KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI

BUSINESS SCHOOL

DEPARTMENT OF ACCOUNTING

CAPITAL BUDGETING PRACTICES ADOPTED BY PUBLIC AND PRIVATE COMPANIES IN GHANA: A CASE STUDY OF SELECTED COMPANIES.

A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES, KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF BUSINESS ADMINISTRATION – FINANCE OPTION.

BY

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DECLARATION

I hereby declare that this submission is my work towards the award of the degree of master of Business Administration (MBA) and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any degree of the University, except where due acknowledgement has been made in the text.

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DEDICATION

I dedicate this research to the Almighty God. My husband, Stephen Dwamena Kwakye.

My children, Stephen Dwamena Kwakye Jnr and Adom Dwamena Kwakye. Thank you

for your support.

ACKNOWLEDGEMENT

ABSTRACT

This research seeks to ascertain whether private and public companies within the Kumasi Metropolis adopt proper Capital budgeting practices and whether there are differences in their cost of capital computation. The researcher surveyed twenty five public companies and fifty five private companies.

The questionnaire, which is the basic method of data collection, was employed to gather primary data on capital budgeting practices in Kumasi Metropolis.

The study employs the frequency analysis and the Chi-Square test to come out very intriguing revelations. The critical analysis of data revealed that the commonest capital budgeting technique used by most companies are net present value, payback, accounting rate of return, internal rate of return and other unknown practices, but NPV stands tall among the lot.

Moreover, the analysis also reveals that the weighted average cost of capital is the most popular model used among companies within the Kumasi metropolis. This is followed by the use of the ruling or average interest rate charged by commercial banks.

Majority of respondents employs the capital asset pricing model by way of incorporating risk into their analysis to compute the minimum expected rate of return on investment projects.

Key Words: Capital Budgeting Techniques, Cost of Capital, Net Present Value, Internal Rate of Return, Average Cost of Capital, Chi-Square.

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INTRODUCTION

1.0 Background of the Study

According to G.C. Philippalys," capital budgeting is concerned with the allocation of firm's scarce financial resources among the available market opportunities". When a company wants to consider investment opportunities, they have to compare the expected future earnings from the project with subsequent future expenditure.

Professor Bernadette C. Vaz defined Capital Budgeting "as planning, evaluation and selection of capital expenditure proposals. Capital budgeting involves a current outlay or serves as outlays of cash resources in return for an anticipated flow of future benefits".

Companies require investing in wealth-creating assets to renew, extend or replace the means by the way they carry on their business. Capital investments enable companies to generate cash in the future and also to maintain the profitability of existing business.

Capital investment projects call for careful evaluation because if the company decides to embark on a project, changing that decision will call for financial loss.

Every company must seek the best or most profitable investment projects so as maximize the return to its shareholders.

Investment capital decisions are classified into short term and long term. The later is described as capital expenditure decision and it involves the planning and control of expenditures which are incurred in the expectation of deriving economic benefits.

Capital investment decisions usually form an important part of strategic planning because it involves huge sum of expectation of streams of future benefits over a number of years.

According to Zinkhan and Zinkhan (1994) "since organizations have limited resources, it is impossible to invest in every opportunity it recognizes".

Once a set of potential projects has been identified and investigated, it becomes necessary to reject those that seem unprofitable.

This research will concentrate on capital budgeting practices in selected private and public companies.

1.1 Statement of the Problem

Capital Budgeting has a broad scope, comprising the following areas:

- Investment Proposals generation

- Selection and evaluation of investment projects,

- Approval and control of investment expenditures

- Post-completion audit of investment projects.

The above details are used to ensure that management puts the scarce resources into projects that are viable which will either reduced costs or increase revenue.

According to Bromwich (1979), capital budgeting seeks to provide a body of analysis giving answers to three interrelated questions. These questions relate to

- Targeted investment projects an organization should accept.
- Total cost of capital expenditure to be taken, and
- How the projects should be financed,

The above questions need to be answered tactfully by management of corporate bodies or any firm. This is true in the sense that the decision of management at the present has a dire consequence on the wealth of the organization and for that matter shareholders wealth in the near future.

Capital budgeting plays a vital role in a business's competitive model. This explains why Kwak, Shi, Lee & Lee (1996) state that "capital budgeting is not a trivial task". According to (Lazaridis, 2004) "A business whose ability to effectively develop a feasible mechanism for capital budgeting may gain a better competitive advantage to its rivalries in an environment characterized by change and volatility".

However, capital budgeting practices in contemporary public and private organizations are not given that priority and the credence it deserves owing to some reasons which are very financially difficult to comprehend. This is very serious in developing economies like Ghana and perhaps can account for the abysmal performances of companies in such economies. It is therefore very imperative that companies do not down play effective capital budgeting since failure to do so could have a dire financial implications and for that matter the very existence of companies.

According to Brijlal and Quesada, (2009), "research into capital budgeting has been focused predominantly in the developed nations". The results may not necessarily be applicable to the developing nations, such as Ghana.

1.2 The General Objectives

This Study is to identify and compare capital budgeting practices of selected public and private companies in Kumasi

The objectives of the study can be summarized as follows:

- To identify the various investment appraisal techniques use by the public and private firms in the Ashanti region

- To examine how the public and private companies compute the cost of capital.

- To examine the post investment completion audit of organizations.

- To ascertain the pre-investment procedures of investment projects.

1.3 Research Questions

The main questions emanating from the objectives of the study include the following:

- What investment appraisal methods are popularly used by the public and private companies?

- How the public and private companies in the Ashanti region calculate their business's cost of capital?

- What post decision control system is adopted by the private and public companies?

- What pre-investment procedures are adopted by the public and private companies?

1.4 Relevance of the Study

The study of capital budgeting will serve as a basis for further research for future students to also review to fill a gap that they think is left by this study as well as instructors in our institutions.

It will also serve as a reference point for organizations who do not take decision on capital budgeting before deciding on which project should be embarked on, so as to save them from future loss of finance.

Anthony E. Boardman el al, stated "for a company to undertake a capital investment decision, they have to consider the costs (expenditures) and the benefits (revenues) that accrue to it". In costs and benefits Analysis, companies try to consider all of the costs and benefits to society as a whole.

The aggregate value of a benefit of a policy is measured by its social benefits minus social costs.

In general, CBA applies to policies, program, projects etc, and other governmental interventions as well as non-governmental interventions. However, throughout the world evidences are that the CBA of investments is not giving the premium it deserves in governmental investments, especially on the developed world. This is rightly so because governments in such economies, with their political expediency are very much interested in the social benefits of investments only.

However, the private companies focused on the profitability of their investments. Because of their profit motivation, private companies do not consider the future negative implications (social costs)

For instance in the mining sector, the private companies will not necessarily consider the future sound, air and water pollutions that such investments could bring in the society.

For a business to be able to continue in operation there is the need to explore and invest in new, promising and viable investment opportunities. The investment decision is as crucial as the project itself so that the organization would not put their investment decisions into jeopardy.

It is for this reason that capital budgeting is given much attention in organization, accounting and finance as a whole so as to get the understanding for its implementation.

According to Pandey, (2004), "Capital budgeting is of paramount importance in finance decision-making. Although other functions of finance like the capital structure, dividend policy, working capital management are equally important to the financial manager but it is the fixed assets that define the business of the firm"

Care must be taken in making capital budgeting decisions on account of the following reasons:

- Such decisions affect the profitability of the organization. They also have bearing on the competitive position of the organization. This is mainly because of the fact that they relates to fixed assets. Capital budgeting determines the future destiny of the organization. An informed investment decision can yield spectacular returns.

  On the other hand, an ill advised and incorrect investment decision can endanger the very survival of the organization.

  A few wrong decisions can also force an organization into bankruptcy.

  Capital budgeting is of utmost importance to avoid over-investment and under-investment in fixed assets.

- A capital expenditure decision has its effect over a long time span and inevitably affects the organization's future cost structure. If the investment in the future turns out to be unsuccessful or yield less profit than anticipated, the firm would have to bear the burden of fixed cost unless it writes off the investment completely.

In simple terms, in determining of organization's future costs, break-even points, sales and profits, the following must be considered:

- Decision on project sometimes extends to a number of years,
- Uncertainty of the future, and
- Higher degree of risk

Since capital investment decision once made cannot be reversed without much financial loss to the firm, companies must always not be in haste in deciding on which project to select. It is against this backdrop that one has to be very careful with how projects are generated and proposal made. Moreover, how projects are evaluated and selected, how approval and control of funds are adjusted and post-completion audit of capital budgeting projects are agreed upon are all crucial question which need a tactful answers by both private and public companies.

It will beneficial therefore to use the study to deepening the theoretical literature in capital budgeting practices in Ghana.

1.5 Organization of the Study

The study will be organized in five chapters, the rest of the study is organized as follows:

Chapter two will consider a review literature on capital budgeting practices by public and private companies.

Chapter three will present a detailed description of the methodology. The emphasis will be on the methods to gather data and how the sample will be determined and analyzed.

Chapter four will present analysis and summary of the results of the data collected from the sampled companies.

In chapter five, summary of the study will be presented, conclusion will be drawn and recommendation for improving capital investment practices in the public and private companies in Kumasi Metropolis will be given.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter reviews some related literature regarding the capital budgeting techniques and cost of capital for the purpose of making a prudent financial decision. It also forms the theoretical basis upon which the study was conducted as well as how the empirical review of the study has been carried out. It concentrates on the literature regarding the various opinions expressed on the topic, techniques of investment appraisal and computation of cost of capital by business establishment.

2.1 Theoretical Literature

According to John O. E. Clark (2001) "investment is expenditure on real or financial assets rather than on funding on consumption. In this sense, expenditure consists of the purchase of any assets which is expected to increase in value. To an economist, however, investments cover spending that result in the economic growth (such as money spent on the purchase of machinery or the building of plant that will produce goods and services for sale). In this sense, it extends to funds applied to the improvements of the infrastructure, and the term may also be applied to expenditure on human resources".

Investment is defined as commitment of resources into a venture in the hope of generating streams of benefits in the future (A Guide for Non-profit Directors). In other words, investment decisions can be classified into two, which are strategic or capital investment decisions and tactical decisions.

A strategic or capital investment decisions, which is the subject of this research has certain features:

- It involves a relatively large amount of funds,
- It involves a relatively short time, (i.e. less than one year) prospect from the commitment of funds to the receipts of the benefits.
- It is not different from what the organization has been doing in the past.

According to Mbabazize and Twesige, (2014), "Capital budgeting is one of the areas that have attracted a lot of academic attention during the last decades and a lot of descriptive literature has emerged. Capital budgeting decision of the firm is of strategic importance not only for the growth of the firm but for the overall growth of the economy because such decisions involve the firm committing its limited productive resources to its production system as they strengthen or renew their resources".

Gitman (2007) defines it as the "process of evaluating and selecting long term investments that are consistent with the business's goal of maximizing owner wealth". It therefore become imperative for every organization that want to embarks on this process to take all necessary steps to ensure that their decision making criteria supports the business's strategy and enhances its competitive advantage over its rivalries.

According to Pandey (2004) "although other functions of finance like the capital structure, dividend policy, working capital management are equally important to the financial manager, but it is the fixed assets that define the business of the firm".

For instance, a school is called a school because of the buildings and staff, a hotel is called a hotel because of the hotel building or a transport company is called a transport company because of the vehicles it has like VIP, OA Travels and Tour and Metro Mass Transport.

Therefore a wrong decision by the firm concerning investment in these assets will lead to heavy lose to the firm in term of its survival and existence.

Capital budgeting techniques are use to evaluate and select an investment project. It therefore helps managers to select projects with the highest profits at an acceptable risk. Simple capital budgeting techniques such as payback period and accounting rate of return do not consider the time value of money. Sophisticated capital budgeting techniques such as the net present value and the internal rate of return considers risk, cash flows and the time value of money.

Horngren, Foster & Datar, 1997; Ross, (1995). Stated that "there are variety of methods and techniques that managers can use to facilitate capital budgeting procedures"

In practice, capital budgeting techniques show different practices from business to business and in some cases from manager to manager.

For example, the VIP Company in the Transport sector might not be using any appropriate capital budgeting techniques even though they are winning in the sector.

According to Dayananda et al (2002), "the capital budgeting practices are used in making investment decision so as to increase the shareholders' value".

Capital budgeting is primarily concerned with sizable investment in long term assets, and these assets may be tangible such as property, plant and equipment or intangible such as new technology, patent, research and development, design and trademark.

Kaijege (1994) sees capital budgeting techniques as "a stipulated decision rules that guide management on how to make investment decisions, which measures project's desirability in terms of profitability and economic feasibility.

Hearth and Gale, (1999), revealed that "different capital budgeting techniques have been developed with time, but the most commonly known and used techniques are grouped into two major categories. These are conventional techniques and discounted cash flow techniques (DCFT)"

. The convention techniques are those techniques which do not consider the timing of cash flows and they comprise the payback period and the accounting rate of return; the discounted cash flow techniques are those techniques which consider the timing of the cash flows and they include the net present value, the internal rate of return, and the profitability index.

The payback period has been modified in order to consider the timing of the cash flows, but still has the problem of not recognizing the cash flows after the payback period.

2.2 Capital Budgeting.

According to G.C. Philippalys definition, "Capital budgeting is concerned with the allocation of firm's scarce financial resources among the available market opportunities". The selection of investment opportunities involves comparison of expected future stream of earning from project with immediate and subsequent streams of expenditure for it.

Capital investment is use to appraise expenditure decisions that entail current outlays which is likely to generate benefits over a period of time longer than a year. The fact is that, these benefits can be in the form of increased revenue or reduction in costs.

Bierman and smidt (1975) see capital investment as: "a many-sided activity that includes searching for new and more profitability investment proposals; investing, engineering and marketing considerations to predict the consequences of accepting the

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investment and making economic analysis to determine the profit potential of each investment proposal**"**

The definition above is a comprehensive explanation of the capital investment process, which includes: discovery of potential projects, forecasting of possible outcomes, and the choice of more profitable project financing and execution of the chosen project.

A thorough look at the literature on capital investment indicates an existence of a linkage between the theory of capital investment and what constitutes the objectives of the organization. Organizations can pursue a number of objectives including the following:

- Maximization of equity holders' wealth,
- Obtain the largest possible market share,
- Profit maximization,
- Survival of the organization and
- Maximization of sales revenue.

In view of the above, it is obvious that there is no agreement on what the objective of the organization is as some authors consider wealth maximization as the only objective of any organization. According to Boness (1972) 'the direct economic goal of every organization is to maximize stakeholders' wealth"

Drury (1987) did not only support Boness's idea but also propose a perfect linkage between the theory of capital investment and the objective of the organization by stating that: "two most important goals are profitability and survival. The theory of capital investment reconciles the goals of survival and the profitability by assuming that management takes as its goal of maximizing stakeholders' wealth."

This shows that, there is a strong indication of linkage between theory of capital investment and the objective of wealth maximization which form bases of separating the various capital investment techniques into sophisticated and naïve techniques. Financial theory has a specified criterion for a capital budgeting techniques to satisfy.

Bromwich (1979), states that; "the criteria for project appraisal must (if maximization of owners' wealth is the aim) must include all the future expected receipts and outlays due to projects acceptance, since all these have been made comparable over time and been adjusted for risk"

The discounted cash flow techniques are more consistent with these criteria and as such considered as theoretically more sound than the non-discounted cash flow techniques.

Hearth and Gale, (1999), emphasizes the finance literature that "evaluation and the selection stages of the capital budgeting process are not surprising since many techniques have been developed on evaluation of the project".

Pandey, (2002), stated that "the most crucial information for the capital budgeting decision is the forecast of cash flows, which are critical inputs into the net present value analysis"

Ross and Jordan,(2006), however emphasis that "although they are saying that the cash flow forecast is critical in the net present value analysis, the cash flow forecast is analysis that is used in the capital budgeting evaluation. Wrong forecast of the cash flows will result in wrong decisions made on the capital budgets on whatever type of the capital budgeting technique used.

Hatfield, Horvath, and Webster (1998), pointed out that "the importance of payback period (PP), average rate of return (ARR), internal rate of return (IRR) and net present

value (NPV) in capital budgeting techniques are the performance and value measures in any businesses".

It was found out that businesses analyzing all projects had higher share prices on average as compared to those that do not. Their results thus suggested that businesses should not use single capital budgeting technique but alternatively, must apply as many methods as possible for a project evaluation, in order to maximize the value of a business.

Managers world over have developed both systematic and non-systematic way of managing capital budgeting procedures in their organizations, in this competitive environment.

Corporate capital budgeting and cost of capital assessment are among the most important decisions financial manager do, by using accurate information that will result in the maximization of shareholder wealth.

Different capital investment techniques have been developed to evaluate investment opportunities. Organizations procure new capital equipments on regular basis for the purpose of either expanding their operations or just to replace outdated equipments. As with any investment, the new equipment must earn a return for the business, and the methods of investment appraisal offer alternative methods for the calculation of the return.

Investment appraisal is concerned with the renewal and replacements of those assets are outdated since purchasing of any large item of equipment will result in a change in both inward and outward cash flows. It is therefore evidence that investment decisions have an effect on the financial report of every organization. The appraisal process is an

internal management issues but has external financial reporting implications since financial statement at the end of the year is published for public consumption.

Financial theory indicates that a capital investment appraisal technique should be consistent with wealth maximization.

Bromwich made emphasis that, for assessing this consistency, the criteria should include all future expected receipts and outlays due to the project's acceptance. The end result of the classification of capital investment techniques into discounted and non-discounted cash flow techniques. It is commonly agreed that the discounted cash flow techniques are more consistent with wealth maximization than the non-discounted cash flows techniques.

2.3 Discounted Cash Flow Techniques

C. T. Horngren stated that, discounted cash flow (DCF) theoretically is the most attractive model that are used by more than 85% of the large organizations and are the best measures of the financial effects of an investment.

Discounted cash flow (DCF) analysis is a method of valuing the inherent value of a company asset. In simple terms, discounted cash flow tries to work out the value today, based on projections of all of the cash that it could be generated to investors in the future.

It is described as "discounted" cash flow because of the principle of "time value of money" (i.e. cash in the future is worth less than cash today).

Horngren statement is based on the old adage that a bird in hand is worth two in the bush, in that a cedi today is wealth more than a cedi to be received 5 years from today.

This adage applies since the use of money always has a cost (interest) just as the uses of a building also have a cost (rent). Since discounted cash flow model explicitly and systematically weights the time value of money, one can say it is the best method to use for capital investment decisions.

Wilkes and Samuel stated that, 'the prudent investor recognizes the fact that when returns to an investment are coming at different times, their worth will depends on timing'.

The DCF criteria hinge on the present value concept, which entails discounting all cash flows to their present value. The net present value, internal rate of return and profitability index, falls under the discounting cash flow techniques.

2.3.1 The Net Present Value

According to Towsend (1969), maintains that, "the maximization of wealth as an objective provides us with a bases of handling of the most troublesome problems in the formulation of corporate objectives. These are the treatment to be given to the time-variable (corporate time preference) and the problem of handling uncertainty outcomes in deciding between alternative future courses of action"

The net present value methods deduces its value in present day terms of the project cash inflows and outflows expected to occur at different periods in the future. Since all the future cash flows are brought to their equivalent value at a common date which are directly comparable and can be added together, taking into consideration the pluses and the minuses. This means that if the result gives a positive result, it pre-supposes that, the project is viable and vice versa.

A project normally consist of streams of cash inflows and cash outflows and the objectives of project appraisal is to see whether the net present value is positive or negative as cost of capital of the organization.

One may say that, what Bromwich's stated that, if maximization is accepted as the objective of the organization, then in project appraisal, all the expected future cash receipts and outlays should be made comparable over time and must be adjusted for risk should also provide an answer to two troublesome problems pointed out by Townsend.

It must be noted that, what the present value concept seeks to advocate is to make cash flows relating to different periods comparable over time. Townsend (1969) also expressed that "for purposes of the finance function, corporate wealth may be defined as the present value of the future streams of net proceeds earned by the company's assets. The basic problem in selecting a workable corporate objective lies in the reconciliation of the long and short periods. The process of discounting allows us to bring about the reconcilation. The discount rate provides the basis for bringing about comparisons between one time period and another"

We can conclude from the above analysis that the present value concept cautions the decision maker to place much emphasis on "present" money because of the following:

❖ A cedi received today can be reinvested to accrue more in the future, and

❖ The uncertainty of the future.

The merits of the NPV are deeply rooted in financial theory.

Shillinglaw and Myers (1983) offered two reasons to explain the popularity of the NPV for evaluating capital investment decisions.

• It provides a means of testing whether the estimated cash inflows are adequate to cover the cost of capital and recover and the outlays required by the proposal. The excess of a project's net proceeds over the interest payment is a recovery of the net investment. Any amount left after the entire investment belongs to the equity shareholders.

• It takes into account differences in the timing of the cash associated with each projects.

These merits make the decision criteria associated with the NPV consistent with wealth maximization.

The net present value, according to the Archer, Choate and Racette (1979), is "a measurement of the expected immediate change in shareholder's wealth occurring if a project is undertaken".

Other two merits of the NPV techniques are that it always gives correct ranking for mutually exclusive projects and also its assumption that the investment of interim cash flow is theoretical sound

The demerits of NPV are as follows:

• In practice, the technique focuses on the decision maker to judge a project by an absolute number. Then it means managers are not only interested in the final NPV 'pay off' but also in the size of the investment and the duration needed for the project to mature.

• Determining the required rate of return, which is the cost of capital, may be a difficult exercise.

• It rests on detailed, long-term forecasts of incremental cash flows resulting from a project's acceptance.

2.3.2 Internal Rate of Return

I M Pandey – (2004), states that "the internal rate of return can be defined as the discount rate at which the net present value of an investment is zero).

Thus, it is the discount rate that will make the present value of the cash proceeds from an investment equal to the present value of cash outlays that is required by the investment. The IRR, which is also called the DFC yield, can therefore be described as a break-even rate of an investment.

The decision rule associated with this technique is to accept a project if the IRR exceeds the cost of capital and rejects if the IRR is less than the cost of capital.

The most useful aspect of the IRR calculation serve as aid to forecasting what might happen if the cost of capital changes. Interest rates have been very volatile in recent years, and business like to have an idea of whether a project will remain even if the cost of capital rises. In this sense, the IRR figure acts as a form of break-even, whereby an organization can say 'if the interest rate rises above the IRR, it is no longer viable'. This means that the lower the IRR, The less attractive the project. By the use of economic forecasting, it is possible to assess the probability of interest rates reaching the IRR level.

Some criticism of IRR according to Bierman and Smidt (1975) include:

• It ignores the scale of an investment and so it does not always rate projects in the same way as they would be rated using NPV.

- Bierman and Smidt (1975) concluded that 'there may be multiple internal rates of return when dealing with unconventional cash flow. In this case, the meaning of the IRR is difficult to explain.

- The re-investment assumption of the IRR techniques is not theoretically sound.

Some Merits of IRR:

- Managers and businessman understand the information it provides. This is because it produces a rate of return with which businessman are more familiar with than that of NPV. This argument has no theoretical basis and its major flaw is that the apparent similarity between the IRR and ARR poses the danger that the IRR may be misinterpreted. In actual fact, the businessman understands the ARR more than that of IRR, which is a complete distinctive character between them.

- The technique like the NPV pays attention to the time value of money and all the cash flows resulting from the acceptance of a project. One may think that, the strongest merits of the IRR techniques are its consistency with the objective of wealth maximization as clearly seen in the argument by Bierman and Smidt (1975) that the IRR respresent. In the view of Bierman and Smidt, the IRR is "the highest rate of interest an investor could afford to pay without losing money, if all the funds to finance the investment were borrowed and the loan (principal and accrued interest) were repaid by application of the cash proceeds from the investment as they were earned".

This definition according to them is only true for conventional investments, consisting of periods of outlays followed by period of proceeds

2.3.3 Profitability Index (PI)

This technique is also called the Benefit Cost Ratio (BCR) and is a variant of the NPV method that assesses a project value of a project's net inflows to the present value of cash outlays.

$$\mathbf{PI} = \frac{PRESENT\ VALUE\ OF\ CASH\ INFLOWS}{PRESENT\ VALUE\ OF\ CASH\ OUTFLOWS}$$

The decision rule associated with the PI is to acknowledge a project if PI is greater than one and reject if PI is less than one. For example a project with a PI of 1.5 should be accepted while that a PI of .07 should be rejected. The PI of 1.5 means that the project will generate GH ¢1.50 for every GH¢1 invested or the NPV per cedi invested is 0.50.

Also, a PI of 0.70 means from every cedi invested, the project will generate GH¢0.70 which suggests that the value of the organization will decline by GH¢0.30 for every 1 invested. A project with a PI of 1.7 will rank above a project with a PI of 1.5 but ahead of a project with a PI of 1.2.

The decision rule associated with the PI is consistent with accepting a project with positive net present values and rejecting project with negative net present values. In view of this, evaluating independent investment, the calculation of the PI may be essential since it does not provide any information in addition to the already provided by the NPV method.

The criticism of the PI are that, it is a weak measure for ranking mutually exclusive projects and like the NPV; it involves taking into consideration, the cost of capital, which may be difficult to compute.

Its demerits are that, it takes into account all cash flows resulting from the acceptance of a project into consideration and forms the basis for ranking projects in single period capital rationing.

2.3.4 Non-Discounted Cash Flow Techniques

Unlike the DCF techniques, the non- DCF techniques ignore the excellent idea of time value of money as explain clearly by Samuals and Wilkes that is stated earlier: 'the prudent investor recognizes the fact that when returns to an investment are coming at different times, their worth will depends on timing' and treat cash flows of different periods as being equal.

Two techniques falls under this category which are the payback period and the accounting rate of return?

2.3.5 The Payback Method

Harold Averkamp (2003, defines payback "as a method of evaluating business investments that uses cash flows (not the accounting net income flows) to measure the amount of time it takes for a company to recoup its investment".

A careful investor is always aware of how long it will take to get the invested money back and as such the calculation of a payback period. Taking into account the fact that "a cedi today, worth more than a cedi in a year's time", then, the sooner that the original sum invested is recouped the better.

The decision rule with this technique is to accept any project with shorter period to recoup than longer period, which varied considerably from organization to organization. When deciding between mutual exclusive projects, the decision rule is to accept the projects with the shorter payback period.

Some demerits of payback periods are:

- Payback period does not take into account the timing of the cash flows, as it is only concerned with the cumulative speed of payback. This means that problems arise if the cash patterns arising from two mutually exclusive investments are different.

- The payback period approach to investment appraisal completely ignores the cash flows that arise after the investment has been recouped. This is unfortunate as investments have potentially long term cash flow effects that are ignored when payback period is used.

- There exist no clear guidelines as to how the target period should be set. Gordon(1955) suggested that "if the inflows are on the average, spread evenly over the life of the project, the optimal cut –off for the payback rule is:

$$\frac{1}{r} - \frac{1}{r(1+r)n}$$

Where **n** denotes project life and **r**, the discount rate. This suggestion only appears to solve the problem when dealing with conventional cash flows.

Due to the above drawbacks, the payback is regarded as naïve in the financial theory.

Studies by Pike (1996) revealed that approximately 92 percent of the firms studied use the payback period.

According to Pike (1986) "the observed increase in the adoption of sophisticated techniques has not come at the expense of naïve methods. The payback method continues to gain support and is now almost universally employed, approximately one-half of the sample using it on every occasion".

2.3.6 The Accounting Rate of Return (ARR)

According to Stephen Lumby and Chris Jones (2203), "ARR is the average annual accounting profit generated by an investment relative to the required capital outlays. It is also called the average return on investment; the ARR technique is a performance measure similar to the return on capital employed on assets. It has been defined in a number of ways in the finance literature".

The ARR method of calculation is best expressed in algebraic form:

$$ARR = \frac{average\ profit\ per\ year\ (after\ depreciation) * 100\%}{Average\ sum\ invested}$$

Given that an investment is expected to generate profits, ARR calculate return by comparing the average profit on the investment as against the average sum invested. This investment appraisal is unique in that it concentrates on profits rather than cash flow.

A useful attribute of the ARR method is that, it seeks to compare the profit generated with the sum invested. A company can then compare the ARR on any new investment with the ARR currently earned elsewhere in the business.

Some Merit of ARR:

- It is based on accounting profit that is reported in the annual accounts to shareholders. Debatably, the merits of the ARR have no theoretical basis.

  Financial theory suggests that capital investment technique should meet specific criteria, such as wealth maximization, taking into account time value of money, generated by optimal ranking of mutually exclusive alternatives and systematic risk accommodation.

Obviously, the decision rule of the ARR is not consistent with any of these criteria.

- It is a measure that managers are more familiar with because, it is simple and easy to comprehend.

- It takes into consideration the cash flows of all the years involved in the life span of a project.

Demerits of ARR:

- If fails to consider the timing of cash flows. Dury (1987), considers this as a serious drawback and cited clearly that:

  "When the method is used in relation to a project where the cash inflows do not occur until near the end of its life, it will show the same ARR as it would for a project where the cash inflow occur early in its life, provided that the cash inflows are the same.

  For this reason, the ARR cannot be recommended"

- A comparison of the IRR with the ARR reveals that the decision rule of the latter may be misleading. An example will make this clear.

Supposing the ARR of a project is 46%, the cost of capital is 26% and the IRR is 27%. Given that the ARR is 46% and the cost of capital is 26%, the project appears to be very viable based on the ARR. This same project based on the ARR would be profitable if the cost of capital is 31%, which is erroneous because the project is only viable if the cost of capital is less than the project's IRR of 27%. It is my contention that, the ARR be subordinated to the IRR by reviewing the decision rule of the former to make room for a provision as follows:

A project should be accepted if ARR exceeds the cost

Of capital provided that the former is less than the IRR

In this way, the IRR and the NPV would serve as a check on the ARR.

2.4 Cost of Capital

The cost of capital is one of the most important rudiments in the analysis of capital investment decisions. Some theorists have defined cost of capital from different perspectives. Some consider it as an opportunity cost concept.

According to Mary Bishop, Jonathan and co, they see opportunity cost as: "such costs that comes from economic thinking and refers to benefit as cost of not being able to exploit a competing economic opportunity".

Bromwich and Brandt (1979), consider it as a 'benchmark' for evaluating capital investments. The cost of capital is influenced by decision of management concerning the way in which the long term funds are used in the business activities and therefore remind the decision maker to consider capital structure of an organization when determining cost of capital.

The concept of cost of capital as its applies to capital investment is quite different from the notion of cost of capital as an outlay of cash for paying interest on long term debts and dividends on capital stock which underlines the cost of capital. The above concept suggests that cost of capital is therefore a unique concept which needs to be thoroughly understood by financial analysts.

There are basically two popular methods available for calculating cost of capital, Weighted Average Cost of Capital (WACC) and Capital Assets Pricing Model (CAPM). The WACC involves the computation of a weighted average of all resources available in the organization, which is cost of debt plus cost of equity capital.

The CAPM has its root in portfolio theory which determines an appropriate discount rate for evaluating a project by calculating a required rate of return, which is the risk free cost of capital plus risk premium. The premium is determined in relation with the degree of risk associated to a project in the context of its incremental to an existing portfolio.

According to Graham Peirson, there have been a number of researchers who have tried to test the CAPM empirically by using stock market data. They generally concluded with some reservations about how CAPM gave useful insights into assets pricing. For instance, an article published by Richard Roll pointed out that, the security market line follows purely as a Matter of mathematics from the capital market line. Moreover, the primary prediction made by Roll was that 'the market is efficient' if this prediction is true, then other results will automatically follow. In this instance, if the market portfolio is efficient, then there will be a perfect linear relationship between beta and expected return.

The prediction by Roll shows that the converse is not true because an empirical test could produce an apparently linear relationship between beta and returns, even if the

market portfolio is not efficient. Roll pointed out that, the market portfolio is a portfolio that comprises all assets which includes bonds, lands, shares, building etc. In effect, there is no chance that one can be able to give accurate measurement of returns on all assets.

Peirson and others concluded that for practical purposes, the CAPM is untestable. However, one cannot say that CAPM is wrong or is not useful to aid in thinking about financial problems, or does it mean that CAPM should be abandoned, no not until something better comes up. The CAPM will still be subjected to criticism because of emerging evidence on empirical irregularities in assets prices, therefore serves as a reminder that state-owned organizations must have a mechanism for determining their cost of capital.

Notwithstanding these criticisms and shortcomings of the model, it continues to be the centre stage of both academic and non-academic discourse. As pointed out by Iqbal and Brooks (2007), an important quantity required for decisions on evaluating public and private funded projects is an appropriate cost of capital and this discount rate is often estimated by a model of expected return.

The CAPM has therefore been extensively utilized for estimating cost of capital and evaluating the performance of managed funds. However, the implementing of the CAPM on emerging markets like the Ghana Stock Exchange (GSE) seems very problematic and this can be assigned to the inefficiencies in these markets such as prohibiting foreign capital, insider trading, and high transaction costs, as well as data problems such as infrequent trading. Again, the stringent assumptions on which CAPM relies apparently make it difficult to apply, especially in emerging markets. However, these assumptions are not as inflexible as they appear. The model has now been tested

for a range of emerging markets including those in South East Asia, Europe and Latin America, besides the developed markets of the US, the UK and Australia.

Fama and French (2004) in their paper titled "The Capital Asset Pricing Model: Theory and Evidence" supported the fact that the CAPM of William Sharpe (1964) and John Lintner (1965) marks the birth of asset pricing theory (resulting in a Nobel Prize for Sharpe in 1990) They further noted that "the attraction of the CAPM is that it offers powerful and intuitively pleasing predictions about how to measure risk and the relation between expected return and risk". This has made it possible after four decades later that, the CAPM is still widely used in applications, such as estimating the cost of capital for firms and evaluating the performance of managed portfolios. As they stated in their paper 'it is seen as the centrepiece of MBA investment courses. Indeed, it is often the only asset pricing model taught in these courses'.

Cost of capital is an opportunity cost and should be used to evaluate public sector investments projects accordingly.

2.5 Application of the DCF Techniques

Charles T Horngren stated that discounted cash flow (DCF) conceptually is the most attractive models that are used by more than 85% of the large organizations and are the best measures of the financial effects of an investment. He made emphasis based on the old adage that, a bird in hand is worth two in the bush, in that a cedi today is worth more than a cedi to be received (or spent) 5 years from today.

This adage applies because the use of money has a cost (interest), just as the use of a building may have a cost (rent). Because the discounted cash flow model explicitly and

systematically weights the time value of money, it is the best method to use for capital budgeting decisions.

When dealing with independent investments, all the DCF techniques will yield the same results because their accept-reject criteria are consistent with each other. The technique will yield different results when ranking projects, which are capital rationing and mutually exclusive situations.

Samuel and Wilkes (1971) pointed out that 'the prudent investor recognizes the fact that when return to an investment are coming at different times, their worth will depend on timing'

The DCF criteria hinges on the present value concept which entails discounting all cash flows to their present value. The net present value, Internal Rate of Return and the profitability index comes under DCF techniques.

2.5.1 Capital Rationing Projects

According to John O. Clark, "capital rationing is a strategy used by organizations attempting to limit the cost of their own investments". This sometimes happens when a company engaging in capital rationing has made unsuccessful capital investments in the recent years and would like to avoid such mistake in subsequent ones.

It is also a term used to describe a situation where remunerative projects do exist but are not taken up because of an artificial constraint placed upon the amount of finance employed. Capital rationing is a situation management selects a set of project, which yield highest possible net present value subject to the capital constraints.

In single period capital rationing situation, that is short term phenomenon in which there is a limit on funds immediately but is hoped that funds will be available in subsequent periods, the NPV and the IRR may give ranking that are inconsistent with the objective of wealth maximization.

Brealey and Meyer (1991), Weston and Copeland (1992), Financial theory advocates for the use of the profitability index (PI) to rank projects.

Capital rationing may also extend over a number of periods (multi-period capital rationing). In such instances, it becomes difficult to choose the group of projects that will yield the maximum NPV and yet remain within the capital constraints. The solution to this problem is to employ Linear Programming (LP) techniques to select the combination of projects that maximize the NPV subject to the capital constraints.

2.5.2 Mutually Exclusive Projects

According to Obaidullah Jan, Mutually exclusive project are define as sets of projects in which acceptance of one project excludes the others from consideration. In such a scenario, the best project is accepted. NPV and IRR conflict which can sometimes arise in case of mutually exclusive projects becomes critical.

He continues to make emphasis that the conflict either arises due to the relative size of the project or due to the different cash flow distribution of the projects.

Mutually exclusive projects are a sets of projects from which at most one will be accepted. For example, if a set of projects are to accomplish the same task. Thus, when choosing between 'mutually exclusive projects' more than one may satisfy the capital budgeting criterion. However, only one, that is, the best project can be accepted. In considering a project, one has to consider among other things the Net Present Value

and Internal Rate of Return decision rules concerning the project cash flows and the Time Value of Money, since only the Net Present Value decision rule always lead to the correct decision when choosing among Mutually Exclusive Projects. This is because the Net Present Value and Internal Rate of Return decision rule differ with respect to their Reinvestment Rate Assumptions. They stated that, 'the Net Present Value decision rule implicitly assumes that the project's cash flows can be reinvested at the projects IRR. Since each project is likely to have a different IRR'. (www.zenwealth.com)

2.5.3 Inflation and Capital Budgeting

According to John O. Clark, inflation is persistent general increase in the level of prices. Strictly defined, it excludes neither one-off increases in price (occasioned by, for example, a sudden scarcity of one product) nor any other increases caused by real factors. Its causes include an excess of demand

Inflation can have a serious effect on capital investment decisions, both by reducing the *real value* of future cash flows and by increasing their uncertainty. Future cash flows must be adjusted to take account of any expected inflation in the prices capital investment an organization want to pursue (Watson and Head, 2010)

The treatment of inflation in capital budgeting has received a considerable attention in the literature because of its impact on the cash flows and the required rate of return on a project. To incorporate inflation into the capital budgeting decision, the decision maker has a choice of whether money cash flows or real cash flows will be used and this choice can also be determined whether the money cost of capital or the real cost of capital will be used. The actual amounts of money changing hand are termed money

cash flows. Real cash flows on the other hand, are the purchasing power equivalent of the actual cash flows (NASDAQ)

Theory prescribes the comparison of 'like with like' which implies that the use of a real cost of capital and money cash flows to account for inflation will lead to incorrect decisions (Carsberg and Hope(1976). The cash flows may also be adjusted either by using a general rate or specific rate. Since in practice, different inflation rates may exist for different cash inflows and outflows, theory prescribes the use of the differential inflation rate. Carsberg and Hope (1976) identified two popular errors in their studies:

- Applying a general inflation rate rather than specific rates, and
- Comparing the money cost of capital with cash flows expressed in real terms

The result of the above survey and that of Westwick and Shohet (1976) indicate that a large number of firms ignore inflation in their capital budgeting practices, which means that there was a big gap between theory and practice at that time.

To incorporate inflation into the capital budgeting decision, the financial analyst depends on the average price index, which is an economic and statistical artifact. Bierman and Smidt (1975) warned that: "Although the idea of an average price level is a useful tool, it is important to become aware of its limitations".

Although we cannot predict future rate of inflation precisely, we can minimize it by ensuring that the expected general rates of inflation that are assumed as the basis of cash flow predicted are built into the cost of capital being used to discount the cash flows. The commonly made suggestion that the easiest way to achieve such consistency is to assume a zero rate of inflation in both the cash flows and the discount rate which can result in inaccurate investment decisions. Those who advocate for ignoring

inflation overlook several factors that cause project profitability to be sensitive to inflation in many countries.

Franks et al (1985) suggested that the following factors are likely to be significant:

- The taxes for those companies basing taxable income on the 'First in First out' principle increase faster than corresponding increases in the rate of inflation
- The tax effects of depreciation allowances that are not indexed for inflation increase faster than corresponding increase in the rate of inflation
- Inflation requires additional cash investment in monetary working capital when the value of debtors exceeds the value of creditors.

2.5.4 Taxation and Capital Budgeting

Taxes do influence the amount and the timing of cash flows. Their basic role in capital investment is no different from that of any other cash disbursement. However, taxes narrow the cash differences between projects. Cash savings in operations will cause an increase in taxable income and thus a partially offsetting in tax outlays.

In capital investment, the relevant income tax usually have a significant effect on the cash flow of a company and should be taken into account while making those decisions, an investment that looks desirable without considering income tax may become unacceptable after income tax has been considered" (Accounting for Management.Org)

The time valued of money makes the immediate savings worth more than future savings. The motto in income tax planning are "when there is a legal choice, take the deduction sooner rather than later", and "Recognize taxable income later rather than sooner".

Payment of tax or reductions of tax payments result in cash flows. In this direction, the cash flows resulting in respect of taxation should be estimated and incorporated into the cash estimates of a project before the project is evaluated by any of the capital investment appraisal techniques.

To achieve this, the following has to be considered:

- ❖ The effects of corporation taxes on profits of losses arising from a project.
- ❖ The timing of the taxation payments, and
- ❖ The effects of capital allowances

2.5.5 Capital Allowances

Depreciation is a positive decline in the real value of a tangible asset because of consumption, wear or obsolescence. The concept of depreciation is widely used for the purpose of writing off the cost of an asset against profit over an extended period (its depreciable life), irrespective of the real value of the asset. Depreciation is charged against income or the profit and loss account, and there are various ways of calculating it. (John O. E. Clark)

Depreciation is not an allowable expense in calculating taxable profit, in its place, capital allowances are substituted, which is statutorily determined amount of depreciation.

In Ghana, the Income Tax Decree (SMCD 5, 1975) amended in 2004, stipulates four different types of allowances to be granted.

- ➢ One of them is Annual Allowances, which is granted yearly provided the asset is in use at the end of each basis period. It is claimable in addition to the initial allowance in the basis period in which the asset is first used and also in the basis

periods for each year of assessment, provided the asset is in use at the end of each basis period.

➤ Sinking Fund Allowance is another type of capital allowance, it is granted to mining concerns, which fulfill certain conditions. It has been established for maintaining an amount for the purpose of replacement of assets.

➤ Investment Allowance is another type of capital allowance. This is granted once to industrial establishments in the basis period on plant and machinery acquired for the purpose of the industry. The allowance is calculated at 10% per annum on the expenditure incurred and it is not reckoned in determining the written down value of an asset.

➤ Initial Allowance is granted only once in the lifetime of the asset and in the basis period in which the asset is first put to use in the business.

One key issue that arises when considering the tax effects of capital allowances in capital investment is the time when the allowance is claimed. The CIMA enumerated two possible assumptions about the time when capital allowances start to be claimed.

▪ It can be assumed that the first claim for capital allowances set-off against taxable profits occurs early in year 1 (i.e. year 0) and so the first tax saving occurs one year later (i.e. year 1)

▪ Then again, it can be assumed that the first claim for a capital allowances occurs in the mid-to-late year 1 and the first tax saving occurs one year later (i.e. year 2)

It is important to stress that the provisions of the Income Tax Decree (SMCD 5, 1975) A. D 2004, affect most firms except those which are specifically exempted, such as government-owned and non-profit making organizations and for that matter, unless

there is a reason for ignoring income tax, its effect should be included in the project evaluation.

2.5.6 Risk and Uncertainty in Capital Budgeting

Risk according to business dictionary, is define as a probability or threat of damage, injury, liability, loss or any other negative occurrence that is caused by external and internal vulnerabilities and that may be avoided through preemptive action.

Uncertainty is also define in decision making as a situation where the current state of knowledge is such that| (1) the order or nature of things is unknown, (2) the consequences, extent, or magnitude of circumstances, conditions, or events is unpredictable.

Although too much uncertainty is undesirable, manageable uncertainty provides the freedom to make creative decisions

Since risk plays a crucial role in decision-making process of both investors and firms, it is very imperative that the risk associated with an investment must be quantified. This is done by using the standard deviation of returns of a share, calculated using either historical returns or the expected future returns (Watson and Head, 2010).Townsend (1969) drew a distinction between risk and uncertainty, however, this study shall agree with Merret and Sykes (1969) that there is no sharp distinction between risk and uncertainty in practice, and shall therefore use the terms interchangeably in this study.

In order for investors to control and manage risk, it is important for them to understand the nature of the risk they face. Broadly speaking, the overall risk that investor/firm faces can be categorised into systematic and unsystematic. However, there are two ways of diversifying unsystematic risks. The first approach is the company level where

firms minimise the risk by diversifying their operations when the firm invests in a number of unrelated lines of business. The second approach is at the individual investor level where an investor can reduce the risk he/she bears through holding a diversified portfolio of shares. It is universally accepted that the best way to diversify unsystematic risks is at the investor level according to Watson and Head (2010).

For investor to spread its unsystematic risk, they have to hold a portfolio that consist a number of shares in the cornerstone of Markowitz's Portfolio Theory.

According to this model, an envelope curve represents a number of portfolio choices available to investors when investing in different types of risky assets. Among this set is the efficient frontier which is a subset of the envelope curve consisting of all the portfolios which are considered to be superior to all other portfolios within the envelope curve.

Since investor's choices are not restricted to only risky securities, Tobin in 1958 recognises this vital fact which further developed Markowitz's earlier work, by the simple assumption that investors can lend and borrow at a risk-free rate of return, we can put up what is called Capital Market Line (CML), since investor are at liberty to move along the CML by changing the proportion of the risk-free asset and the market portfolio in what seems to be a two-share portfolio, a basic linear trade-off between risk and return emerged.

Many useful models and techniques have been suggested to handle risk and uncertainty in capital investment decisions. Some of these are as follows:

❖ Simulation modeling in which probability theory is employed to test the possible results of an investment proposal before it is accepted.

- ❖ Testing the sensitivity of the criteria inputs (sales volume, sales price, cost of capital and input cost) to assess how responsive the NPV, PI or IRR is to change in those variables.

- ❖ Assigning profitability estimates to cash flows of the various years in the expected life of the project.

- ❖ Adjusting the discount rate to allow a premium on the cost of capital for risk.

- ❖ Appling portfolio theory to consider the overall risk from combining a proposed project with existing projects in an attempt to reduce risk.

CHAPTER THREE

METHODOLOGY

3.0 Study Location

The study is conducted for companies or business establishment within the Ashanti region of Ghana with sample units ranging from small, medium and large organization in both the public and private companies. The Ashanti region is the most populous region in Ghana according to the 2010 population and housing census and continues to be one of the vibrant economic regions in the country. It has again the second largest city in the country with its cosmopolitan nature and a number business establishment. The choice of the region is not by chance but how it depicts and perfectly represents the economic structure of the Ghanaian economy. That is, the various sectors of the Ghanaian economy in the areas of health, education, agriculture, industries or manufacturing, etc, are well represented.

3.1 Research Design

Population can be defined as any set of objects (people or events) from which the sample is selected and to which the study results will generalize.

Heldal and Jentoft (2011) define a target population "as the population of individuals that may be interested in describing and making statistical inferences about". The population for the study therefore includes all companies or business establishments and organizations within Kumasi Metropolis. However, selection of sample companies or firms is a two-stage approach with the initial stage of picking a firm into the study through the non-probabilistic sampling technique of convenience sampling. The second stage is when the researcher uses the objective of the study to select personnel of

selected businesses to be part of the study. Selected respondents include head of financial management and the personnel with the requisite know-how to answer question of interest to the study. The researcher chose these categories of people because; most of them have background which enables the researcher to elicit the necessary information.

3.1.1 Population and Sampling

The study was a cross-sectional study where data was collected from personnel of selected establishments with the requisite skills and know-how. In this study, our population was private and public population within Kumasi Metropolis. The convenient sampling technique was employed to select companies into the study while the respondents was predominantly the financial Manager of the sampled companies.

3.1.2 Sampling Size distribution

The convenient sample of eighty respondents with an estimated number of hundred personnel is employed by the study. Selection of person becomes automatic once an organization is picked into the study since only qualified persons (Finance Officers) were the target population of the study. This number was arrived at against a background of a target confidence level of 90% or significant level of 0.10 and a standard deviation of 0.5. The statistical formula below is thus used to arrive at the sample size for a given z-score:

Necessary Sample Size = (Z-score) ^{2} – StdDev*(1-StdDev) / (margin of error) ^{2}.

There are no special inclusion and exclusion criteria, provided a responded meets the requirements of the study bracket.

3.2 Data Collection

Paper questionnaires was self-administered by respondents after thorough explanation of the objectives of the study. This is rightly so against the backdrop of having all sampled units or respondents who are assumed to be proficient in reading and writing which make the self-administered method more appropriate and preferable. It is important to mention that, the content of the questionnaire was carefully chosen to elicit the required data which can be analyzed to attain the stated objectives of the study.

3.3 Data Analysis

In managing the data gathered, manual entry into various computer platforms was done. A third party, trained statistician was made to vet accuracy of entries made before analysis was carried out. There is a data backup on external hard drives and hard copies of answered questionnaires which has been kept in safe box.

Data was analyzed to address the objectives of the study using predominantly statistical software like SPSS or Eview. Frequency tables and graphs has been drawn from the data where applicable and analyzed by the researcher adequately with the view of making financial sense from the data collected. Data summarized using descriptive statistics like means as well as standard deviations for quantitative variables where applicable.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSIONS

4.0 Frequency Analysis

In the analysis of qualitative data, the most distinctive measure used by most companies is the percentage or number of cases in each group. The mode is the group or class with the highest or best number of responses. For the case of an ordinal data, the median, (the value at which half of the responses fall below and above), which may also be a helpful summary quantity, if there is a large number in each category. The Frequencies method provides frequency table that shows both the percentage and number of cases for each experimental value of a variable.

The various capital budget techniques employed by the private and public companies within the Kumasi Metropolis are ascertained and analysed using this simple statistical technique. The table 4.0 below provide a summary of the companies in this study. In brief, fifty-five private companies took part in the study out of a total of eighty companies which represent 68.6% of valid responses. Again, a total of twenty-five public companies or organisations were included in the study which also represents 31.2% of total valid responses.

Table 4.0 Category of organization

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Private	55	68.8	68.8	68.8
	Public	25	31.2	31.2	100.0
	Total	80	100.0	100.0	

These companies were selected from the three main sectors which make up the Kumasi economy. For instance, eleven companies were taken from the primary sector which is basically companies in the Poultry and Livestock areas. The twenty-four companies selected from the secondary sector include companies in the construction, Arts and Signs, and manufacturing of items like medicine, artisans, etc. The forty-five companies from the service sectors are primarily in the areas of restaurants and hospitality, health, transportation, etc. This is presented in table 4.1 below.

Table 4.1 Sector of operation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Primary	11	13.8	13.8	13.8
	Secondary	24	30.0	30.0	43.8
	Tertiary	45	56.2	56.2	100.0
	Total	80	100.0	100.0	

The critical analysis of data shows that the commonest capital budgeting technique among these companies are net present value, payback, accounting rate of return, internal rate of return and other unknown practices. Thirty-four of the companies representing 42.5% of valid responses use the NPV as the tool of assessment of the viability of new investment projects. The next popular technique is the payback method where twenty-two of the companies have employed over the past five years as the means of assessing the viability of investment projects.

Table 4.2 Capital Budget Techniques employed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NPV	34	42.5	42.5	42.5
	IRR	3	3.8	3.8	46.2
	ARR	15	18.8	18.8	65.0
	Payback	22	27.5	27.5	92.5
	Others	6	7.5	7.5	100.0
	Total	80	100.0	100.0	

The contingency table below provides further breakdown of the popularity of the capital budget techniques employed by the private and the public companies within the Kumasi metropolis. For instance, twenty-six (26) of the thirty-four companies which employ the Net Present Value to assess a newly embarked upon project are private companies. Again, the three companies that use the Internal Rate of Return as assessment technique of new projects are private companies. The table 4.3 presents a summary of such statistics of usage of capital budget technique within the public and private organisations in Kumasi.

Table 4.3 Category of organization * Capital Budget Techniques employed Crosstabulation

			Capital Budget Techniques employed					Total
			NPV	IRR	ARR	Payback	Others	
Category of organization	Private	Count	26	3	11	14	1	55
		% within Category of organization	47.3%	5.5%	20.0%	25.5%	1.8%	100.0%
	Public	Count	8	0	4	8	5	25
		% within Category of organization	32.0%	.0%	16.0%	32.0%	20.0%	100.0%
Total		Count	34	3	15	22	6	80
		% within Category of organization	42.5%	3.8%	18.8%	27.5%	7.5%	100.0%

The computation of company's cost of capital within the public and private companies is similarly analysed. The table 4.4 below presents such studies and analysis of models of computation of cost of capital. For instance, the weighted average cost of capital is the most popular model among companies within the Kumasi metropolis. Thirty of the companies, which represent 37.5% of valid responses, use the weighted average cost of capital to compute their basic expected return from new projects. This is followed by the use of the ruling or average interest rate charged by commercial banks as the minimum expected return from newly embarked upon projects by the companies. The analysis also reveals that sixteen of the companies employ the capital asset pricing model by way of incorporating risk into their analysis to compute the minimum expected rate of return on investment projects.

It is worthy of mention at this time that, the private companies again form the majority in usage of such techniques which take into consideration the *time value of money*. In the Appendix II, the contingency tables show that all the sixteen companies which employ the capital asset pricing model are private. Again, twenty of the thirty companies that employ the weighted average cost of capital are also private companies.

Table 4.4 Models for Cost of Capital Computation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	CAPM	16	20.0	20.0	20.0
	WACC	30	37.5	37.5	57.5
	Interest Rate	20	25.0	25.0	82.5
	Others	14	17.5	17.5	100.0
	Total	80	100.0	100.0	

The analysis has again indicated that majority of the companies have embarked upon projects and have abandoned them due to some difficulties encountered along the way. The tables in Appendix I reveals that about 75% of valid responses have abandoned projects before. Moreover, companies consider capital budgeting allowances using such things like initial allowance, annual allowance, sinking fund, etc. the popular among them is however the usage of annual allowance model.

Another important revelation from the frequency analysis is the fact about 93% of companies in the study prepare capital budget at least within a year while 85% of the companies also prepare financial appraisal (see Appendix 1). Moreover, greater majority of the companies make some comparison of expected return from new projects from some benchmarks in finalising their decision on the selection of investment project. Finally, majority of the companies have investment manual and committee in place that is responsible for decision on the choice of investment projects.

4.1 Crosstabulation Analysis

The main objective of performing a crosstabulation analysis (contingency table) is to establish the association or otherwise between two categorical quantities. The test of whether companies perform pre-investment and post investment completion audits is conducted through a Chi-Square test of association between certain variables.

For instance, the contingency table below constructed for the variables predominant source of capital and the capital budget technique employed has a lot of information and deductions to be drawn. The table 4.5a shows that twenty-six out of the thirty-four companies that employ the net present value technique for projects assessment use equity fund. The analysis in short has revealed that equity funds of private companies

are very mindful of the time value of money as against government funds disbursements which normally consider social benefits of a project.

Table 4.5a Predominant Source of Capital of Company * Capital Budget Techniques employed Crosstabulation

			Capital Budget Techniques employed					Total
			NPV	IRR	ARR	Payback	Others	
Predominant Source of Capital of Company	Equity	Count	26	3	11	14	1	55
		% within Predominant Source of Capital of Company	47.3%	5.5%	20.0%	25.5%	1.8%	100.0%
	Government	Count	8	0	4	8	5	25
		% within Predominant Source of Capital of Company	32.0%	.0%	16.0%	32.0%	20.0%	100.0%
Total		Count	34	3	15	22	6	80
		% within Predominant Source of Capital of Company	42.5%	3.8%	18.8%	27.5%	7.5%	100.0%

The chi-square test in table 4.5b provides the scientific and statistical significance test needed to make the necessary conclusion concerning the association between the contingency variables in the table 4.5a. The P-Value (Asymp. Sig) of the Pearson Chi-Square provides the needed information to ascertain the association between the two variables in the contingency. It is important to note that smaller value of the P-Value implies dependence between the variables in question. Thus, at 0.05 levels of significance, the test accepts the hypothesis of dependence between predominance source of company's capital and the type of capital budget technique employed by company. In other words, the observed figures in the contingency table 4.5a are not by

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chance. *This association between these variables implies that companies especially, private ones do perform pre investment and post investment completion audit.*

According to Graham Pierson, Ron Bird, Rob Brown and Peter Howard, Post-Completion audit is done after a project has been in operation for a reasonable period of time, it is important to consider whether project is executed to expectations. The post-completion audit is very important part of capital expenditure process. What post audit report does is to highlight any items which have been deviated significantly from expected and where possible explanations for those deviations.

There are three significant benefits for conducting post-completion audit:

- It provides valuable information to enable corrective action to be taken.

- It improves the quality of investment decisions. Those responsible for the initial evaluation are likely to be more careful if they know that their estimates will later be compared with the results.

- It lead to the re-evaluation and possible abandonment of an unsuccessful project

As the time taken for any project to become fully operational vary, the precise timing of the post-completion audit will also vary from one project to another. In addition, the selection of the projects to be audited will also vary from one company to another.

For post audit to be seen as an important criterion for organization to embark on, some questions needs to be answered. Who should perform the audit? When should it be performed? The person who initially valuated the project is probably in the best position to review the project's estimate as against performance because he/she has the most familiarity with the details of the original estimates and the factors that influence

the project's operations. As to when the post audit should be performed vary from organization to the other.

Table 4.5b Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.297[a]	4	.036
Likelihood Ratio	10.628	4	.031
N of Valid Cases	80		

a. 5 cells (50.0%) have expected count less than 5. The minimum expected count is .94.

This analysis and its concomitant assertions are confirmed from subsequent chi-square test of association between certain variables. For instance, it was revealed that there is a strong dependence of the variable "predominance source of capital" on the variable "model of cost of capital computation". *This gives further credence to the fact that companies do perform both pre-investment and post investment completion audit to decide of projects selection and abandonment of already initiated projects.* The P-value of the chi-square test is too low that it shows 0.000 which implies the two cross tabulated variables are highly dependent.

CHAPTER FIVE

CONCLUSION

5.1 Summary of Findings

The two main statistical tool used for this study are the frequency analysis and Chi-Square test for association between critical variables. These models are used to identify the various capital budgeting techniques employed by companies within the Kumasi metropolis. They are also used to identify the various computational methods of cost of capital for investment projects of companies within the same jurisdiction. Moreover, the chi-square test together with the frequency distributions is used to explain how companies in the study conduct pre-investment and post investment audit.

Companies from the three main sectors of the economy were included in the study. These ranges from the poultry and livestock industries, the artisans like arts and signs, wood processing, construction, through the service sector in areas of transportation, health, education, hospitality and restaurants. In short, about 56% of companies selected into the study come from the service sector which reflects the typical Kumasi economy in modern day business. The primary and secondary sectors have 14% and 30% representation respectively.

The analysis shows that different capital budgeting techniques are employed by the selected companies. Popular among these techniques is the net present value approach where about 42% of selected companies apply in assessing the viability of newly embarked upon projects. This is followed by the payback method with about 28% of companies applying this technique. The rest are accounting rate of return, unidentified approaches and the internal rate of return in order of popularity. Thus, majority of the

companies in the study apply some techniques which takes into account the time value of money.

The method of arriving at projects cost of capital which is popular among the companies is the weighted average cost of capital. It is revealed that about 37% of companies in the study employ this method to arrive at an acceptable minimum of return from new projects. The other methods which follow in order of popularity are capital asset pricing model, interest rate by commercial banks and some unidentified methods respectively.

The use of contingency table enables intriguing revelations. *For instance, the private companies are the lead in the usage of techniques which incorporate time value of money in projects assessments.* It is clear that twenty-six (26) out of a total of thirty-four (34) companies which employ the NPV approach are private. Again, all the three companies employing the IRR technique are also from the private organizations. It is therefore proven that private companies are mindful of time value of money than their counterparts from the public sector. This is rightly so against the backdrop that public companies put premium on the social benefits of their activities than the economic benefit of project to the organization. The assertion is given further credence when a critical analysis of methods of computing the cost of capital of projects. Again, all the sixteen companies applying the CAPM are private while twenty out of the thirty companies using the WACC are also private.

The study further shows that majority of the companies do prepare capital budget annually to enhance its decision on capital investment. Again most companies have some form of investment manual while others prepare financial appraisal to investment projects. Moreover, most of the companies have a history of abandonment of projects.

In this regard, about 67% of the companies compare projects return to some benchmarks in finalizing the selection or continuity of investment projects.

The study's analysis again found a strong association between variables like category of organization (Private/Public) and capital budget technique employed, category of organization and cost of capital computational method, predominant source of capital and capital budget technique employed, predominant source of capital and model of cost of capital computation, among others. The implications of such strong dependence between these quantities are that, the companies in the study do some kind of pre-investment and post-investment completion audit of projects. This is simply because the association between variables like source of capital and capital budget technique employed implies that companies especially, private ones do perform pre investment and post investment completion audit by way of conducting some financial analysis to conclude on the selection or continuation of projects.

5.2 Concluding remarks

"Do organizations in Ghana regarding capital budgeting practices follow those advocated by financial theory?" is the question to be asked at the end of a research of this nature. The answer to this question is the same as the answer provided by Cooper, Cornick and Alonzo (1990) after their study of the Fortune 500 Company practices".

The main objectives of the study are to identify various capital budget techniques among companies in Kumasi and the models for calculating their cost of capital. Again, it is hoped to establish whether some king of pre-investment and post-investment completion audits are conducted by these companies.

The Mathematical and Statistical models used for the analysis show the companies employ such techniques like the net present value, internal rate of return, payback method and accounting rate of return in assessing the viability of investment projects. However, it is proven that majority of private companies give much attention to the time value of money than the public companies. The meaning is quite simple. Public companies do not necessarily operate to maximize the net wealth of shareholders (Government) but are much interested on the social benefits of its goods and services to the masses or society. This is in sharp contrast to the private companies which are purely and mostly profit driven organization. It is therefore not wrongly out of place that such private entities which aimed at maximizing the net wealth of shareholders try to employ techniques that will improve their profitability.

Furthermore, the companies do conduct some kind of pre-investment and post-investment audits of their activities. In particular, majority of the private companies do these exercises to improve decisions on the selection and continuation of competing projects for their scarce resources. All these are done in the name of enhancing the net wealth of shareholders which is the ultimate objective of private companies in modern world of business.

5.3 Recommendations

The findings of the study make it necessary for great deal of policy recommendations for the growth of the corporate environment as well as further studies in this area. For instance, selected companies in the study are those which have been breaking grounds in their areas of operations. This can be attributed partly to employment of prudent capital budget techniques in the selection and continuation of investment projects which needs to be emulated by infant companies to enhance their survival in business.

The popularity of time value of money among private companies can also be emulated by strategic governmental projects to enhance the revenue generation to government. *However, it is not clear from this study whether the usage of these capital budgeting techniques have contributed significantly toward the profitability and sustenance of these companies*. It is therefore recommended that further studies in this regard could be subsequently conducted to ascertain the impact of usage of capital budget techniques in the operation of companies at least in same jurisdiction.

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APPENDICES

Appendix I

Category of organization

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Private	55	68.8	68.8	68.8
	Public	25	31.2	31.2	100.0
	Total	80	100.0	100.0	

Sector of operation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Primary	11	13.8	13.8	13.8
	Secondary	24	30.0	30.0	43.8
	Tertiary	45	56.2	56.2	100.0
	Total	80	100.0	100.0	

Existence of Investment Manual

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	60	75.0	75.0	75.0
	No	20	25.0	25.0	100.0
	Total	80	100.0	100.0	

Preparation of Capital Budget

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	75	93.8	93.8	93.8
	No	5	6.2	6.2	100.0
	Total	80	100.0	100.0	

Preparation of Financial Appraisal

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	68	85.0	85.0	85.0
	No	12	15.0	15.0	100.0
	Total	80	100.0	100.0	

Comparison of Investment Return to Benchmark

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	54	67.5	67.5	67.5
	No	26	32.5	32.5	100.0
	Total	80	100.0	100.0	

Model of Cost of Capital Computation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	CAPM	16	20.0	20.0	20.0
	WACC	30	37.5	37.5	57.5
	Interest Rate	20	25.0	25.0	82.5
	Others	14	17.5	17.5	100.0
	Total	80	100.0	100.0	

Capital Budget Techniques employed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NPV	34	42.5	42.5	42.5
	IRR	3	3.8	3.8	46.2
	ARR	15	18.8	18.8	65.0
	Payback	22	27.5	27.5	92.5
	Others	6	7.5	7.5	100.0
	Total	80	100.0	100.0	

Capital Allowance Considered

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial Allowance	19	23.8	23.8	23.8
	Sinking Fund	4	5.0	5.0	28.8
	Annual Allowance	49	61.2	61.2	90.0
	Others	8	10.0	10.0	100.0
	Total	80	100.0	100.0	

Existence of history of project abandonment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	60	75.0	75.0	75.0
	No	20	25.0	25.0	100.0
	Total	80	100.0	100.0	

Financial Evaluation as only means of Investment Acceptance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	32	40.0	40.0	40.0
	No	48	60.0	60.0	100.0
	Total	80	100.0	100.0	

Changes in Capital Budgeting Practices

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	30	37.5	37.5	37.5
	No	50	62.5	62.5	100.0
	Total	80	100.0	100.0	

Appendix II

Category of organization * Capital Budget Techniques employed Crosstabulation

			Capital Budget Techniques employed					
			NPV	IRR	ARR	Payback	Others	Total
Category of organization	Private	Count	26	3	11	14	1	55
		% within Category of organization	47.3%	5.5%	20.0%	25.5%	1.8%	100.0%
	Public	Count	8	0	4	8	5	25
		% within Category of organization	32.0%	.0%	16.0%	32.0%	20.0%	100.0%
Total		Count	34	3	15	22	6	80
		% within Category of organization	42.5%	3.8%	18.8%	27.5%	7.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.297[a]	4	.036
Likelihood Ratio	10.628	4	.031
N of Valid Cases	80		

a. 5 cells (50.0%) have expected count less than 5. The minimum expected count is .94.

Category of organization * Model of Cost of Capital Computation Crosstabulation

			Model of Cost of Capital Computation				
			CAPM	WACC	Interest Rate	Others	Total
Category of organization	Private	Count	16	20	19	0	55
		% within Category of organization	29.1%	36.4%	34.5%	.0%	100.0%
	Public	Count	0	10	1	14	25
		% within Category of organization	.0%	40.0%	4.0%	56.0%	100.0%
Total		Count	16	30	20	14	80
		% within Category of organization	20.0%	37.5%	25.0%	17.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	44.548[a]	3	.000
Likelihood Ratio	53.242	3	.000
N of Valid Cases	80		

a. 1 cells (12.5%) have expected count less than 5. The minimum expected count is 4.38.

Category of organization * Capital Budgeting Consideration Crosstabulation

			Capital Budgeting Consideration				
			Taxation	Inflation	Depreciation	Risk/Uncertainty	Total
Category of organization	Private	Count	38	3	14	0	55
		% within Category of organization	69.1%	5.5%	25.5%	.0%	100.0%
	Public	Count	0	8	15	2	25
		% within Category of organization	.0%	32.0%	60.0%	8.0%	100.0%
Total		Count	38	11	29	2	80
		% within Category of organization	47.5%	13.8%	36.2%	2.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	36.139[a]	3	.000
Likelihood Ratio	46.315	3	.000
N of Valid Cases	80		

a. 3 cells (37.5%) have expected count less than 5. The minimum expected count
is .63.

Predominant Source of Capital of Company * Capital Budget Techniques employed Crosstabulation

			Capital Budget Techniques employed					Total
			NPV	IRR	ARR	Payback	Others	
Predominant Source of Capital of Company	Equity	Count	26	3	11	14	1	55
		% within Predominant Source of Capital of Company	47.3%	5.5%	20.0%	25.5%	1.8%	100.0%
	Government	Count	8	0	4	8	5	25
		% within Predominant Source of Capital of Company	32.0%	.0%	16.0%	32.0%	20.0%	100.0%
Total		Count	34	3	15	22	6	80
		% within Predominant Source of Capital of Company	42.5%	3.8%	18.8%	27.5%	7.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.297[a]	4	.036
Likelihood Ratio	10.628	4	.031
N of Valid Cases	80		

a. 5 cells (50.0%) have expected count less than 5. The
minimum expected count is .94.

Predominant Source of Capital of Company * Model of Cost of Capital Computation Crosstabulation

			Model of Cost of Capital Computation				Total
			CAPM	WACC	Interest Rate	Others	
Predominant Source of Capital of Company	Equity	Count	16	20	19	0	55
		% within Predominant Source of Capital of Company	29.1%	36.4%	34.5%	.0%	100.0%
	Government	Count	0	10	1	14	25
		% within Predominant Source of Capital of Company	.0%	40.0%	4.0%	56.0%	100.0%
Total		Count	16	30	20	14	80
		% within Predominant Source of Capital of Company	20.0%	37.5%	25.0%	17.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	44.548[a]	3	.000
Likelihood Ratio	53.242	3	.000
N of Valid Cases	80		

a. 1 cells (12.5%) have expected count less than 5. The minimum expected count is 4.38.

KNUST, SCHOOL OF BUSINESS

This research is being conducted for academic purposes. Respondents are assured that any information given out shall be given the needed confidentiality it deserves.

Please tick [√] or write briefly where applicable.

THANK YOU.

1. Which of these industries does your company fits in?
   a) Mining
   b) Commerce
   c) Service
   d) Manufacturing
   e) Construction
   f) Other (please specify)

2. Which of these best indicates the size of your company (in billion GH¢)?
   a) Below   -   10.00
   b) 10.50   -   20.00
   c) 20.50   -   30.00
   d) 30.50   -   40.00
   e) Above   -   50.00

3. Which of these best describe the size of your annual capital budget?
   (a) Below   -   10.b
   (b) 10.5b   - 20.0b
   (c) 20.5b   - 30.0b
   (d) 30.5b   - 40.0b
   (e) 40.5b   - 50.0b
   (f) Above - 60.0b

4. What are the company's sources of capital?

   (a) Equity

   (b)Debentures

   (c)Government Funds

   (d)Preferred Stock

   (e)Other (please specify)

5. Does the organization have a capital investment manual?

   (a) Yes   (b) No

6. Does the organization prepare capital budgets?

   (a) Yes   (b) No

7. If yes, briefly describe how it is done

…………………………………………………………………………………………………

…………………………………………………………………………………………………

8. What period does a capital budgets normally cover?

(a) Half yearly
(b)One year
(c)Two years
(d) Three years and above

9. Which of these departments is responsible for capital investment decision-making?

(a) Finance
(b)Marketing
(c)Planning
(d)Operation
(e)Other (please specify)

10. Does the organization have a capital investment committee?

(a) Yes   (b) No

11. How does your organization select new capital investment(s) to be embarked upon?

....

....

12. Do you do financial investment appraisal before embarking on any new project?

    [ ] Yes   [ ] No

13. If yes, briefly explain how it is done

…………………………………………………………………………………………………

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…………………………………………………………………………………………………

14. If No to question number 12, why?

....

....

....

15. Do you compare the financial rate of returns of competing projects/investments before selecting them?

    [ ] Yes   [ ] No

16. If yes to question number 15, how is the comparison done?

....

....

....

17. In your view, which of the following model(s) best describes the way your company computes expected rate of return of new investment?

(a) Capital Asset Pricing Model
(b) Weighted Average Pricing Model
(c) Interest Rate
(d) Other (please specify)

18. In your view which of these Capital budgeting techniques do you use to evaluate projects?

(a) Internal Rate of Return
(b)Accounting Rate of Return
(c)Payback
(d) Net Present Value
(e) Profitability Index
(f) Other (please specify)
19. Under what circumstances do you use the techniques specify in your answer given in question 15?

Method Circumstances
(a) ARR
(b) NPV
(c)Payback
(d)PI
(e)IRR

20. If you employ more than one capital budgeting technique, please indicate them below

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

21. Please rank these techniques in order of importance in your view.

Method	First	Second	Third	Fourth
(a)ARR	[ ]	[ ]	[ ]	[ ]
(b)IRR	[ ]	[ ]	[ ]	[ ]
(c)PI	[ ]	[ ]	[ ]	[ ]
(d)NPV	[ ]	[ ]	[ ]	[ ]
(e)Payback	[ ]	[ ]	[ ]	[ ]

22. Which of these affect your decision on the capital budgeting?

(a) Taxation
(b) Inflation
(c)Risk and Uncertainty
(d) Depreciation
(e) Abandonment Option

23. Which of these capital allowances do you consider in adjusting the cash flows?

(a) Initial Allowance
(b) Sinking Fund Allowance
(c)Annual Allowance
(d) Investment Allowance
(e) Other (please specify)

24. Which of these methods do you employ to incorporate inflation into the capital budgeting decision?

(a) Using real cash flows and money cost of capital
(b) Using money cash flows and money cost of capital
(c) Other (please specify)

25. Which of these techniques do you employ to adjust Risk and Uncertainty?

(a) Probability Analysis
(b) Risk Premium
(c) Sensitivity Analysis
(d) Portfolio Analysis
(e) Reduced Payback
(f) Other (please specify)

26. Have there been situations in which projects are abandoned before the expiration of their estimated useful lives?

(a) Yes   (b No

27. If Yes to question number 26, how is done?

....

....

....

28. If No to question number 26, Why?

....

....

29. Which of these is the major reason for capital rationing in your organization?

(a) Dividend Policy
(b) Limit Placing on borrowing by internal management
(C) Debt Limit imposed by External Agreement
(d) Other (please specify)

30. Would you say that financial evaluation is the only means you employ to determine the acceptability of investment proposals?

(a) Yes   (b) No

31. Do you use computer- based financial software in making the capital budgeting decision?

(a) Yes   (b) No

32. Have there been any changes in the capital budgeting practices of your organization over the last five years?

(a)Yes   (b) No

33. What are the general problems that you encounter in capital budgeting from your experience?

…………………………………………………………………………………………

…………………………………………………………………………………………