	86%
No	1	14%
Total	7	100%

From the outcomes, 86% of the respondents indicated that their organisation has a capital budgeting manual to guide the process while 14% indicated that their organisation does not have a capital budgeting manual.

4.2.6 Frequency of Capital Budgeting Techniques

The participants were required to highlight the frequency of which the firm uses the below capital budgeting techniques when evaluating investment projects. The outcomes are as indicated in Table 4.5.

Table 4.5: Frequency of Use of Capital Budgeting Techniques

Category	Always (1)	Almost Always (2)	Almost Never (3)	Never (4)
Payback period (PB)	6(86%)	1(14%)	0(0%)	0(0%)
Internal Rate of Return (IRR)	6(86%)	1(14%)	0(0%)	0(0%)
Net present Value (NPV)	2(29%)	5(71%)	0(0%)	0(0%)
Accounting Rate of Return (ARR)	1(14%)	5(71%)	1(14%)	0(0%)

From the findings, IRR and Payback Period were highly used at (86%) always. This was followed by NPV and Accounting Rate of Return both tied at (71%) almost always. Accounting Rate of Return was the least favoured at (14%) almost Never.

4.2.7 Favoured Capital Budgeting Techniques

The participants were requested to indicate the capital budgeting techniques that the firm favour when selecting an investment project to pursue. The outcomes are as demonstrated in table 4.6.

Table 4.6: Capital Budgeting Techniques

Category	Frequency	Percent
Payback period (PB)	6	55%
Internal Rate of Return (IRR)	4	36%
Net present Value (NPV)	0	0%
Accounting Rate of Return (ARR)	1	09%
Total	11	100%

Some firms indicated more than one favoured capital budgeting technique therefore bringing the total number of entries to 11. From the outcomes, 55% of the participants indicated that their firm favoured payback period followed by IRR at 36%. Surprisingly, none of the respondents preferred NPV whereas 9% Preferred Accounting Rate of Return.

4.2.8 Factors Determining Capital Budgeting Technique Selection

The participants were requested to indicate the factors that influence the choice of capital budgeting technique selected. The factors mentioned include ease of understanding by the management and staff, little need for assumption in calculations, ease of use by staff, nature of the investment, the amount of capital required, risk factor and source of financing.

4.2.9 Discounting Rate Methods

The respondents were requested to indicate which approaches the firm uses to determine the discount rate to appraise proposed capital investments projects. The outcomes are as demonstrated in Table 4.7.

Table 4.7: Approaches Used to Determine the Discount Rate

Category	Frequency	Percent
Cost of Debt	4	44.5%
Weighted Average Cost of Capital	4	44.5%
Cost of Equity	1	11%
Arbitrary Chosen Figure	0	0%
Total	9	100%

Cost of debt was tied with Weighted Average Cost of Capital as the most used discounting technique at 44.5%. Cost of equity was third at 11% while none of the firms used arbitrary chosen figure.

4.2.10 Staff Assigned to Capital Budgeting Analysis

The participants were required to highlight the number of staff who have been assigned full-time to capital budgeting analysis. The outcomes are as illustrated in Table 4.8.

Table 4.8: Number of Staff Assigned to Capital Budgeting Analysis

Category	Frequency	Percent
None	6	86%
1 to 2 Staff	1	14%
3 to 5 staff	0	0%
6 and above staff	0	0%
Total	7	100

From the results, 86% of the respondents indicated that they have not assigned staff to capital investment analysis whereas 14% indicated that they have assigned 1 to 2 staff full-time to capital budgeting analysis respectively. Most of the capital budgeting decisions as explained by one Manager were done at Management and Board Level and therefore no staff was assigned full time to it.

4.2.11 Post Audit Analysis

The participants were required to indicate whether their firm conducts a post-audit on major capital expenditure. The outcomes are as demonstrated in Table 4.9.

Table 4.9: Conducting of Post-Audit on Major Capital Expenditure.

Category	Frequency	Percent
Yes	7	100%
No	0	0%
Total	7	100%

From the outcomes, 100% of the respondents indicated that their firm conducts a post-audit on major capital expenditure.

4.3 Profitability

ROA was used as a measure for profitability of the listed Manufacturing and Allied companies. The data was extracted from the published financial statements and the findings are as shown in Figures below.

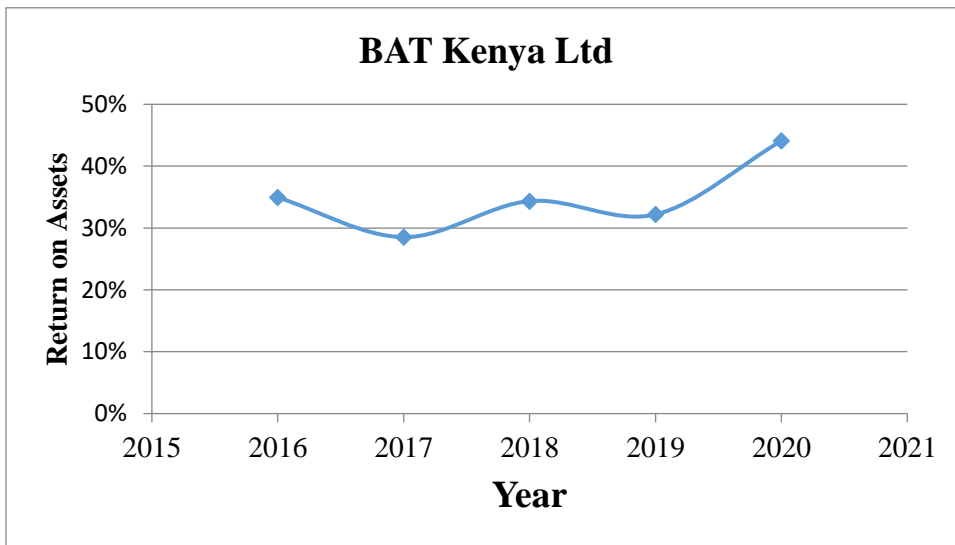


Figure 4.1: ROA for BAT Kenya Ltd

From the findings, British American Tobacco Kenya Ltd had the highest ROA starting off at 35% in 2016 with fluctuations throughout the years and closing at 44% in 2020.

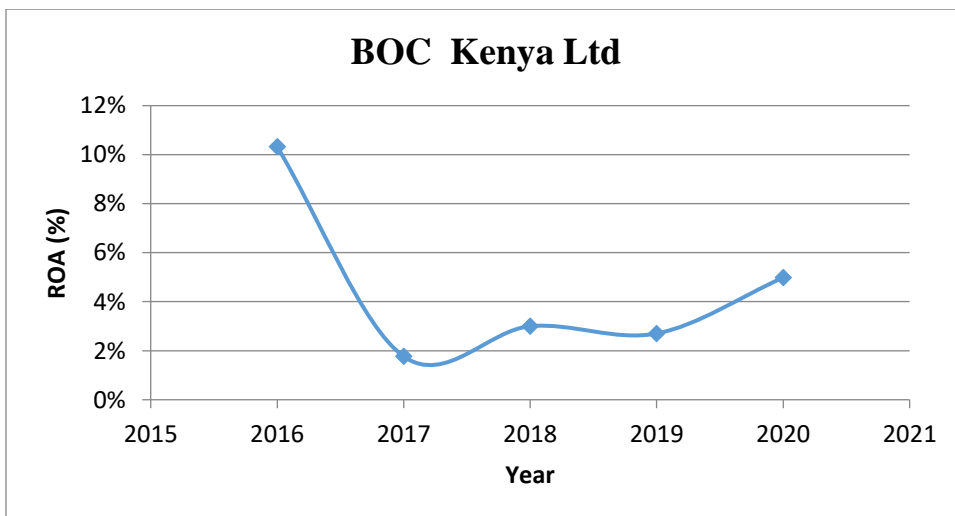


Figure 4.2: Return on Assets for BOC Kenya Ltd

BOC Kenya started off strongly with an ROA of 10% in 2016 but had a sharp decline to 2% in 2017 and has slowly picked up since closing off at 5% in 2020.

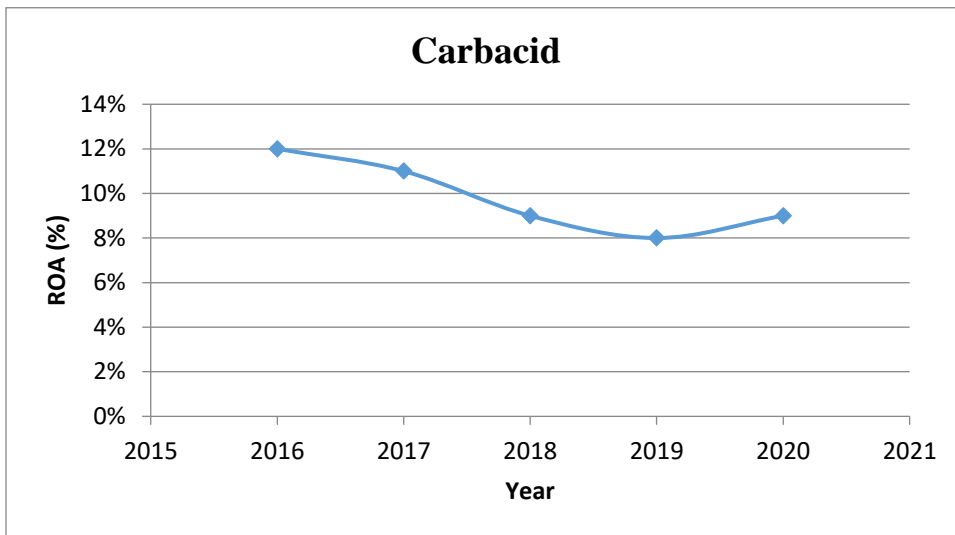


Figure 4.3: Return of Assets for Carbacid

The ROA for Carbacid started off strongly at 12% in 2016 and has steadily decreased to a low of 8% in 2019 and slightly picked up to close at 9% in 2020.

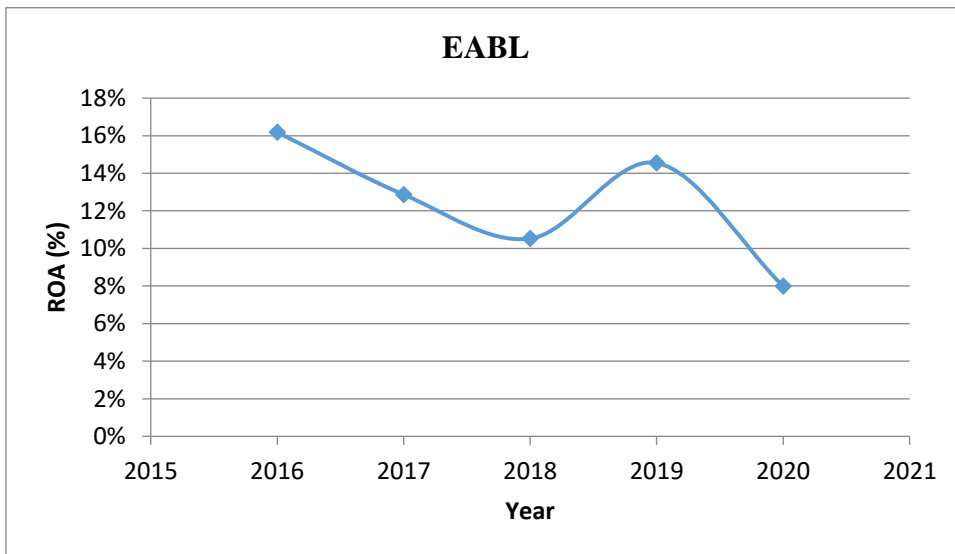


Figure 4.4: Return on Assets for EABL

The ROA for EABL started off at a high of 16% in 2016 and steadily declined picking up again at 15% in 2019 and then sharply declining to close off at 8% in 2020.

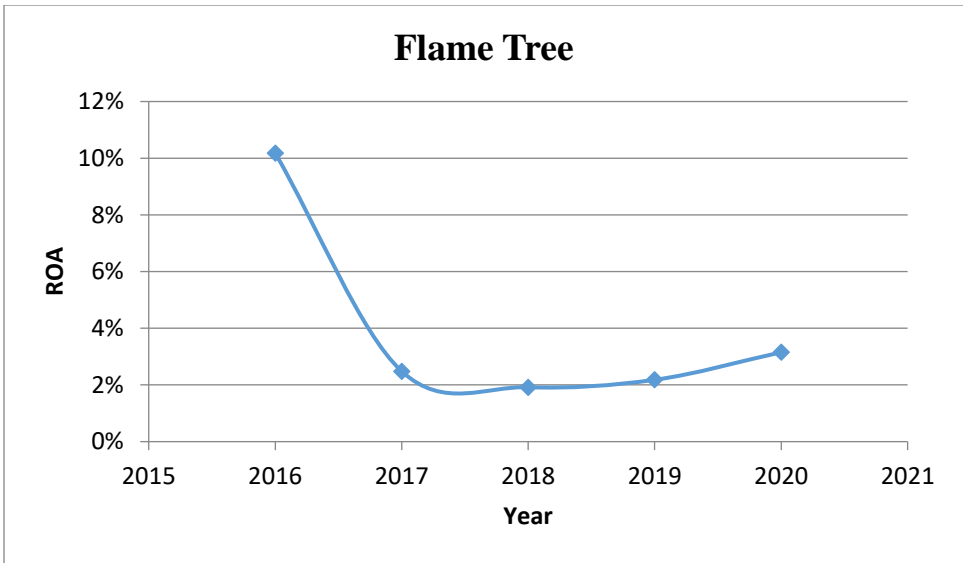


Figure 4.5: Return on Assets for Flame Tree Company

The ROA for Flame Tree Ltd started off at a high of 10% sharply declining to close off at 3% in 2020.

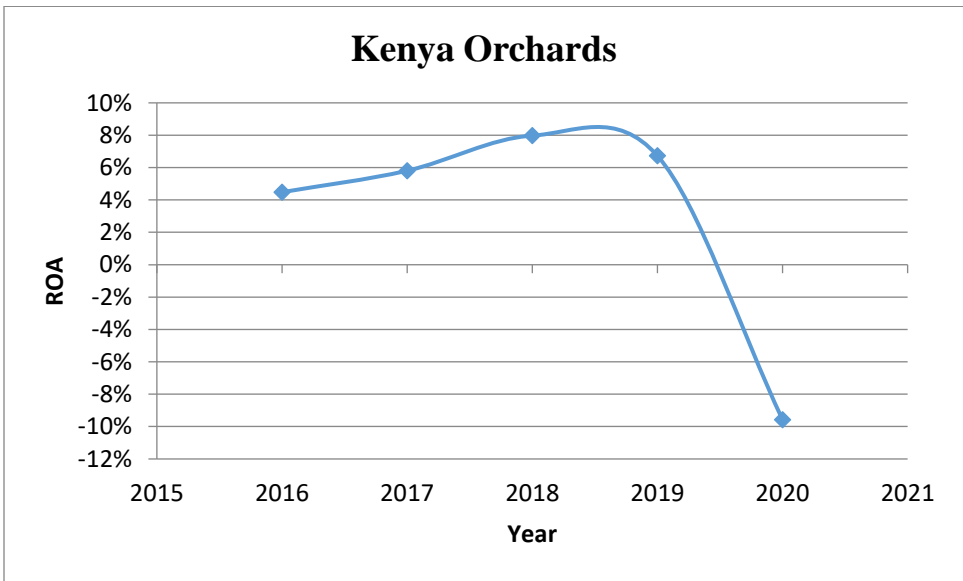


Figure 4.6: Return on Assets for Kenya Orchards Ltd

The ROA of Kenya Orchards started off at 4% in 2016 and steadily increased to 8% in 2018 but took a sharp decline to close off at -10% in 2020.

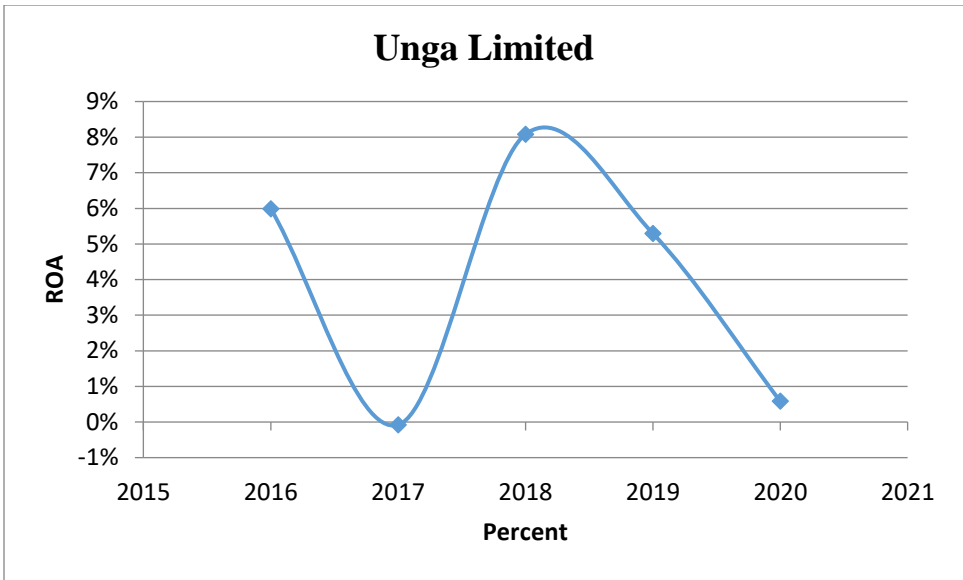


Figure 4.7: Return on Assets for Unga Ltd

The ROA of Unga Ltd started off at 6% in 2016 fluctuated throughout the years closing at 1% in 2020.

4.4 Chi-square Test on Capital Budgeting Techniques and Profitability

Table 4.10: Capital Budgeting Techniques and Profitability

Capital Budgeting Techniques	ROA Status	Categories	Observed	Expected
Payback period	High	Always	6	5.1
		Almost Always	0	0.9
	Medium	Always	17	16.3
		Almost Always	2	2.7
	Low	Always	7	8.6
		Almost Always	3	1.4
Pearson $\chi^2(2) = 3.2360$ Pr = 0.198				
Likelihood-ratio $\chi^2(2) = 3.7040$ Pr = 0.157				
Cramér's V = 0.3041				
Capital Budgeting Techniques	ROA Status	Categories	Observed	Expected
Internal Rate of Return	High	Always	6	5.1
		Almost Always	0	0.9
	Medium	Always	17	16.3
		Almost Always	2	2.7
	Low	Always	7	8.6
		Almost Always	3	1.4
Pearson $\chi^2(2) = 3.2360$ Pr = 0.198				
Likelihood-ratio $\chi^2(2) = 3.7040$ Pr = 0.157				
Cramér's V = 0.3041				

Capital Budgeting Techniques	ROA Status	Categories	Observed	Expected
Net present Value	High	Always	1	1.7
		Almost Always	5	4.3
	Medium	Always	7	5.4
		Almost Always	12	13.6
	Low	Always	2	2.9
		Almost Always	8	7.1
Pearson $\chi^2(2) = 1.4135$ Pr = 0.493				
likelihood-ratio $\chi^2(2) = 1.4559$ Pr = 0.483				
Cramér's V = 0.2010				
Capital Budgeting Techniques	ROA Status	Categories	Observed	Expected
Accounting Rate of Return	High	Always	1	0.9
		Almost Always	5	4.3
		Almost Never	0	0.9
	Medium	Always	4	2.7
		Almost Always	12	13.6
		Almost Never	3	2.7
	Low	Always	0	1.4
		Almost Always	8	7.1
		Almost Never	2	1.4
Pearson $\chi^2(2) = 3.5811$ Pr = 0.466				
Likelihood-ratio $\chi^2(2) = 5.7581$ Pr = 0.218				
Cramér's V = 0.2262				

4.5 Chi-Square test for Association

From the findings in Table 4.11, each Capital budgeting technique shows no significant association to profitability of the Manufacturing and Allied firms with PB ($\chi^2 = 3.236$, $df = 2$, $p > 0.05$), IRR ($\chi^2 = 3.236$, $df = 2$, $p > 0.05$), NPV ($\chi^2 = 1.414$, $df = 2$, $p > 0.05$), ARR ($\chi^2 = 3.581$, $df = 2$, $p > 0.05$). We can therefore derive from the result that there is no significant effect of capital budgeting techniques on profitability.

4.6 Discussion

The aim of the paper was to establish Capital budgeting techniques and profitability of Manufacturing and Allied companies listed at the NSE. All the firms surveyed adopted capital budgeting methods to appraise investments. Majority of the firms preferred Payback Period at 55%, IRR at 36% and ARR at 9%. Previous studies done on Capital budgeting Techniques on firms listed at the NSE by Yator (2018) and Irungu (2014) found NPV to be a leading technique but the results in this study did not rank NPV highly and it was not a preferred technique among the Manufacturing and Allied firms listed.

The study wanted to find out factors influencing the choice of capital budgeting techniques. The factors mentioned include ease of understanding by the management, little need for assumption, ease of use by staff, applicability to the investment, nature of the investment, the amount of capital required, risk factor, source of financing and the amount of investment needed. These findings echo the Contingency theory sentiments that the techniques used depend on internal and external factors that the organisation operates in. As reiterated by Axelsson et al. (2002) in their study on Capital budgeting sophistication and performance of organisations listed at the Stockholm Stock Exchange who stated that capital budgeting efficiency of a technique is dependent on its fit with the organization rather than its sophistication.

WACC and cost of debt were employed to determine the discount rate to appraise proposed capital investments projects at 44.5% for each and 11% for equity. This is an agreement with the study by Ryan and Ryan (2002) in their paper on Fortune 1000 Companies in the United States where majority of respondents preferred WACC. Yator (2018) in her study however found cost of equity to be the most preferred appraisal technique.

Majority of the firms at 86% did not assign full time staff to capital budgeting analysis and this was because capital budgeting decisions at most companies are made at Management and Board Level. This finding agrees with Yator (2018) and Irungu (2014) who found that most organisations did not assign staff and did not provide training to staff on capital budgeting. This trend has not changed over the years. All the firms conducted a post audit analysis on major capital expenditure projects.

CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of findings, conclusions, limitations, and recommendations. The paper's objective was to establish the capital budgeting techniques and profitability of manufacturing and allied companies listed at the Nairobi Securities Exchange.

5.2 Summary of Findings

The study sought to establish capital budgeting techniques and profitability of manufacturing and allied organisations listed at the NSE. Both the descriptive and longitudinal research design were employed. The population was made up of 7 Companies. Structured questionnaires were deployed to collect primary data which was administered to management staff in charge of risk, investment, or finance. Additionally, secondary data which constitutes the published financial statements was downloaded from the firm's website. The secondary data covered a period of 5 years from 2016-2020. Descriptive statistics was used to analyse quantitative data which interpreted the outcomes by way of tables, figures, charts, and percentages.

The research established that the Manufacturing and Allied companies listed in the NSE use capital budgeting techniques to appraise investments and majority of them have a capital budgeting manual to guide the process of capital budgeting. Further, most of the firms favour payback period and IRR when appraising capital projects to undertake.

The study also revealed factors determining capital budgeting technique selection in different organisations which include ease of understanding by the management, little need for assumption, ease of use by staff, applicability to the investment, nature of the investment, the amount of capital required, risk factor and source of financing. WACC and cost of debt were mostly used to determine the discount rate to appraise proposed capital investments projects. Majority of the firms have not assigned full time staff to capital budgeting analysis on major capital expenditure.

The chi-square statistics test on with PB was ($\chi^2=3.236$, $df=2$, $p>0.05$), IRR ($\chi^2=3.236$, $df=2$, $p>0.05$), NPV ($\chi^2=1.414$, $df=2$, $p>0.05$) and ARR ($\chi^2=3.581$, $df=2$, $p>0.05$) all

depicting there is no significant correlation between the capital budgeting techniques and profitability of the listed Manufacturing and Allied firms.

5.3 Conclusion

The motive of the study was to establish capital budgeting techniques and profitability levels of Manufacturing and Allied firms listed at the NSE. The outcomes were that capital budgeting techniques were adopted in appraising capital investments with Internal Rate of Return and Payback Period and being the most preferred.

The study also established contingent factors influence the choice of a capital budgeting technique and these factors include risk factor, capital investment required, nature of investment, source of financing, ease of use by staff, little assumptions needed and ease of understanding by management.

Results from the chi-square statistic test found that capital budgeting techniques do not significantly influence profitability of Manufacturing and Allied organisations listed at the NSE. This finding is similar to that of Klammer (1973) and Irungu (2014) in their respective papers on capital budgeting methods and financial performance of organisations.

5.4 Recommendations

This study has highlighted the importance of contingent factors which include the risk of the investment, ease of use by staff, ease of understanding by management, less assumptions required, nature of investment and source of financing as important in the capital budgeting process. The Analysis of secondary data showed fluctuations in ROA across the years despite consistent use of the capital budgeting techniques therefore implying there are a lot of other internal and external factors as stated by contingency theory that affect the profitability of a firm. There is therefore an opportunity for further study on contingent factors affecting firm profitability.

The outcomes also showed that most of the organisations did not employ have specific staff to manage capital budgeting analysis and the capital budgeting decisions were made at management and board level. Majority of finance staff contacted did not have thorough knowledge on capital budgeting techniques and had to refer to senior managers to get feedback

on the questionnaire, therefore firms must take capital budgeting with more prominence as they do other finance functions and provide capacity building to their employees.

From the ROA analysis, we have seen constant fluctuations of the Manufacturing and Allied firms' profitability throughout the years and the trend has either been constant or declining a fact that is backed by Kenya Business Guide Report 2018 by Kenya Association of Manufacturers. There is therefore need for the government to make policies that protect manufacturing and Allied firm's businesses and to provide a favourable business climate for these organisations to operate in competitively.

5.5 Limitations of the Study

The biggest challenge in collection of primary data was access to expert staff in capital budgeting as most organisations were lacking in this area. Given the fact that majority of the organisations did not assign full time staff to capital budgeting, it is no surprise that most of the staff in finance department could not provide feedback on the capital budgeting methods employed by the organisation.

There is a risk of inconsistent feedback obtained from primary sources who may be influenced by circumstances such as busyness and fatigue therefore giving hurried or inattentive responses that may be incorrect. There is also a risk that the respondent may not thoroughly understand the organisations capital budgeting policies therefore giving nonfactual responses. Also, a structured questionnaire as a means of collecting primary data may not give certain intricacies on the subject that can be obtained through interviews or observation.

The population consisting of the 7 Manufacturing and Allied firms was a small sample size and a larger population would have provided a better set of data for statistical analysis.

5.6 Recommendations for Further Research

The study objective was to establish the capital budgeting techniques and profitability of manufacturing and allied firms listed at the Nairobi Securities Exchange. A similar study can be conducted on other Manufacturing firms which are not listed to confirm if similar findings would be obtained or if there are special factors that affect the capital budgeting processes in these firms. Similarly, because of the fluctuations of profitability levels as obtained from the

secondary data, there is a great opportunity to explore the challenges that Manufacturing and Allied firms face in their mission to stay profitable and a float.

REFERENCES

- Ahmed, I. (2013). Factors Determining the Selection of Capital Budgeting Techniques. *Journal of Finance and Investment Analysis*, 2, 1-5.
- Akhtar, I. (2016, February 1). *Research Design*. Retrieved from <https://ssrn.com/abstract=2862445>
- Arnold, G.C. and Hatzopoulos, P.D. (2000), “The theory-practice gap in capital budgeting: evidence from the United Kingdom”, *Journal of Business Finance and Accounting*, Vol. 10 No. 5, pp. 603-26.
- Axelsson, H. Jakovicka, J. & Kheddache, M. (2002). Capital Budgeting Sophistication and Performance- A Puzzling Relationship; *Unpublished Doctoral Thesis*, Graduate Business School, Goteborg University
- Bain, J. (1951). Relation of profit rate to industry concentration: American manufacturing, 1936-1940. *Quarterly Journal of Economics*, 65(3), 293–324
- Bennouna, K., Meredith, G. G., & Marchant, T. (2010). Improved capital budgeting decision making evidence from Canada. *Management Decision*, 48(2), 225-247.
- Berk J, DeMarzo P and Harford J (2013), *Fundamentals of Corporate Finance*, Second Edition
- Bhayani, S. J. (2010). Determinant of profitability in Indian cement industry: An economic analysis. *South Asian Journal of Management*, 17, 6–20
- Borad, S. (2019). Importance of Capital Budgeting. Retrieved from <https://efinancemanagement.com/investment-decisions/importance-of-capital-budgeting>
- Brigham E.F., & Ehrhardt M.C. (2002). Financial Management: Theory and Practice, *South-Western. Mason*.
- Coad, A., Segarra, A., & Teruel, M. (2013). Like milk or wine: Does firm performance improve with age? *Structural Change and Economic Dynamics*, 24, 173–189
- Chance, D. & Peterson., P. (2002). Real Options and Investment Valuation, Charlottesville, VA, *Research Foundation of AIMR*
- Copeland, T. and Tufano, P. (2004). A Real-World Way to Manage Real Options. *Harvard Business Review*. Published. Retrieved from <https://hbr.org/2004/03/a-real-world-way-to-manage-real-options>

- Domowitz, I., Hubbard, G. R., & Petersen, B. C. (1986a). Business cycles and the relationship between concentration and price-cost margins. *Rand Journal of Economics*, 17(1), 1. 17
- Drury, C. and Tayles, M. (1997), “The misapplication of capital investment techniques”, *Management Decision*, Vol. 35 No. 2, pp. 86-93.
- Eljelly, A. M. (2004). Liquidity – profitability trade-off: An empirical investigation in an emerging market. *International Journal of Commerce and Management*, 14, 48 –61
- Emery, G.W (1998) ,*Corporate Finance: Principles and Practice* Pg 364-366
- Fama, E. F., and French, K.R. 2004. "The Capital Asset Pricing Model: Theory and Evidence." *Journal of Economic Perspectives*, 18 (3): 25-46.
- Farah, A.M.A and Altinkaya Z. (2018). “Capital Budgeting Decisions and Profitability in Manufacturing Firms. IOSR Journal of Business and Management (IOSR-JBM) e-ISSN: 2278-487X, p-ISSN: 2319-7668. Volume 20, Issue 1. Ver. III (January. 2018), PP 27-37
- Farragher, E.J., Kleiman, R.T. and Sahu, A.P. (1999), “Current capital investment practices”, *The Engineering Economist*, Vol. 44 No. 2, pp. 137-50
- Gaur, J. (2011). Financial Performance Measures of Business Group Companies: A Study of Indian Non-Metallic Mineral Products Industries. *The IUP Journal of Business Strategy*, 7, 45–53.
- Graham, J. and Harvey, C. (2001), “The theory and practice of corporate finance: evidence from the field”, *Journal of Financial Economics*, Vol. 60 Nos 2/3, pp. 187-243
- Grazzi, M., Jacoby, N., & Treibich, T. (2016). Dynamics of investment and firm performance: comparative evidence from manufacturing industries. *Empirical Economics*, 51(1), 125–179.
- Irungu E.N. (2014) “The relationship between Capital Budgeting Techniques and Financial Performance of Companies Listed in Nairobi Securities Exchange
- James, M. (2020, July 28). Profitability Ratios. Retrieved from <https://www.investopedia.com/terms/p/profitabilityratios.asp>
- Jog, M.J. and Srivastava, A.K. (1995), “Capital budgeting practices in corporate Canada”, *Financial Practice and Education*, Vol. 5 No. 2, pp. 37-43.

- Kinyua, M.K (2018) The Effect of Capital Budgeting Decisions on Manufacturing Firms Listed at the NSE.
- Klammer, T. (1973). The Association of Capital Budgeting Techniques with Firm Performance. *The Accounting Review*, 48(2), 353-364.
- Krychowski, C., & Quélin, B. (2010). Real Options and Strategic Investment Decisions: Can They Be of Use to Scholars? *Academy of Management Perspectives*, 24(2), 65-78.
- Lee, J. (2009). Does size matter in firm performance? Evidence from US public firms. *International Journal of the Economics of Business*, 16(2), 189–203
- Markowitz, H.M. (March 1952). Portfolio Selection. *The Journal of Finance*. 7(1): 77–91
- Mason, E. S. (1949). The current state of the monopoly problem in the United States. *Harvard Law Review*, 62(8), 1265–1285
- Mathur, S.S., & Kenyon, A. (1997). Our Strategy is what we sell. *Long Range Planning*, 30(3), 455-458.
- Munyao, A. (2010). The Relationship between Capital Budgeting Techniques and Financial Performance of Companies listed at the NSE.
- Murphy B.C. (2020, October 14). Accounting Rate of Return. Retrieved from <https://www.investopedia.com/terms/a/arr.asp>
- Myers, S. (1984). Finance Theory and Financial Strategy. *Interfaces*, 14(1), 126-137.
- Namahoro, P., Githui, D. T., & Mathenge, F. D. P. (2019). Capital Budgeting Techniques and Financial Performance Of Manufacturing Companies Listed on Nairobi Securities Exchange (NSE). *African Journal of Emerging Issues*, 1(8), 80-98. Retrieved from <https://ajoeijournals.org/sys/index.php/ajoei/article/view/52>
- Nimalathanan, B (2009). Profitability of listed pharmaceutical companies in Bangladesh: An inter and intra comparison of AMBEE and IBN SINA Companies Ltd, *Economic and Administrative series*, 3:139-148.
- Oliva, R., J.D. Serman. (2001). Cutting corners and working overtime: quality erosion in the service industry. *Management Science* 47(7) 894-914.
- Payne, J.D., Heath, W.C., and Gale, L.R. (1999), “Comparative financial practice in the US and Canada: capital budgeting and risk assessment”, *Financial Practice and Education*, Vol. 9 No. 10, pp. 16-24

- Perry, P. (1992). Do banks gain or lose from inflation? *Journal of Retail Banking*, 14, 25 –30.
- Peterson, P.P. and Fabozzi, F.J. (2002), *Capital Budgeting: Theory and Practice*, Wiley & Sons, New York, NY.
- Pervan, M., Pervan, I., & Curak, M. (2016). Business Success Enhance with Firm’s Age? Case of Croatian Food Manufacturing Industry. *Proceedings of the 26th International Business Information Management Association Conference, Amsterdam, Milano*: 826-838.
- Pike, R. (1986). The Design of Capital Budgeting Processes and the Corporate Context. *Managerial and Decision Economics*, 7(3), 187-195
- Prince, Y. M., & Thurik, A. R. (1992). Price-cost margins in Dutch manufacturing: Effects of concentration, business cycle and international trade. *De Economist*, 140(3), 310–335
- Rosenweig, K. (1981). An exploratory field of study of the relationships between the controllers' department and overall organizational characteristics. *Accounting, Organizations and Society* 339-54.
- Rust, T.R., C. Moorman, P.R. Dickson. 2002. Getting return on quality: revenue expansion, cost reduction, or both? *Journal of Marketing* 66(4) 7.
- Ryan, P.A., and Ryan, G.P. (2002), “Capital budgeting practices of Fortune 1000: how have things changed?” *Journal of Business and Management*, Vol. 8 No. 4, pp. 355-364.
- Sanyal, Rajibkumar. (2019). Liquidity Preference Theory of Interest (Rate Determination) of JM Keynes.
- Schlegel D (2015) Cost of Capital in Managerial Finance. An Examination of Practices in the General Real Economy Sector.
- Sekaran, U. (2013). *Research Method for Business*, Fourth Edition
- Sur, D., & Chakraborty, K. (2011). Evaluating relationship of working capital and profitability: A study of select multinational companies in the Indian pharmaceutical sector. *The IUP Journal of Management Research*, 10,7 –22
- Tulsian, M. (2014) Profitability Analysis (A comparative study of SAIL & TATA Steel). *IOSR Journal of Economics and Finance (IOSR-JEF) e-ISSN: 2321-5933, p-ISSN: 2321-5925. Volume 3, Issue 2. Ver. I (Mar. - Apr. 2014), PP 19-22*
- Yator, B. (2018). The Effect of Capital Budgeting Techniques on the Financial Performance of Companies Listed at the Nairobi Securities Exchange.

APPENDICES

Appendix 1: Questionnaire

Dear Participant,

The questionnaire aims to collect data for study on relationship between capital budgeting techniques and profitability of manufacturing and allied firms listed at the Nairobi Securities Exchange. The study is academic in nature aimed at fulfilment of the requirement for award of a degree of Master's in business administration at the University of Nairobi. All responses are treated as confidential and only used for research purposes. Thank you for your time and information.

Section A: Background Information

1. Organization Name:

2. Position of Participant (Please tick as appropriate)
Investment manager ()
Risk manager ()
Finance manager ()
Other (Please Specify)

3. How many years you have worked for the organization? (Please tick as appropriate)
i) 0 to 2 years ()
ii) 3 to 5 years ()
iii) Over 6 years ()

Section B: Capital Budgeting Techniques

1. Does your organisation use capital budgeting techniques to appraise investments? (Please tick as appropriate)
i) Yes () ii) No ()

2. Does your organisation have a capital budgeting manual to guide the process? (Please tick as appropriate)

1) Yes () 2) No ()

3. How often does your firm use the below capital budgeting techniques when evaluating investment projects?

	Always	Almost always	Almost never	Never
	1	2	3	4
i. Payback period (PB)	()	()	()	()
ii. Internal Rate of Return (IRR)	()	()	()	()
iii. Net present Value (NPV)	()	()	()	()
iv. Accounting Rate of Return (ARR)	()	()	()	()
Others (Please specify)	()	()	()	()

4. Which of the below capital budgeting techniques does your firm favour when selecting an investment project to pursue (Please tick as appropriate)

- i. Internal Rate of Return (IRR) ()
- ii. Accounting rate of Return (ARR) ()
- iii. Payback Period (PB) ()
- iv. Net Present Value (NPV) ()

Others (Please specify)

5. What factors determine the capital budgeting technique that you select.

- (i)
- (ii)
- (iii).....

(iv).....

(v).....

6. Which of the below approaches does your firm use to determine the discount rate to appraise proposed capital investments projects? (Please tick as appropriate)

- i) Cost of Debt ()
- ii) Weighted Average Cost of Capital ()
- iii) Cost of Equity ()
- iv) Arbitrary Chosen Figure ()

Others (Please specify)

7. How many staff have been assigned full-time to capital investment analysis? (Please tick as appropriate)

- a) None ()
- b) 1 to 2 Staff ()
- c) 3 to 5 staff ()
- d) 6 and above staff ()

7. Does your firm conduct a post-audit on major capital expenditure?

- i) Yes ()
- ii) No ()

Appendix II: Manufacturing and Allied Firms Listed at The Nairobi Securities Exchange

1. Flame Tree Group Holdings Ltd
2. Kenya Orchards Ltd
3. Unga Group Ltd
4. East African Breweries Ltd
5. Carbacid Investments Ltd
6. British American Tobacco Kenya Ltd
7. B.O.C Kenya Ltd

Appendix III: Profitability (Measured in Terms of ROA)

Year	BAT	BOC	Carbacid	EABL	Flame Tree	Kenya Orchards	Unga
2016	0.349449	0.103194	0.124145	0.161869	0.101821	0.044806	0.059907
2017	0.285314	0.017688	0.110288	0.128667	0.024831	0.058066	-0.000790
2018	0.343566	0.030009	0.089403	0.105219	0.019195	0.079751	0.080792
2019	0.322031	0.0270419	0.076974	0.145473	0.021811	0.067318	0.052949
2020	0.441076	0.049808	0.091050	0.079908	0.031520	-0.095656	0.005829

