

**CAPITAL BUDGETING PRACTICES: AN EMPIRICAL STUDY OF
COMPANIES LISTED ON THE ALT X**

by

THABANI SIBANDA

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EXECUTIVE SUMMARY

The main focus of this study is the analysis of the capital budgeting practices and techniques implemented by companies listed on the Alternative Exchange (Alt X) of the Johannesburg Securities Exchange (JSE). Dayananda, Iron, Harrison, Herbohn and Rowland (2002) explain that capital budgeting is the process through which companies assess various sizeable investments, both tangible and intangible, to determine the most viable investment projects for the company. Dayananda *et al.* (2002) further explain that viable investment projects are ventures that correspond with the company's objective of maximising shareholder wealth. Therefore, the capital budgeting process used by a company is very influential to its long-term sustainability. Ryan and Ryan (2002) add that an effective capital budgeting process employs appropriate measures and accurate techniques that ensure the company invests only in the most lucrative proposed projects.

This study commences by presenting a general introduction into the research conducted, offering background insight that explains the need for a study of this nature. The research problem that was identified is discussed, followed by the purpose statement of the study and a definition of all the research objectives that guide the study. Furthermore, the academic value and intended contribution of the study as well as its practical benefits are disclosed. The introductory chapter also consists of the delimitations of the study and the key concepts covered in this study.

In order to provide a complete analysis of the capital budgeting practices employed by the companies listed on the Alt X, a comprehensive literature review was conducted. This highlighted the importance of capital budgeting as well as the capital budgeting behaviour of large firms in South Africa and internationally. What emerged from this research was that the capital budgeting practices and techniques implemented by large companies generally tend to align with the recommendations of financial theory which advocates the use of discounted cash flow techniques and a discount rate that accounts for all sources of funds available to the company. The literature review also assesses studies conducted on the capital budgeting practices of small and medium sized enterprises (SMEs), the category under which Alt X listed companies fall. Findings from those studies reveal that SMEs traditionally employ inferior capital budgeting techniques in comparison to their

larger counterparts and use no formal procedures to calculate an acceptable rate of return required from proposed investment projects.

The theoretical background gained from the literature review is complimented by an empirical analysis which investigates the actual capital budgeting behaviour of the SMEs listed on the Alt X. Companies included in the study were from all seven sectors represented on the Alt X and selection was limited only to those with an active primary listing on this board. A web-based survey comprising of 28 questions was formulated using Survey Monkey Software to collect and analyse responses. The survey was divided into sections which included questions about respondent demographics, company profiles, capital budgeting practices implemented, capital rationing and the use of discount rates. The survey remained active for a period of eight weeks to allow sufficient time for all respondents invited to participate. A total of 15 responses were obtained from this process when the survey was closed to further responses. The research design, methodology and techniques that guided this study are also disclosed in this dissertation.

The final part of this dissertation contains research findings obtained from analysing the primary data gathered through the survey. These findings are analysed and interpreted in isolation, by relating them to findings from comparable studies of the same population as well as to similar studies conducted both locally and internationally. Finally, this dissertation concludes by summarising all research findings derived from the literature review and the empirical study. It also presents recommendations and areas for further study that could be of academic and practical value to the field of finance.

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CHAPTER ONE

INTRODUCTION TO THE STUDY

“Strive not to be a success, but rather to be of value.”

- Albert Einstein

1.1 Introduction

Small businesses form the cornerstone of any developing economy. The Johannesburg Securities Exchange’s Alternative Exchange, the Alt X, is a parallel market which focusses on small and medium sized, potentially high-growth companies. They represent a starting point for most entrepreneurs who introduce innovative products and processes into sectors where outdated techniques and technologies are still being implemented (FitzRoy, 1989).

Small businesses also tend to play a pivotal role in reducing the unemployment rate by creating new jobs which in turn alleviate poverty. Ntsika, the Enterprise Promotion Agency, released statistics in 2010 that revealed that SMEs accounted for nearly half of national output. The agency also revealed that almost 60% of the people employed in South Africa, worked for SMEs. According to Ndlovu and Thwala (2008), most interest groups and policymakers acknowledge that the growth and development of small and medium enterprises contributes to alleviating unemployment in developing countries, like South Africa, that face high levels of unemployment. Furthermore, research conducted by Jeppesen (2005) revealed that sustainable development from an economic and social context is enhanced by the contribution of small businesses, both listed and unlisted.

Despite the socio-economic role that they play in developing countries, SMEs still face challenges in terms of monetary, foreign-exchange and industrial strategies that were formulated to support the development of larger capital-intensive firms. These challenges hinder SMEs in their ability to acquire the capital needed for growth. Furthermore, the scarce capital obtained by SMEs is often inefficiently utilised owing to the lack of relevant education by decision-makers, with regard to capital budgeting and the various techniques available to evaluate potential projects where the capital could be invested (Brijlal & Quesada, 2009). Effective capital budgeting practices, along with various other factors,

play a contributory role in the continued existence of small companies. These capital budgeting practices influence capital expenditure and the associated returns they receive for their endeavours. Successful investments of capital subsequently lead to more capital being available in future for better projects, ensuring the growth of these companies and increased shareholder value.

The government's wholesale small business promotion agencies wrote off R220.6 million worth of loans they had advanced to intermediary clients between May 2003 and October 2009; which represented bad debts of 13% (Ensor, 2010). In the same newspaper article it was reported that, the Minister of Trade and Industry, Rob Davies stated that loan repayment levels had declined to 74% from 83% the previous year; with clients in the turnover bracket of under R50 million representing 69% of loans in arrears. These statistics reveal the inability of small businesses to effectively manage their available capital. This problem could be a symptom of various attributes including their general financial health as well as decisions that are made within small businesses. Such decisions include, but are not limited to the strategic and contingency planning decisions that affect the viability of a company (Schoemaker, 1993); cash flow management (Richardson, Nwankwo & Richardson, 1994) as well as the underlying capital budgeting decisions that dictate how the businesses spend acquired funds.

1.2 Research problem

Research conducted on small businesses and their capital budgeting techniques, both locally (Gilbert, 2003 and Fatoki, Okubena & Herbst, 2010) and internationally (Pattillo, 1981), was predominantly focussed on small businesses operating in specific sectors like manufacturing. Local studies such as Brijlal and Quesada (2009) as well as Olufunso, Herbst and Roberts-Lombard (2010) also investigated small businesses but concentrated primarily on the capital budgeting practices of those in specific geographic areas. Soldofsky (1964) and Andor, Mohanty and Toth (2011) also analysed small businesses but also focussed on those in specific regions of the United States and Europe. Alt X companies are classified as small businesses but they possess unique characteristics such as being publicly listed which could provide them with greater access to capital. Alt X listed companies also operate in a distinctive environment where their shares trade in a

regulated market compared to their unlisted counterparts. They are also obliged to publicise their financial statements, which allows external investors access to more information than what is offered by unlisted companies. These distinguishing factors could suggest that the capital budgeting practices of Alt X listed companies potentially deviate from the current body of knowledge that exists with regard to the capital budgeting practices of SMEs. Extensive searches through older and recent economic and financial publications revealed that several studies have investigated the capital budgeting behaviour of unlisted SMEs in South Africa. However, not much attention has been given to the capital budgeting techniques and practices of the SMEs listed on the Alt X as well as the challenges that they face in terms of capital budgeting. Furthermore, leading electronic journal databases such as EbscoHost, Emerald and SABINET as well as electronic search engines such as Google Scholar also suggest that very little attention has been given in terms of studies that compare the capital budgeting techniques of Alt X listed companies to those listed on the main board of the JSE.

1.3 Purpose statement

The main purpose of this study is to analyse the capital budgeting practices of the small and medium companies listed on the Alt X. The study will investigate the challenges that are inherent to Alt X listed companies in terms of capital budgeting and to compare the capital budgeting practices of the companies listed on the Alt X to the capital budgeting practices of companies listed on the main board of the JSE.

1.4 Research objectives

The study will be guided by the following specific research objectives:

- To identify the capital budgeting techniques used by the companies listed on the Alt X through a large-sample survey.
- To identify which capital budgeting technique is most favoured by the Alt X companies by analysing the data collected from the sample survey.

- To analyse the capital budgeting techniques of companies listed on the main board of the JSE through a review of recent literature available on the topic.
- To compare the capital budgeting practices of companies listed on the Alt X to those listed on the main board of the JSE by analysing data collected from the large-sample survey to data gathered from the literature review of companies listed on the main board of the JSE.
- To evaluate the general advantages and disadvantages of the capital budgeting technique that is favoured by most Alt X companies through a review of the literature available on the topic.
- To analyse disadvantages and challenges encountered by Alt X companies specifically, with regard to the capital budgeting technique that most of them prefer.

1.5 Academic value and intended contribution of proposed study

The proposed study aims to contribute to existing capital budgeting literature through the expansion of theory that could be applied to listed SMEs. The study also aims to provide some insight about how SMEs operate to enterprises that analyse their creditworthiness. Companies listed on the Alt X could also derive some practical benefits from the study as they will be able to gauge their practices against those of their peers on the Alt X and their larger counterparts listed on the main board of the JSE.

1.5.1 Academic value

From a theoretical perspective, the study will make several contributions to the existing body of knowledge with regard to small businesses. Firstly, unlike the previous studies mentioned earlier which primarily focussed on the capital budgeting practices of small businesses operating in specific sectors or those located in specific geographic regions, this study will not discriminate among the small businesses but rather focus on all the SMEs listed on the Alt X. The study will also analyse various aspects that are unique to this diverse group of companies, such as the characteristics of their respective decision-makers as well as the profiles and objectives of these companies. The study will also expand existing knowledge that is available regarding the capital budgeting practices that

are implemented by Alt X listed companies. Secondly, the study will shed some light on an often overlooked sector of the JSE as it will be one of a limited number of studies to investigate the capital budgeting practices of the companies listed on the alternative exchange. Finally, the study will make a unique contribution by analysing the differences in the capital budgeting approaches implemented by companies listed on the Alt X in comparison to their counterparts on the main board of the JSE.

1.5.2 Practical benefits

In conjunction to the theoretical importance of this proposed study, there are numerous practical benefits to be derived from the study. As was mentioned in an earlier section, the Department of Trade and Industry released some unfavourable statistics with regard to the loan repayments levels of small and medium sized companies (Ensor, 2010). While the findings of this study will not be able to offer comprehensive insight into the reason why the repayment rate is so low among SMEs; it will be able to offer some insight into one of the elements that could have a contributory role in the low loan repayment rate associated with small and medium sized companies. Subsequently, the government and other financing agencies would then be better equipped in the process of approving loans and determining their repayment levels with more accuracy based on the capital budgeting practices of these companies. The results of this study could be relevant to Alt X listed companies that are interested in transitioning onto the main board of the JSE. The comparative analysis provided in this study, might amongst other things, assist them in assessing their current practices against those of companies listed on the main board.

1.6 Delimitations of the study

The major focus of this study is to identify the capital budgeting practices of Alt X listed companies and to subsequently compare them to the practices of companies listed on the main board of the JSE. As a result, certain subjects fall beyond the scope of this study while certain limitations need to be borne in mind when interpreting the findings of this investigation:

- The study will not investigate the effects of capital budgeting practices on the profitability and creation of shareholder value in the Alt X listed companies.

- An investigation into the impact of these capital budgeting practices on the Alt X listed companies and their ability to transition from the alternative exchange to the main board of the JSE will not be included in this study.
- One of the main limitations of this research is that the targeted population is relatively small which impacts the ability to generalise the findings of this study to other populations in different settings.
- An additional limitation arises due to non-response error. Non-response error occurs when members of the target population of respondents choose not to participate in the study, which consequently reduces the diversity of perspectives captured in the study (Sakshaug, Yan & Tourangeau, 2010).

1.7 Definition and discussion of key terms

The key concepts of this study are capital budgeting; small firms; net present value; internal rate of return; accounting rate of return; return on investment and the profitability index. The list below defines each of these concepts and discusses them in the context in which they will be used in this study.

Capital budgeting: is the process that managers and decision-makers use to plan significant financial outlays and select viable investment projects. The techniques used in this process and the decisions that emanate from them have long-term implications for the business. As a result, managers need to ensure that they select projects that are most beneficial to the company and offer the greatest contribution to the long-term profitability of the company. Brigham and Ehrhardt (2007) argue that sound capital budgeting decisions are vital to a firm's financial well-being and are among the most important decisions that owners or managers of firms must make.

Small firms: are defined according to the National Small Business Act of 1996, as separate and distinct business entities, including co-operative enterprises and non-governmental organisations, managed by one owner or more and are predominantly in any sector or sub-sector of the economy. More specifically, small firms are categorised as businesses that employ between 20 and 200 full-time employees, generate between

R500 000 and R30 million in annual revenues and are not subsidiaries or branches of larger corporations.

Net present value: is the difference between the present value of projected income streams and the cost of the project i.e. the initial investment made. The net present value model requires firms to discount projected income from the project at the firm's minimum acceptable rate of return (typically its cost of capital). Projects are accepted if they produce positive values while projects with negative values are rejected.

The greatest problem with the traditional present value methods however, is that the entire decision is dependent on the ability to accurately quantify future cash flows. In a dynamic and fast-moving world where companies constantly need to find innovative approaches to remaining competitive, it is difficult, if not impossible to quantify the expected cash flows from these innovative undertakings.

Internal rate of return approach: is an approach that equates the cost of the project to the present value of the project to determine the internal rate of return. If the internal rate of return of a project exceeds the cost of capital the project is accepted. Conversely, if the rate is less than the firm's cost of capital, the project is rejected. This approach to capital budgeting takes into account the time value of money by discounting future cash inflows to determine the project's present value.

According to Firer, Ross, Westerfield and Jordan (2008) financial analysts seem to prefer talking about rates of return rather than the rand values of projects associated with the net present value method. This has the result of making the internal rate of return easier to understand and communicate. The internal rate of return is a good measure of project viability when a project consists of an initial capital outlay followed by subsequent cash inflows to the firm. However, problems associated with this technique arise when a project has an unconventional cash flow stream; requiring an initial investment and further capital outlays during the life of the project. This scenario results in multiple internal rates of return for the same project, which reduce the applicability of this method to capital budgeting.

Accounting rate of return: is a measure that calculates the ratio of a project's after-tax income to its average book value. Projects are accepted if the accounting rate of return exceeds the targeted average accounting return. This method tends to be relatively easy to understand and all the information needed to compile the ratio is generally available in the company's annual financial statements.

Profitability index: is also known as the benefit/cost ratio, and represents the ratio of the project's present value to its initial investment and is closely related to the net present value approach to capital budgeting. Profitability index ratios greater than one reflect that the projects' benefits (present value) exceeds its cost (initial investment) implying a positive net present value and promotes the acceptance of such projects while projects with profitability index ratios smaller than one tend to be rejected.

While the profitability index measure overcomes both the time value of money and takes the size of the investment into consideration, it has a propensity to lead to the acceptance of projects with relatively low net present values and projects with internal rates of return that are less than the cost of capital when a company has an abundance of resources available for investing.

Payback period: is an approach that measures the amount of time required for cash inflows from a project to equal the exact investment made at the beginning of the project. According to Gitman (2006), this method allows firms to set a desired time frame for the recovery of their initial investment and then rank projects according to their respective payback periods; the most appealing projects being those with the payback periods shorter than the desired time frame. With the payback period measure, all projects with investment recovery periods that are shorter than the desired time frame are accepted.

The payback period tends to be biased towards short-term projects which increase a company's liquidity, allowing it to free up cash relatively quickly for other uses. However, through its bias towards short-term projects, the payback period measure is implicitly biased against long-term projects such as new initiatives that generate impressive cash flows much later in the investment's life. Another disadvantage of this method is its inability to consider returns from a project which occur after the initial investment has been

recouped. Finally, the payback period neglects the time value of money and generally produces flawed results due to the lack of economic rationale associated with selecting the desired time frame in which to recover the initial investment.

Of all the capital budgeting techniques discussed above, the accounting rate of return is considered the most unsophisticated as it ignores the time value of money and neglects to take into account the size of the proposed investment. It uses after-tax income and book values, which are poor substitutes for cash flows and market values, in determining the viability of potential investments. Finally, the targeted average accounting return which is used as a benchmark for assessing a project's accounting rate of return is an arbitrary figure determined at the manager's discretion. The table below elaborates on the abbreviations and acronyms that have been used throughout this study and what they represent.

Table 1: Abbreviations and acronyms used in this document

Abbreviation or Acronym	Meaning
AIM	Alternative Investment Market
Alt X	Alternative Exchange
ARR	Accounting rate of return
DCF	Discounted cash flow
DTI	Department of Trade and Industry
IRR	Internal rate of return
JSE	Johannesburg Securities Exchange
NPV	Net present value
PBP	Payback period
PI	Profitability index
ROE	Return on equity
ROI	Return on investment
SACOB	South African Chamber of Business
SME	Small and medium enterprise

TSXV	Toronto Stock Exchange Venture
U.S.	United States

1.8 Conclusion

This introductory chapter explained the research problem from which this investigation originated. Small and medium sized businesses are an integral part of the economy yet there is a high rate of failure among them due to limited access to capital markets. It presented the purpose statement which involved analysing SMEs listed on the Alternative Exchange, research objectives and contributions that this study intends to make from both a literary and practical perspective. The chapter that follows discloses secondary data about the capital budgeting behaviour and practices of small and large companies.

CHAPTER TWO

LITERATURE REVIEW

“You have to know the past to understand the present.”

- Dr. Carl Sagan

2.1 Introduction

Capital budgeting is one of the most fundamental subjects in financial literature and is critical to the success of any firm. Gervais (2009) describes capital budgeting as the process through which firms determine how to invest their capital by either reassessing their current commitments in existing projects, venturing into new projects or even acquiring other firms through mergers, consolidations and takeovers. The capital budgeting process is implicitly responsible for determining the nature and size of a firm's assets, which generate cash flows that ultimately determine a firm's profitability, value and viability. As a result, this chapter commences with a discussion of the importance of capital budgeting decisions. This is followed by a detailed analysis of the capital budgeting practices of large and small companies in South Africa and in other countries.

2.2 The importance of capital budgeting

Capital budgeting is a multi-faceted process which consists of several sequential stages that align corporate goals with investment opportunities (Dayananda, Irons, Harrison, Herbohn & Rowland, 2002). The first stage is referred to as the strategic planning stage, where the firm's corporate goals which are expressed in its mission statement are translated into specific policies, as well as structural and strategic areas of business development. The identification of investment opportunities can only commence once the strategic planning phase has been completed; as the first stage of capital budgeting is responsible for guiding the analysis and selection of investment opportunities to enhance the firm's strategic plan. The firm is accountable in pledging that it has searched and identified the best projects among many potentially lucrative investment opportunities for analysis. The remainder of the capital budgeting process ensures that the best

discretionary investment project is selected and implemented based on its ability to generate growth opportunities, increase competitive advantage and result in cost reduction opportunities as well as increased value for the firm (Dayananda *et al.*, 2002).

The financial appraisal phase is extremely important in the capital budgeting process as results from this stage serve as estimates of the expected additional value to the firm that will be derived from the proposed projects. This phase of the evaluation process is conducted with intensity and rigour as errors in evaluation result in under- or overestimation of the contribution that a proposed project will have on the value of a firm. Underestimation will result in the potential rejection of projects that could have been valuable investments for the firm, produced remarkable returns and projects that would have complemented the firm's strategic plan and corporate goals. While underestimation could reflect high levels of prudence and due diligence exercised in the financial appraisal process, it could also result in scarce financial resources being tied up in projects that are less than optimal and produce lower returns compared to returns that would have been earned on the undervalued (rejected) projects.

Overestimation could reflect a less stringent evaluation process which overlooked the full effects of the risks associated with the proposed project, inflated cash flow forecasts and failure to examine the sensitivity of these cash flow forecasts to changes in other estimates. Under- and overestimating the effect and value of proposed projects have a negative impact on the firm and its goals. They result in the under-utilisation of the firm's limited financial resources, the inability to meet current obligations as they arise due to insufficient cash flows generated from investments and increased debt commitments as they are unable to repay the funds obtained to use as initial investments. The decisions that are derived through the financial appraisal phase of capital budgeting clearly affect the success or failure of the firm and its future direction (Dayananda *et al.*, 2002). As a result, it is important that a firm implements the best capital budgeting techniques in the financial appraisal phase.

Capital budgeting decisions require a significant capital outlay used to acquire long-term assets, while the associated cash inflows of the project materialise gradually over the life of the assets. The capital required is traditionally derived from internally generated funds

like retained earnings or from external sources of capital such as share capital or issued debt and loans. These assets tend to have generally long economic lives often accompanied with limited marketability and liquidity. Financial constraints such as loan and interest repayments to the various suppliers of debt can create financial distress for companies that undertake a project whose expected stream of future cash flows does not materialise or is insufficient to provide the required return on investment (Prather, Topuz, Benco & Romer, 2009). All of the characteristics associated with long-term assets coupled with constraints exerted on future operations and strategic decisions combine to make prudent capital budgeting decisions vital to the financial wellbeing of a firm. An economic profitability analysis is used to determine whether the proposed investment or project will contribute to the long-term profits of the business by establishing whether the forecasted benefits outweigh the initial capital outlay.

Despite the shortcomings associated with each of the capital budgeting techniques discussed in the previous chapter, studies have shown that all firms, regardless of the sector they operate in or their geographic location; use some variation of these techniques and other less sophisticated methods of evaluating potential projects. However, most of these studies centred their investigations on large firms, paying very little attention to the capital budgeting techniques implemented by SMEs. The following section elaborates on the findings derived from studies investigating the capital budgeting behaviours of large firms in the other countries and in South Africa.

2.3 Capital budgeting techniques used by large firms

In the 1970s and 1980s the topic of capital budgeting received a lot of coverage both locally and internationally through studies that aimed to investigate the capital budgeting practices of firms. These studies generalised their findings to all firms irrespective of their sizes. Research conducted in the United States from the 1970s up until more recent times, revealed a trend towards improvement and sophistication in the capital budgeting techniques implemented by companies. Klammer (1972) conducted a study to determine how U.S. companies had adopted the use of sophisticated capital budgeting techniques over time. The study analysed the capital budgeting techniques that were being used by companies listed on the Compustat listing of manufacturing firms from 1959 to 1970. A

survey which was distributed to 369 companies, achieved a response rate of 49.9% which represented 184 usable responses. Results from that study revealed a rise in the use of sophisticated capital budgeting techniques as primary techniques in the evaluation of proposed projects. The study showed that sophisticated capital budgeting techniques were being used by only 19% of the respondents in 1959. The level of implementation had risen to 38% by 1964 but techniques such as the ARR and the payback period continued to receive higher preference among respondents. By 1970, the final year included in that study, sophisticated capital budgeting techniques were being used by the majority of respondents, with 57% of them indicating that they use it as a primary evaluation technique in their capital budgeting decisions.

A study of capital budgeting techniques used by U.S. firms in the 1970s was also undertaken by Gitman and Forrester (1977). A total of 110 responses were received from 268 questionnaires administered to Forbes' 1969 list of top U.S. companies with the greatest dollar expenditures as well as those companies that appeared on Forbes' 1976 list of companies with the greatest stock price growth over a five-year period. One of the primary goals of the study was to assess the progress of businesses toward the use of more sophisticated techniques Gitman and Forrester (1977). The results from the study indicated that 54% of the respondents preferred the IRR technique as a tool for project analysis followed by the ARR which was being used by 25% of the respondents. Other techniques such as NPV, the payback period and the profitability index reflected low levels of implementation, receiving support from 9.8%, 8.9% and 2.7% of the respondents respectively. The results from the study by Gitman and Forrester (1977) were similar to those found in Klammer (1972) and revealed a consistent shift towards more superior capital budgeting techniques like the IRR, even though the theoretically recommended technique (NPV)¹ was not being implemented at desirable levels.

Kim and Farragher (1981) conducted an investigation into the capital budgeting practices of U.S. firms in the 1980s. The study focussed on data collected from 200 respondents on

¹ According to Copeland and Weston (1992), the NPV technique is theoretically the most optimal technique for project evaluation as it meets all four criteria for a good technique, namely that it considers all cash flows, that it discounts cash flows at the opportunity cost of funds, it distinguishes between mutually exclusive projects and finally, it allows managers to consider each project in isolation.

Fortune 1000's Largest Industrial Corporations list. The survey reflected that IRR was significantly popular among the respondents, with 49% of them stating that they implemented it as a primary technique in their capital budgeting decisions. Only 19% of the respondents used the NPV technique, while 8% cited ARR as a primary tool used in evaluating proposed projects. The results from the study by Kim and Farragher (1981) suggested that there was a change in the capital budgeting practices of large companies. They had begun to show slight progression towards implementing superior techniques like the IRR and NPV in comparison to the findings that had been reported a few years earlier by Gitman and Forrester (1977).

A marked escalation in the use of sophisticated capital budgeting techniques was noted by Bierman (1993) who had surveyed the largest 100 firms in the Fortune 500 Industrial Firm listing. His study, based on 74 respondents, reported that 99% of them relied on IRR as a primary technique in investment appraisal. The implementation of the NPV technique had improved dramatically compared to earlier studies with 85% of respondents listing it as their preferred method of project evaluation. This study also indicated a rise in the number of firms using ROI as a primary method (50% of respondents), where previous studies had provided very little evidence of its use.

A trend in the capital budgeting behaviour of large firms that was further highlighted in Bierman (1993) was the increased use of multiple capital budgeting techniques by companies. The payback period was being used by 84% of the respondents who revealed that they used it as a secondary tool in their evaluation processes. This reflected an improvement from earlier studies like Kim and Farragher (1981), where only 58% of the respondents admitted to using a supplementary technique to intensify the quality of their evaluations.

Sophisticated capital budgeting techniques continued to receive support among U.S. firms, as was indicated through research conducted by Farragher, Kleiman and Sahu (1999). Standard and Poor's Industrial Index was used to identify 379 respondents who revealed that 80% of them prefer the IRR as a primary technique in evaluating potential projects and 78% of them used the NPV approach as a primary evaluation measure. Farragher *et al.* (1999) exposed a decline in the use of inferior capital budgeting approaches like the

payback period which was being used by only 52% of the respondents, a noteworthy decline from the 84% level of implementation recorded in Bierman (1993), just a few years earlier. Farragher *et al.* (1999) also noted a decline in the use of ROI in capital budgeting decisions with only 34% of respondents using it compared to 50% reported in Bierman (1993).

Ryan and Ryan (2002) conducted an extensive study² of the capital budgeting practices of the Fortune 1000 companies in an attempt to investigate the implementation of all the alternative capital budgeting techniques available³. Contrary to the findings of previous studies which found evidence supporting the widespread use of the IRR by most respondents, Ryan and Ryan (2002) found that the implementation of NPV among respondents (96%) exceeded the implementation of the IRR method (92%). This observation reflected an alignment between pre-existing capital budgeting theory and practice. These two capital budgeting techniques consistently retained their dominance over alternative approaches like the payback period which ranked third, after 74% of the respondents disclosed that they use this technique. This was followed by the discounted payback model and the profitability index which were used by 57% and 44% of the respondents respectively. The results of the study revealed that ARR continued to be an unpopular approach in capital budgeting with an implementation rate of only 33% as well as the modified internal rate of return (MIRR) which was being used by 22% of the respondents. Ryan and Ryan (2002) also established a significant correlation between the size of the capital budget available to a company and its subsequent choice of capital budgeting method.

More recently, studies have been conducted to examine whether changes in capital budgeting practices were evident in large firms. Bennouna, Meredith and Marchant (2010) investigated the capital budgeting practices of large Canadian firms. The researchers used a data collection method that consisted of a mail survey that was distributed to the

² Other non-U.S. studies conducted recently on capital budgeting practices include Sandahl & Sjogren (2003); Lazaridis (2004) as well as Hermes, Smid & Yao (2007) for large firms in the Netherlands, Cyprus and Asia respectively. Their results were comparable to those found in Ryan and Ryan (2002).

³ Previous studies had only investigated IRR, NPV, the payback period and ROI but had provided little information about the use of the profitability index, modified IRR (MIRR) or discounted payback period.

Financial Post's top 500 firms (FP 500). The results from the study were based on responses received from 88 firms which represented an effective response rate of 18.4%. Findings from the study revealed that discounted cash flow techniques were being used by 80.6% of the respondents. Despite the levels of implementation of DCF techniques being lower than those found in comparable studies in other countries like Ryan and Ryan (2002), the study recorded that respondents showed a generally strong preference for the NPV technique which was favoured by 94.2% of the respondents in the study. This was followed by IRR which was being used by 87.7% of the respondents, while 78.5% of the participants revealed a reliance on the payback period.

Jog and Srivastava (1995) and Payne, Heath and Gale (1999) who had also analysed Canadian firms a few years earlier, found that they were implementing the IRR more than the NPV technique in their capital budgeting decisions. Bennouna, Meredith and Marchant (2010) had found evidence that Canadian companies were now implementing the NPV more in comparison to the findings from similar studies conducted a few years earlier. Bennouna, Meredith and Marchant (2010) suggested that the continuous application of the IRR technique at high levels could be as a result of its appeal to managers, as it allows them to appraise the value of an investment in terms of percentages, which makes it easier to compare various investment alternatives.

Interestingly, MIRR was the least prevalent discounting technique despite its theoretical superiority to the IRR technique and the availability of popular spreadsheet software embedded with MIRR functions. This corresponded with the findings of Ryan and Ryan (2002), who found that MIRR enjoyed the lowest levels of use among respondents. The study by Bennouna, Meredith and Marchant (2010) did however, contrast to the findings of previous Canadian studies by revealing a narrowing gap between theory and practice in the widespread use of the NPV technique. Pike (1996) provided possible explanations for the trend towards using the theoretically recommended NPV technique by stating that the improvement in the formal education of managers and the extensive availability of computer software that assists in computations could be responsible for the progression.

Baker, Dutta and Saadi (2011) also investigated the capital budgeting practices of large Canadian firms. The primary objectives of the study were to assess whether firm practices

conform to finance theory and to determine whether there had been an increased level of acceptance of the theoretically preferred approach. Similar to the survey conducted a year earlier by Bennouna, Meredith and Marchant (2010), the study used a mail-based survey as a major instrument in data collection. This increased its comparability to other equivalent international studies and to the previous studies conducted in the same country, making it possible to analyse international practices and trends in the capital budgeting behaviour of large Canadian firms. The survey population was derived from 847 Canadian firms listed on the Toronto Stock Exchange (TSX) at the beginning of 2006. The final sample consisted of 762 firms after companies were filtered out due to the unavailability of specific data such as ratios and revenue figures.

The survey instrument was mailed to recipients with a personalised cover letter attached that requested their participation. The researchers were able to collect 214 usable responses which represented a 28.1% response rate. This was considerably higher than the response rates observed for comparable recent studies such as Bennouna *et al.* (2010) and Ryan and Ryan (2002), who reported response rates of 18.4% and 20.5% respectively. Baker *et al.* (2011) believe that the higher response rate was induced by the researchers offering an executive summary of the results to interested parties as well as a second mailing of the survey to identifiable non-respondents. This increased the generalisability of their findings to the surveyed population and reduced any potential non-response bias that could have decreased the validity of their findings.

Results from the study show that 84% of the respondents use DCF techniques as a primary tool to evaluate investment opportunities. The results from that study reflect relatively low usage of sophisticated techniques in comparison to similar studies which were conducted on U.S. firms by Ryan and Ryan (2002). The results do however show a slight improvement in the use of DCF techniques by large Canadian firms from the 80.6% that was revealed in the Bennouna *et al.* study in 2010 and this was in line with the global trend towards higher usage of DCF techniques. Evidence from Baker *et al.* (2011) shows that NPV is the most popular method with 75% of respondents indicating that they often to always use it. This is consistent with finance theory that advocates the use of the NPV method. The other techniques such as the IRR or the payback period were being used often to always by 68% and 67% of the respondents respectively. The high usage levels of

the IRR and the payback period approach were compatible with results found in the Bennouna *et al.* (2010) study of the same population as well as the Ryan and Ryan (2002) study in the United States.

Similar studies were also conducted on large South African companies from the 1980s to investigate their capital budgeting techniques. Evidence from these studies suggests that the capital budgeting technique most implemented by these companies during the past 20 years was the IRR. Andrews and Butler (1986) surveyed 500 large South African mining and industrial companies and received 132 usable responses to use as basis for their study. The study revealed that the IRR was used by only 45.3% of survey respondents while elementary techniques, such as the payback period, were being used by 26.5% of the respondents. The NPV approach was being implemented in only 7.7% of the companies; who revealed that they used it as a secondary method for confirming capital budgeting decisions that were derived from the other capital budgeting techniques⁴. Even though levels of implementation of sophisticated capital budgeting techniques in South Africa were low, they were comparable to levels of implementation in the United States over the same period as evidenced in Kim and Farragher (1981).

There had also been a change in capital budgeting practices in South Africa, compared to practices fifteen years earlier, which had disclosed that the payback period was the prevailing technique. The percentage of South African firms using both the NPV and the IRR technique had risen to 53% in 1986 from 44% a decade earlier (Andrews & Butler, 1986). They attributed these results that reflected an increase in the use of sophisticated techniques in large South African firms to the increased size of the annual capital budgets of companies in general⁵. However, Andrews and Butler (1986) expressed concern over the pervasive lack of sophistication with regard to capital budgeting practices used by South African firms, stating that the low levels of implementation could be associated with

⁴ Chadwell-Hatfield, Goitein, Horvath and Webster (1997) recommended the use of multiple capital budgeting techniques at the same time suggesting that this approach would improve the quality of the project evaluation process.

⁵ This is in accordance with the findings from Ryan and Ryan (2002) which suggested that firms with larger capital budgets employed sophisticated capital budgeting techniques.

the lack of relevant experience and training in chief financial officers; who are predominantly appointed from accounting backgrounds.

After the study of the capital budgeting practices of South African companies by Andrews and Butler (1986), recent studies have been conducted to assess the progression of companies towards advanced capital budgeting practices like the IRR and NPV approach; collectively referred to as discounted cash flow techniques. Hall (2000) investigated the capital budgeting behaviour of industrial South African companies listed on the JSE. A sample size of 70 respondents was obtained from a population of 300 companies. The results of this study revealed a decline in the use of the IRR technique with only 32.3% of the respondents employing it, compared to 45.3% found in Andrews and Butler (1986). However, 16.9% of the companies surveyed were implementing the NPV approach, a desirable rise in comparison to only 7.7% recorded fourteen years earlier. Hall (2000) also revealed that 33.8% of the respondents were using ROI as a tool for evaluating potential projects. A similar study of South African companies conducted by Parry and Firer (1990) had already begun finding evidence of the use of ROI as a capital budgeting tool. Findings from that study revealed that 32% of the respondents had listed it as both a primary and secondary tool of analysis.

While implementing ROI is an unconventional approach, this trend by South African companies was also evident in their U.S. counterparts over the same period as was reported in studies by Bierman (1993) and Farragher *et al.* (1999), both of which were discussed earlier. Furthermore, the study by Hall (2000) revealed a decline in the use of unsophisticated techniques like the payback period, which was being used by only 16.9% of the respondents compared to 26.5% of the respondents in Andrews and Butler (1986). The findings from Hall (2000) indicated that large South African companies were progressing towards sophisticated techniques even though the academically recommended NPV approach remained undervalued. Hypothesis testing from Hall (2000) also revealed that the capital budgeting method used by a company is influenced by the size of the annual capital budget available.

Gilbert (2003) investigated the practices of South African manufacturing firms using a list provided by the South African Chamber of Business (SACOB). The survey was

administered to 318 companies in a pilot phase and a secondary phase of the distribution of the survey. A total of 110 usable responses were collected from respondents during both phases of the distribution, resulting in a response rate of 35%. While the respondents revealed their preference of a combination of project assessment techniques, Gilbert (2003) reported that the most used method among the respondents was the payback period which was applied by 85% of the respondents⁶. This result was surprising considering all the progress that had been reported with regard to the capital budgeting practices of large companies in South Africa. This result contradicted the evidence found by Andrews and Butler (1986), Hall (2000) as well as Ryan and Ryan (2002), who had found that the implementation of superior capital budgeting techniques was more prevalent in companies with large annual capital budgets. Gilbert (2003) suggested that the continued use of the payback period was because it provided decision-makers with an indication of how exposed their capital investments would be in a particular project.

Results from Gilbert (2003) also revealed that 77% of the respondents employ ROI while 74% of them use the NPV and 67% rely on the IRR in their capital budgeting decisions. These results from the study also revealed that respondents were using multiple techniques in their capital budgeting decisions. Gilbert (2003) suggested that respondents were using multiple techniques because decision-makers could lack confidence in their ability to accurately forecast the inputs required in specific techniques. The study disclosed that an increased number of large firms were using sophisticated practices than previously reported in earlier studies but that inferior practices were still receiving widespread use in companies. This implied that the sophisticated techniques, such as the NPV and the IRR, were being used in conjunction with the inferior methods rather than as outright replacements as recommended in capital budgeting theory.

More research was conducted on the capital budgeting behaviour of large South African firms by du Toit and Pienaar (2005). Their study surveyed companies listed on the main board of the Johannesburg Securities Exchange (JSE). Sixty seven respondents were

⁶ Hall (2000), Gilbert (2003) as well as du Toit and Pienaar (2005) also found evidence that a large percentage of firms do not make use of any formal capital budgeting techniques and used other criteria such as environmental laws, legal requirements and other strategic factors in their capital budgeting decisions. Analysis of these alternative approaches falls beyond the scope of this study.

obtained from the 524 companies that were listed at the time. Respondents were asked to select the capital budgeting method they used primarily in the process of evaluating capital investments. The study revealed that the most popular method was the IRR which was used by 31.7% of the respondents, followed by NPV which was being implemented by 27.4% of the respondents (du Toit & Pienaar, 2005). The study also showed that the payback period was being used by 16.2% of the companies in the study while ROI was the preferred method in only 11.3% of the respondents. The findings of this study reiterated the results produced by previous studies that reflected a general rise in the use of superior capital budgeting techniques among large South African companies. Du Toit and Pienaar (2005) also confirmed that these techniques were being implemented with the inferior techniques like the payback period and ROI to reinforce any conclusions that were reached using superior techniques.

A study by Correia and Cramer (2008) also analysed the capital budgeting decisions of companies listed on the main board of the JSE. A survey was administered to all the companies listed on the main board and 28 usable responses were collected from respondents. The results from that study found evidence that listed South African companies were using the NPV technique more than the IRR and other capital budgeting techniques. The NPV technique was being implemented by 82.1% of the respondents while 78.6% of them preferred the IRR. Elementary techniques such as the payback period were being implemented by 53.6% of respondents. These findings supported findings from previous studies which revealed that companies listed on the JSE were combining DCF and non-DCF techniques in their capital budgeting decisions. In contrast to the findings from studies such as Hall (2000), Gilbert (2003) and du Toit and Pienaar (2005), the study by Correia and Cramer (2008) found no evidence of the use of ROI among respondents to their survey.

Hall and Millard (2010) also investigated the capital budgeting practices of South African firms that were listed on the JSE. They extracted a sample of 67 respondents from 177 industrial companies that were listed on the JSE. Findings from their study revealed that ROI was the most preferred method, which was being used by 33.3% of the respondents. This result is consistent with the findings of an earlier study conducted by Hall (2000) which had also found that ROI was the most favoured method among respondents,

receiving 33.8% of the votes. Interestingly, Hall and Millard (2010) reported that NPV was the second preferred technique for 28.6% of the respondents followed by the IRR which was being implemented by 23.7% of the respondents. The higher use of the NPV technique in comparison to the IRR is consistent with findings from the study by Correia and Cramer (2008) who also revealed that companies listed on the main board were now using the theoretically superior technique, NPV, more than the IRR measure.

The findings from the studies discussed above reflect the fact that large unlisted and listed companies have gradually implemented more sophisticated capital budgeting techniques over the period studied. These findings are congruent to the findings associated with the studies of large companies in other countries as discussed earlier. However, researchers from as early as the 1970s, such as Deek (1973), started questioning the general applicability of existing capital budgeting theory and studies with regard to SMEs. They observed that SMEs exhibited distinctive characteristics and operated under certain conditions that challenge the applicability of capital budgeting theory and the findings from previous studies. SMEs are discussed in the following section examining the challenges they face in terms of capital budgeting and the existing studies conducted on the capital budgeting practices of SMEs.

2.4 Small and medium enterprises (SMEs)

As was discussed at the beginning of the chapter, the capital budgeting decisions made by companies are important in determining how scarce resources are employed in long-term projects to generate future cash inflows and ultimately result in the productivity and growth of a company. These decisions become even more vital to smaller companies that face greater financial constraints compared to their larger counterparts. The following section commences with a discussion of the importance of capital budgeting decisions to small firms in particular. It also analyses the possible alternative objectives of SMEs, capital and cost constraints as well as the separation principle and how all these factors could influence the capital budgeting decisions made by SMEs.

2.4.1 Importance of capital budgeting for SMEs

Brigham (1992) stated that, while the allocation of capital is important to both large and small firms, the inherent lack of access to capital markets often makes the effective use of capital more important to smaller firms. The emphasis on effective capital allocation is attributed to the fact that greater availability of capital allows larger firms the option of allocating these funds to numerous projects. As a result, the greater access to funds that larger companies have, allows them, to a certain extent, the ability to offset one project's failure with gains and successes from another project. This type of diversification is not often at the disposal of smaller firms because the funds necessary to correct a mistake may not be available and as a result, it becomes even more crucial to invest in the most lucrative potential investment (Brigham, 1992). Despite the importance of using effective capital budgeting techniques to assess potential projects, small firms still face other constraints that possibly hinder the implementation of advanced techniques. These constraints tend to be internally and externally imposed and potentially have an indirect influence on the techniques chosen for capital budgeting purposes by SMEs. The following section discusses the internal and external constraints.

2.4.2 Alternative objectives considered by SMEs

Litzenberger and Joy (1975) expressed that an optimal investment policy of a company should encourage the selection of capital budgeting projects that have the largest positive effect on shareholders' wealth. Furthermore, theory recommends that the optimal investment policy should incorporate the NPV technique above all the other capital budgeting techniques, as it consistently selects those projects that maximise shareholders' wealth. In other words, the NPV technique specifically promotes the goal of wealth maximisation as the net present value of a project represents the expected increase in firm value from undertaking the project (Chadwell-Hatfield, Goitein, Horvath & Webster, 1997).

However several studies, such as Ang (1991), Keasey and Watson (1993) as well as Chadwell-Hatfield *et al.* (1997) have since offered various other objectives that some small

companies pursue, before the maximisation of wealth objective, that could explain why they use capital budgeting techniques other than the theoretically recommended NPV. Ang (1991) reveals that the maximisation of wealth is not necessarily one of the key internal objectives for small business owners when evaluating alternative investments or projects. That study identified that preserving the independence of the business is a crucial component in the capital budgeting decisions made by small businesses. The optimistic owners of small businesses who feel confident about the future prospects of their businesses prefer to accrue all these future benefits to themselves, rather than apportion them with external investors as compensation for their capital contributions. Keasey and Watson (1993) indicated that entrepreneurs start a firm as an alternative to employment, a way to avoid employment boredom or as a vehicle to develop, manufacture and market inventions. In each case, the goal of the entrepreneur may be to maintain the viability of the company, rather than to maximise the value.

Chadwell-Hatfield *et al.* (1997) found that the managers of the companies included in their survey indicated that they would disregard the NPV technique and the value-maximising investments that it recommends in exchange for techniques such as the PBP and the ARR. Respondents indicated that they implement the PBP and the ARR as they are more widely understood and accepted by stakeholders outside of the financial units of the company. The studies discussed above identified that SMEs might not prioritise the maximisation of wealth in pursuit of other objectives, such as preserving independence, maintaining viability of the company and the consideration of stakeholders with limited knowledge of advanced capital budgeting techniques. These other objectives could result in SMEs opting to use capital budgeting techniques, other than the NPV technique, to analyse proposed projects. The NPV technique promotes projects that primarily maximise shareholder wealth. Using the NPV technique might become less important to SMEs that pursue objectives that are not necessarily related to wealth maximisation (Chadwell-Hatfield *et al.*, 1997)

2.4.3 Capital constraints

Brink, Cant and Ligthelm (2003) investigated the problems experienced by small businesses in South Africa. They administered questionnaires to a sample of 300

small businesses operating in the Gauteng province of South Africa and found that the respondents encountered numerous difficulties that were economic, environmental, financial and managerial in nature (Brink, Cant & Ligthelm, 2003). Among the financial problems identified, respondents indicated that their greatest challenge was difficulty in obtaining finance or credit. Capital constraints in small unlisted companies could be attributed to the information asymmetry that exists between external lenders; who do not have equal access to information regarding the company's performance and internal managers who do. Small unlisted firms are not obliged to publish annual reports or to submit reports to any securities and exchange commission. According to Lopez-Garcia and Aybar-Arias (2000), lenders are unable to determine the real value of investment projects because of information asymmetry. As a result, they cannot be certain with regard to how the proposed funds will be applied or the future cash inflows that would be derived from the investment. External lenders become averse to supplying SMEs with capital due to the information asymmetry which causes capital constraints in SMEs.

Owing to capital constraints, SMEs often become focussed on the availability and access to funds as this affects the cash flows of a company (Runyon, 1983). Managers of small firms concentrate on the time frame of proposed projects and how long it will take the company to recoup the initial investment made. Brigham (1992) argues that cash orientation in small firms makes the payback period more popular as this technique allows managers to evaluate when they will recover funds committed to a project, making those funds available to repay loans and for investing in new opportunities.

Research on small companies conducted by Danielson and Scott (2006) identified other factors that may cause self-imposed capital constraints in SMEs. They found that 45% of the companies in their sample would rather delay a promising investment until it could be financed with internally generated funds. The preferred reliance on internally generated funds such as retained earnings could be associated with the alternative objectives identified as being important to SMEs, such as preserving the independence of the company. The effects of self-imposed capital constraints are similar to those caused by information asymmetry. Self-imposed constraints on capital also lead to less funds being available for capital budgeting, amongst other things. These constraints also result in the

increased use of the payback period technique in capital budgeting. The limited internally generated funds make the time horizons of proposed projects important to SMEs, as projects with shorter payback periods result in funds being available sooner to fulfill the current obligations of the company as they become due.

2.4.4 Cost constraint

Brigham (1992) suggested that the costs associated with analysing proposed capital investments using sophisticated methods, are to some extent fixed. This often includes the costs associated with retaining personnel with the required expertise necessary to analyse various proposed projects using sophisticated capital budgeting techniques (Ang, 1991). These fixed costs imply that companies will incur the same expenses regardless of the size of the investment that is being analysed. Consequently, the presence of fixed costs reduces the viability of using sophisticated capital budgeting techniques for small firms, which are typically presented with smaller scale investment opportunities. Brigham (1992) argues that in some cases, small firms will resort to using “gut feel” to analyse proposed projects as the costs associated with using sophisticated techniques are too high in relation to the size of the projects being assessed.

2.4.5 Separation principle

Capital budgeting theory supports the use of the NPV technique in the analysis of proposed projects. The NPV technique requires discounting future cash flows at a market-determined discount rate, primarily the cost of capital. According to Uddin (2009), establishing the market-based cost of capital requires the separation principle which states that investment decisions should be made without the influence of owners’ discretion in deriving the cost of capital. Additionally, the separation principle also rests on the premise that shareholders can readily sell their shares in the market. However, in the case of most SMEs, shares are not readily marketable due to investor aversion caused by information asymmetry. As a result, SMEs are unable to establish a market-determined cost of capital which is required when implementing the NPV technique. McInish and Kudla (1981) add

that owners of SMEs tend to use a discount rate that is subjectively determined by their required rate of return. In turn, the required rate of return reflects what the owners feel is an appropriate rate based on the project's risk, similar projects in the market, alternative opportunities available to the company and its overall investment portfolio. Runyon (1983) also revealed that respondents in their study relied on management's prerogative to establish a required rate of return. The subjectivity applied in determining the owner's required rate of return conflicts with the separation principle which requires that the discount rate used for the NPV technique should be determined independently from the owners of a company. Since ownership is not readily marketable in small firms, the separation principle cannot be applied and the market-based cost of capital cannot be accurately determined to value proposed investments (Uddin, 2009).

The alternative objectives of SMEs that were identified as possibly having an effect on their capital budgeting decisions as well the capital constraints they face due information asymmetry could make pre-existing capital budgeting theory less appropriate when trying to understand the capital budgeting decisions of SMEs. The limited amount of funds that are often available to SMEs makes evaluation of proposed projects through effective capital budgeting techniques particularly important for them. However, the costs associated with using sophisticated capital budgeting techniques as well as the effects of the separation principle on SMEs could make it challenging for them to implement DCF techniques. A few studies have since tried to analyse the actual capital budgeting decision-making process of small firms both internationally and locally. These studies also analyse the effects that factors such as capital and cost constraints might have on the capital budgeting decisions made by SMEs.

2.5 Capital budgeting decision-making in small firms

Since the 1960s, various researchers in the U.S. have attempted to investigate the capital budgeting techniques actually employed by small firms. Although these studies used different sample sizes and firms in different research environments, they all implemented similar research methodologies, relying on empirical data collected through questionnaires administered to their respective respondents and some basic statistical tools for a quantitative analysis of the data. One of the earliest studies of capital budgeting in SMEs,

Soldofsky (1964), surveyed 126 small manufacturing firms that operated primarily in Iowa in the United States. He found that the capital budgeting technique that most of the respondents in his study preferred was the payback period which was being used by 55.9% of them. However, Soldofsky (1964) also found that 40.2% of the respondents did not use any technique⁷ in their capital budgeting decisions while only 3.9% used the ARR. Interestingly, the results from the study revealed that none of the respondents used the IRR or NPV in their processes of project evaluation. Soldofsky (1964) attributed these findings to a combination of factors including management's lack of understanding of capital budgeting techniques in general as well as the costs associated with hiring an external consultant who could assist in the process.

Research by Pattillo (1981) investigated the potential reasons that caused widespread discarding of more sophisticated and theoretically preferred capital budgeting methods such as the discounted cash flow techniques. His research focussed particularly on small manufacturing firms in America and whether their capital budgeting techniques differed significantly to those of small firms in other countries. He conducted in-depth interviews with the chief financial officers of the sampled firms and used operational manuals from the firms to extract the data needed for the study.

Results from hypothesis testing revealed that small firms showed strong reliance on evaluations based on a single technique such as inspection, need or the payback period. The study conducted by Pattillo (1981) reported that 75% of the financial officers in the sample revealed that they did not use DCF techniques because of the complexities involved in quantifying the required inputs. They also revealed that their capital budgets were of insufficient size and that they barely encountered instances of competing or mutually exclusive projects that would warrant the use of sophisticated capital budgeting methods (Pattillo, 1981). The nature of the investment decisions they faced, which primarily included mandatory routine replacements of obsolete equipment, was listed as a reason that made sophisticated techniques impractical for the small firms in the survey.

⁷ Subsequent studies such as Luoma (1967), Scott, Gray & Bird (1972) and Grablowsky & Burns (1980) referred to this as "gut feel" or intuition.

Despite the mandatory nature of the capital investment decisions faced by small firms in the survey, more than 87% of the sample expressed difficulty in obtaining financing for such investments. Pattillo (1981) suggested that this was due to the fact that small firms frequently lacked access to external funding compared to large firms. The respondents included in this study revealed that in the event of insufficient availability of financing for approved projects, such projects would be postponed or scaled down rather than cancelled or rejected.

Pattillo (1981) offered several noteworthy suggestions on the conclusion of his investigations. He suggested that there should be a shift from the desire to see small firms implementing sophisticated discounting techniques and that emphasis should rather move towards increased development of the simplified and more practical techniques preferred by small firms due to the inherent nature of their capital investments and the financial constraints they encounter⁸. He recommended that techniques such as the payback period could be developed to account for time-adjusted rates of return without making the computations and analysis required so complex and costly that management's efforts would outweigh the value of the proposed project (Pattillo, 1981).

Runyon (1983) conducted research on the capital expenditure decision-making processes of small firms. Using the definition of small firms provided by the Dun and Bradstreet Middle Market Dictionary of 1977, they identified a sample size of 842 firms. The study received 214 responses which represented a response rate of 25.4%. The study found that the percentage of respondents who preferred the payback period had declined from 55.9% in 1964 to 45.4% in 1983 and the number of companies using intuition or "gut feel" had dropped significantly from 40.2% in 1964 to only 16.4% in 1983. The IRR and the NPV approach were being used by 4.4% and 4.8% of the respondents respectively while ARR had increased in popularity among 23.9% of the respondents compared to previous studies. These findings related to the capital budgeting practices of small manufacturing firms in the United States, contrasted strongly with findings in Kim and Farragher (1981), which reported the practices of large manufacturing firms. While the practices of large

⁸ His view was supported by a similar study conducted by Lewellen, Lanser and McConnel (1970), who stated that small firms could operate more effectively by modifying the payback method to be more consistent with the time value of money concept.

firms continued to converge with pre-existing theory, the practices of their smaller counterparts continued to reflect a disparity between theory and practice.

The study by Runyon (1983) revealed that the underlying purpose of most of the capital budgeting expenditures incurred by small firms was to modernise facilities and equipment, which was followed by the replacement of equipment. The study reported that 56% of respondents indicated that they embarked on capital expenditure activities to maintain a competitive position without regard to cost or profitability. Runyon (1983) also found that small firms faced limitations on the use of borrowed funds, with 41% of respondents stating that limitations were internally imposed due to past experiences with debt management, while 20% of them reported that the limitations were based on a targeted debt/equity ratio. These findings were much higher for larger firms as Gitman and Forrester (1977) had found that 69% of limitations on the use of borrowed funds were predominantly set by internal management.

Block (1997) investigated the capital budgeting techniques used by small business firms in the 1990s. His study used 232 respondents drawn from Dun and Bradstreet's 1995 Million Dollar Directory, which allowed the study to gain diversified perspectives of the actual capital budgeting practices of small firms. This increased the accuracy and reliability of his findings which reported that more than 42% of the respondents preferred to implement the payback period technique. This was followed by the ARR which was being used by 22.4% of the respondents, while the IRR and NPV approach were being implemented by 16.4% and 11.2% of the companies respectively. The results from Block (1997) reflected that more small companies were implementing various forms of capital budgeting techniques and drifting away from intuition, which was being used only 7.3% of the respondents compared to 16.4% in Runyon (1983).

While 65% of the respondents were still using inferior techniques, the use of sophisticated capital budgeting techniques had risen to 27.6% from 9.2% a decade earlier. Block (1997) suggested that the persistent use of the payback period among small US firms was a result of the pressure exerted on them by financial institutions who were more interested in knowing how quickly a loan could be repaid than in the profitability of the proposed project.

More recently, Danielson and Scott (2006) analysed the capital budgeting decisions of small business using a sample size of 792 firms, derived from the National Federation of Independent Businesses in America. The results from that study revealed that the primary technique that surveyed firms used to assess a project's financial viability was the least sophisticated "gut feel" or intuition response, which was being used by 26% of the respondents (Danielson & Scott, 2006). This was followed by the payback period which was being implemented by 19% respondents and ARR by 14% of them. The discounted cash flow techniques were only being employed by 12% of the respondents.

Danielson and Scott (2006) provided several reasons for the results they had reported in their study, stating that limited formal education and that sampled firms do not have complete management teams could be responsible for the discrepancy between the actual capital budgeting practices of small firms and the recommendations from theory. These findings support earlier research by Soldofsky (1964), Grablowsky and Burns (1980) as well as Runyon (1983), which showed persistently high levels of implementation of inferior capital budgeting techniques.

Andor, Mohanty and Toth (2011) conducted research to examine the capital budgeting practices of firms in the central and eastern parts of Europe. They also investigated whether international exposure had an effect on the capital budgeting practices of firms which exhibited that characteristic. They used a telephonic interviewing process to collect responses from 400 firms (100 of which were small to medium firms). Survey responses indicated that 75% of the small to medium firms in the sample applied formal capital budgeting analysis, with only 45% of them, equivalent to 33 small to medium firms, using sophisticated capital budgeting techniques in their analyses. Andor, Mohanty and Toth (2011) expressed that small firms were less likely, in comparison to larger firms, to use sophisticated techniques because they did not have the necessary resources to conduct formal capital budgeting processes that required advanced techniques. Results from the study also revealed that small firms were more likely to rely on one discount rate compared to their larger counterparts who used several discount rates as a result of their high levels of diversification into various projects with contrasting degrees of risk.

Moreover, findings from the study revealed that firms with international exposure were more likely to use formal analysis compared to small locally owned independent firms. They attributed this to the possibility that the small international companies had the resources, the management talent as well as the effective procedures to implement formal capital budgeting analysis, (Andor, Mohanty & Toth, 2011). Baker, Dutta and Saadi (2010) also observed that “one size does not fit all” in terms of corporate finance practices. They noted that important institutional and other differences exist between countries in such areas as corporate governance, ownership structure and firm size and that such differences could influence managerial decisions made by companies in those countries, with regard to their choices of financial practices.

A similar study, which was discussed earlier, was conducted by Pattillo (1981), who had also investigated the effect of international exposure on the capital budgeting practices of small manufacturing firms in America. He found comparable evidence from his sample which revealed that British-owned firms operating in America possessed a higher degree of sophistication in their investment appraisal practices than their American-owned competitors did. While these findings support those of Andor, Mohanty and Toth (2011), Pattillo (1981) offered a different explanation for the disparity. He suggested that the higher degree of sophistication found in the multinational firms operating in America was primarily a result of these companies' nature as subsidiaries of larger multinational holding companies. Pattillo (1981) further explained that the financial policies, techniques and reporting requirements for subsidiaries are typically standardised and strongly influenced by the parent company. In this respect, any international exposure and foreign ownership by a larger multinational firm might be expected to manifest as more sophisticated capital budgeting techniques in their subsidiaries.

In South Africa, the investigation of the capital budgeting behaviour of small and medium firms has only received attention in more recent years; primarily from studies conducted by Gilbert (2003), Brijlal and Quesada (2009) and more recently by Fatoki, Okubena and Herbst (2010). Gilbert (2003) investigated whether South African manufacturing firms were making optimal capital investment decisions. He surveyed companies that were members of SACOB and generated 110 respondents. Of these, twenty five were categorised as small firms while the rest were classified as large firms (the results related to the large

firms were discussed in the previous section). An evaluation of the small firms revealed that the respondents made use of a combination of the various techniques, with the payback period being used the most by 79% of the respondents. This was followed by the ROI which was being implemented by 72% of the respondents while the IRR and the NPV technique were being used by 48% and 47% of the respondents respectively. The results of this study reflected a difference in the preferences of small South African firms compared to their American counterparts who revealed that none of them used ROI, in a similar study by Danielson and Scott (2006). However, the use of ROI was evidenced among large South African firms in studies conducted by Hall (2000) as well as Gilbert (2003).

Brijlal and Quesada (2009) also conducted research on the capital budgeting practices of small firms, focussing on the Western Cape Province of South Africa. They secured 211 responses from 600 companies listed in the directory of businesses in the Western Cape. Results from this study confirmed findings from Gilbert (2003); that small South African firms favoured the payback period as a primary tool in the evaluation of capital investments, with 39% of respondents selecting it. Brijlal and Quesada (2009) found no evidence of the use of ROI among surveyed firms but found that the less popular profitability index was being as equally used as the NPV approach, each being preferred by 27% of the respondents. This was followed by the IRR which was being used by 20% of the respondents, ARR by 17% and 15% of the respondents admitting that they do not use any formal technique (they rely on “gut feel” and intuition).

Fatoki *et al.* (2010) evaluated the investment appraisal techniques of small manufacturing firms in South Africa. A population of 153 companies was used from the Eastern Cape Province of South Africa, from which 124 respondents chose to participate in the study. Fatoki *et al.* (2010) tested multiple hypotheses, one of which stated that small firms do not make use of sophisticated investment appraisal techniques in making their investment decisions. The study used advanced statistical analysis tools like the estimated regression equation to test the hypotheses. Data which had been collected from the respondents showed that 69% of them did not make use of sophisticated investment appraisal techniques when making investment decisions and that most of the respondents preferred the payback period as a tool of analysis (Fatoki *et al.*, 2010). The regression analysis

further concluded that the traditional methods of investment appraisal (payback period and average accounting rate) have a negative correlation with profitability.

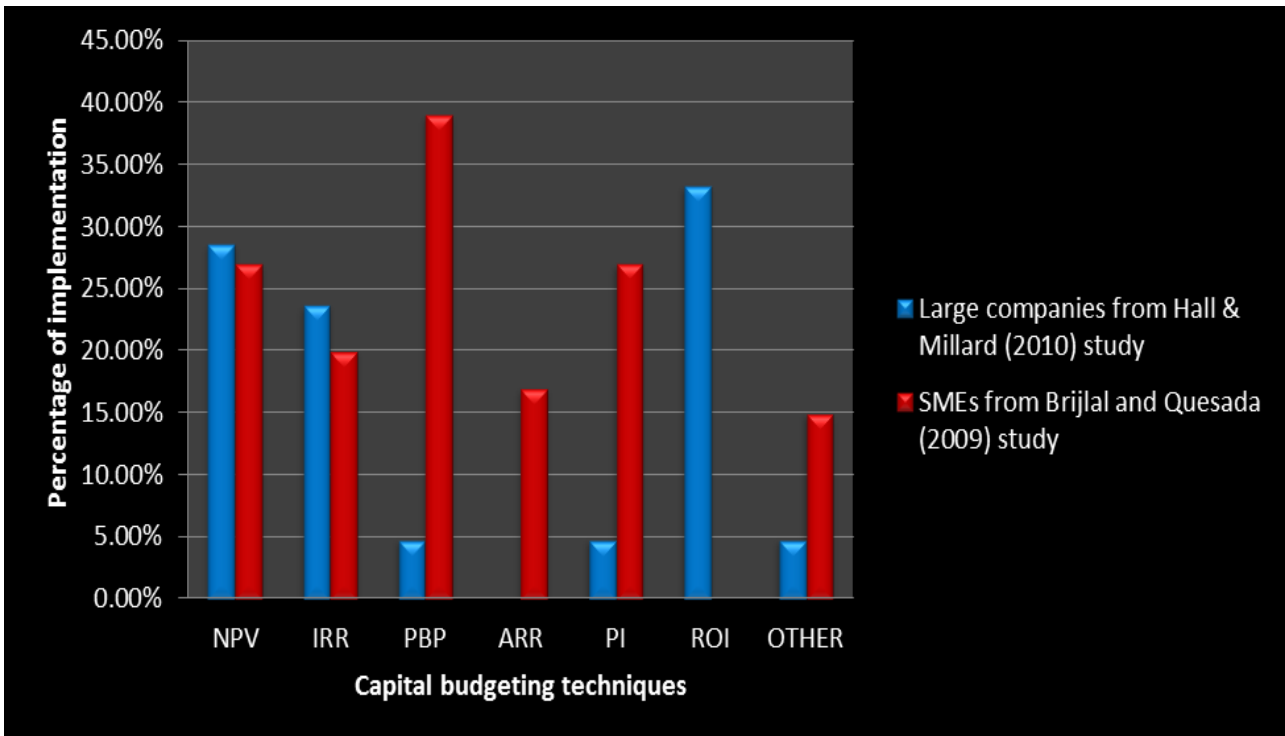
Despite the different sectors that were analysed in each study of small companies or the geographical location of the respondents in a survey; they all seem to be unified by one common element, which is their high implementation rates of elementary techniques like the payback period. This supports the findings that their characteristics and the challenges they face require different capital budgeting techniques; contrary to the technique that is suggested by general capital budgeting theory. The payback period (PBP) is ideal in alleviating capital constraints as projects or investments are chosen according to their respective initial investment recovery periods; which increases the liquidity of a company. This is a very important benefit of using the PBP technique for small businesses that often choose to refrain from seeking external funding or struggle to attract additional funds due to the information asymmetry discussed earlier. They need those limited funds to be freed out of investments expeditiously, so they can use them to meet current obligations as they arise.

Figure 1 below, summarises the findings reported in the most recent studies about the capital budgeting practices of small and large South African firms. There are however, certain categories of SMEs like the Alt X listed companies, which operate under different conditions and face fewer challenges brought on by capital and cost constraints or the separation principle. These Alt X listed companies are discussed in the next section.

2.6 Alt X listed companies

The Alt X was launched in October 2003 through a partnership between the JSE and the Department of Trade and Industry (DTI). It was the first alternative exchange in Africa to list small to medium growing companies. Its purpose was to offer investors a parallel market to the main board of the JSE, specifically aiming at fast growing businesses, start-ups, family-owned businesses, black economic empowerment companies and junior mining companies. Since its inception, the Alt X has become a favourable market for entrepreneurs seeking viable avenues through which they can extend and grow their companies.

Graph 1: Comparison of studies on the capital budgeting practices of small and large South African companies.



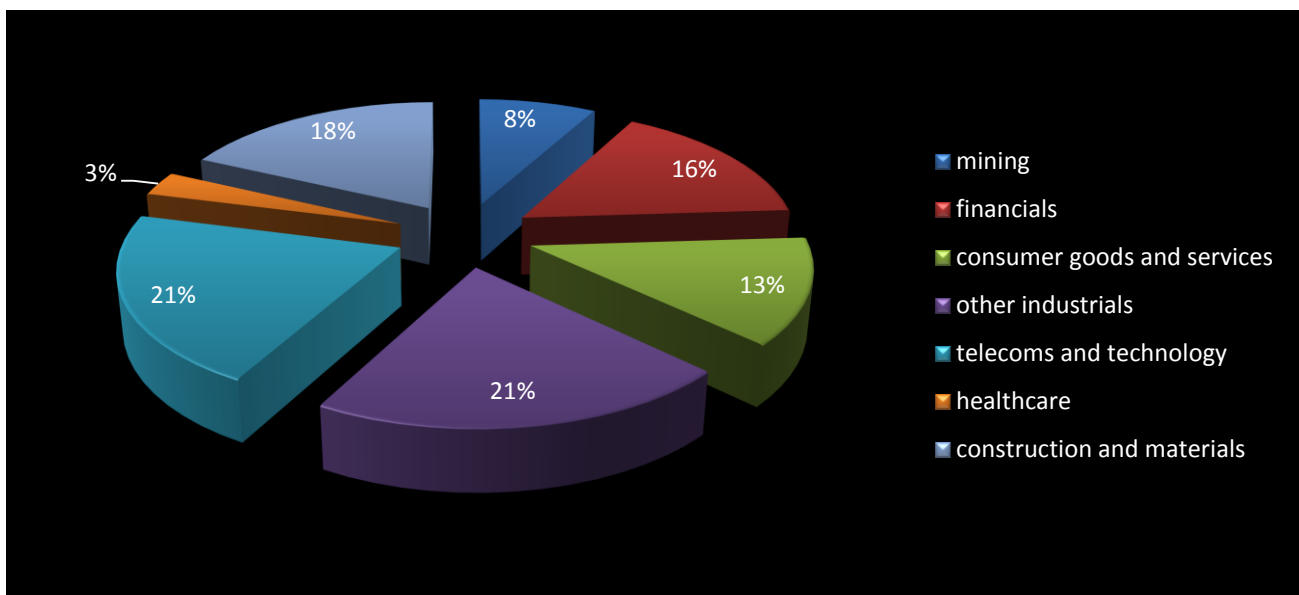
Adapted from: Brijlal & Quesada (2009) and Hall & Millard (2010).

2.6.1 Comparison of the Alt X to similar exchanges

Sibanda (2009) undertook research to compare the Alt X to similar exchanges in other countries, such as the Alternative Investment Market (AIM) in the UK as well as the Toronto Stock Exchange Venture (TSXV) in Canada. He found that there had been a high rate of delistings across all exchanges as well as a decline in the number of new listings. While some of the delistings were a result of mergers with other listed entities and transfers to the main boards, the poor performances of these markets were attributed to the global economic downturn and its impact on the share prices and the fundraising opportunities available to firms listed on these exchanges. Market capitalisation for the TSXV had declined by 76.1% while the AIM had dropped by 71.8%. Despite the Alt X being a much younger and smaller market, it had shown some resilience with its market capitalisation falling by only 59.7%. The Alt X index had declined by 51.4% in comparison with losses for both the TSXV and AIM indices which were recorded as 72.5% and 62.4% respectively. Sibanda (2009) suggested that the differences in the performances of these

junior exchanges could be a result of varying compositions, expressing that the TSXV had the highest exposure to the mining sector compared to the AIM and the Alt X whose listings were primarily financial institutes and construction companies, allowing them to diversify their exposure to the economic turmoil. The graph below depicts the Alt X listed companies by sector.

Graph 2: Pie chart of the Alt X by sector



Adapted from: Sibanda (2009).

2.6.2 Alt X listing requirements

The Alt X gives these smaller companies an opportunity to issue new shares, raise capital, widen their investor base and have their shares trading on a regulated market. The Alt X has listing requirements that are unique and appropriate for small and medium companies; placing emphasis on initial and on-going disclosure of company information. There is also a focus on the enhancement of the skills of directors.

A few key listing criteria that are relevant to this study are listed below:

- The applicant issuer must have share capital of at least R 2 000 000 (including reserves but excluding minority interest and the revaluation of assets and intangible

assets that are not supported by a valuation by an independent professional expert acceptable to the JSE and they must be prepared within the last six months).

- The public shall hold a minimum of 10% of each class of equity securities and the number of public shareholders shall be at least 100.
- The applicant issuer must appoint an executive financial director and the Designated Advisor (DA) must be satisfied that the financial director has the appropriate expertise and experience to fulfil his/her role.
- The directors must have completed the Alt X Directors Induction Programme (DIP) or must make arrangements to the satisfaction of the JSE to complete it.
- Announcements must be published on the issuer's website and the Alt X website and the JSE encourages voluntary publication in the press.

The first two requirements mentioned here detail the listing requirements with regard to share capital. By imposing a pre-requisite of R 2 000 000 share capital and by stating that at least 10% of that should be issued to public shareholders, this automatically gives the Alt X companies exposure to external investors and greater diversity of funds available for capital budgeting, unlike their unlisted counterparts as discussed earlier. Being listed on a reputable and regulated exchange could reduce the perception of risk that external investors associate with Alt X listed companies relative to their perception regarding the riskiness of unlisted SMEs.

The JSE requires that the appointed financial director must have the relevant expertise and experience to efficiently manage the company. The exchange also stipulates that the directors must have completed the Directors Induction Programme. These factors distinguish the Alt X listed companies from other SMEs where researchers had found a lack of understanding as well as lower skill levels and qualifications as primary reasons for the use of elementary capital budgeting techniques in small companies. Public disclosure of company information reduces the information asymmetry between external investors and managers which in turn reduces the perceived riskiness of a company and its proposed investments. This ultimately results in investors requiring less compensation for their capital contributions (reducing the cost of capital) and makes external funding more affordable and attractive to the listed companies.

The choices of unsophisticated capital budgeting techniques that are being implemented by unlisted SMEs as disclosed in studies such as Danielson and Scott (2006), Brijlal and Quesada (2009), Fatoki *et al.* (2010) as well as Andor, Mohanty and Toth (2011), are attributed to the various challenges they encounter due to various constraints, low levels of relevant knowledge among decision-makers as well as external investor perceptions with regard to the riskiness of SMEs. However, the Alt X listing requirements discussed above and their implications on listed SMEs could alleviate some of the challenges inherent in their unlisted counterparts in terms of their capital budgeting decision-making process.

2.7 Discussion of comparable study

West (2008) conducted the only study similar to the current study, which attempted to establish the capital budgeting practices of companies listed on the Alt X. While there were 81 companies listed on the Alt X during the period when the study by West (2008) was conducted, only 64 questionnaires were sent out due to the fact 17 companies had indicated their preference to be excluded from that study. A self-administered questionnaire was used through an internet-based survey tool as a mechanism for gathering primary data. From the 64 questionnaires that were distributed, 12 usable responses were collected, which represented a response rate of 19%. Results from the study by West (2008) revealed that 45% of the respondents utilised DCF techniques when evaluating new projects, while 64% applied non-DCF techniques in their capital budgeting decisions. This result indicated that Alt X listed companies did not view capital budgeting techniques as mutually exclusive but that they had a dependence on multiple capital budgeting techniques (West, 2008). The reliance on non-DCF techniques by this group of SMEs was similar to the results found in previous studies, both locally by Brijlal and Quesada (2009) and internationally by Danielson and Scott (2006), with regard to listed and unlisted SMEs. However, studies conducted earlier revealed that small firms were more inclined to using intuition and the payback period as their primary non-DCF techniques, while West (2008) found that none of the respondents to that study used these tools as primary techniques in their capital budgeting decisions. West (2008) disclosed that the earnings-multiple approach was the most popular elementary technique and was the most favoured capital budgeting technique in general, with 36% of respondents revealing that they used it as a primary tool of analysis. Studies such as Graham and Harvey (2001)

and Daunfeldt and Hartwig (2012) also found evidence that companies use the earnings multiple approach in capital budgeting decisions. According to Daunfeldt and Hartwig (2012), the earnings multiple approach can be considered as a variation of the payback period technique, as it indicates the number of years that it will take to recover the initial investment of a project through earnings.

Respondents further revealed that the IRR was the more favoured DCF technique, with 27% declaring that they implemented the IRR as a primary technique. These findings contrasted with findings derived from other studies which investigated the capital budgeting practices of small and medium unlisted companies in South Africa, such as Gilbert (2003) and Fatoki *et al.* (2010). The latter had found a strong preference for techniques such as the payback period, return on investment and intuition as primary capital budgeting tools as well as higher implementation levels of the NPV approach compared to the IRR approach. West (2008) suggested that the disparity could be associated with differences in the samples selected and the industries that were surveyed but the superior capital budgeting practices that were found among the Alt X listed companies could be also be indicative of the underlying characteristics associated with small and medium companies that list on the Alt X. The possible additional pressure applied by external investors could affect the capital budgeting choices they make as they need to undertake projects that efficiently employ the capital provided by external investors in order to satisfy them through value maximisation

2.8 Conclusion

The literature review section of this dissertation has provided secondary data that forms the background for the rest of the study. It detailed the importance of capital budgeting among both small and large companies as this process dictates how a company's financial resources are employed to reach its objectives. The studies which investigated the capital budgeting behaviour of large companies found that their primary objective was to maximise shareholder wealth while alternative objectives such as maintaining the viability of the firm were favoured by SMEs. The results from studies of large companies such as Correia and Cramer (2008), Bennouna, Meredith and Marchant (2010) as well as Baker, Dutta and Saadi (2011) detected a pattern which suggested that the majority of large

companies tend to use discounted cash flow techniques in the capital budgeting decisions. In particular, their practices have aligned with the recommendations of financial theory that support the use of the NPV approach instead of the IRR measure.

Studies which focussed on the capital budgeting practices of unlisted SMEs found that possible alternative objectives (Chadwell-Hatfield *et al.*, 1997), cost constraints (Brigham, 1992) and the separation principle (Uddin, 2009) could affect their desire and ability to implement sophisticated capital budgeting techniques. Furthermore, studies such as Runyon (1983), Brigham (1992) as well as Danielson and Scott (2006) found that information asymmetry could often make it more challenging for unlisted SMEs to acquire capital than their larger counterparts. This has resulted in very little funding being available for capital budgeting among unlisted SMEs who felt that their smaller capital budget sizes were insufficient to warrant the use of advanced capital budgeting techniques. In addition, low education levels and limited knowledge about the DCF techniques have been associated with the inferior capital budgeting decisions of unlisted SMEs. Findings show that SMEs tend to rely on subjective judgement and intuition as well as the payback period when assessing proposed investments. The use of these techniques is decreasing with some studies revealing that SMEs use them as secondary techniques to support findings from their primary tools of analysis.

A limited number of studies have investigated the capital budgeting practices of listed SMEs around the world. West (2008) provided a glimpse into the capital budgeting behaviour of SMEs listed on the Alt X and found that some of their characteristics deviated from those of unlisted SMEs. That study found higher levels of academic qualification among decision-makers as well as larger capital budgets in Alt X listed companies, in comparison to their unlisted counterparts in studies such as Danielson and Scott (2006), Fatoki *et al.* (2010) as well as Olufunso *et al.* (2010). While the Alt X listed companies showed a stronger preference for the ROI measure as a primary capital budgeting technique, they also showed higher usage levels of DCF techniques than their unlisted counterparts. The next chapter details the research design and methodologies that will be used to identify the current capital budgeting techniques implemented by companies listed on the Alt X. These will also be used to analyse the findings of this study against those from similar studies previously conducted.

CHAPTER THREE

RESEARCH DESIGN AND TECHNIQUES

“A good plan is like a road map, it shows the final destination and usually the best way to get there.”

– H. Stanley Judd

3.1 Introduction

A research design is a structured plan or blueprint that details and describes the procedures that one intends on implementing during the research process in order to derive the research objectives and to expand existing knowledge and understanding (Babbie & Mouton, 2001). For example, before setting dates for the completion and ordering of the parts required for assembling a car, it is crucial that its manufacturers obtain relevant information about the car being assembled, its uses and the needs of its targeted customers. All this information is summarised in the manufacturer’s work plan. Similarly, researchers develop a research design which assists in ensuring that the strategy of inquiry, data collection methods and techniques employed in evaluating it produce the most relevant data that can be analysed in order to reach the objectives outlined at the beginning of their research endeavours. More formally, the purpose of a research design is to provide a plan of study that permits accurate assessment of the various relationships that exist between variables (Jang, 1980). Thus, the following sections elaborate on the research design of the study, focussing specifically on the strategy of inquiry and the research methodology that is applied throughout the study. They also describe the underlying research techniques used in the study.

3.2 Strategy of inquiry

Babbie and Mouton (2001) contend that a strategy of inquiry should primarily be based on the reasoning strategies used in the study. Inductive reasoning is rationalisation by which observations of particular cases are generalised to the whole class (De Vos, 2002; Neuman, 2006 and Reber, 1995). Leedy and Ormrod (2010) support this view by stating

that with inductive reasoning, researchers use specific instances or occurrences to draw conclusions about entire classes of objects and events. Qualitative research methods (as discussed in the next section) then stem from inductive reasoning as they are derived from real life observations, interpretation and understanding of phenomena. Alternatively, deductive reasoning assumes that if the premises are correct; the conclusion is implicitly or explicitly correct (McMillan & Schumacher, 2001). It follows that quantitative research methods are derived from deductive reasoning based on the assertion that quantitative research aims to confirm or predict reality through the application of various statistical and mathematical techniques (Mouton, 2002). Consequently, for this particular study the research objectives require that the application of both inductive reasoning (qualitative research) and deductive reasoning (quantitative research) be adopted. Quantitative research methods (as discussed in the next section) allow relevant primary data to be gathered from the respondents to the questionnaire. Statistical analysis of this data reveals crucial information that is essential to attaining some of the research objectives. Similarly, qualitative research methods that are responsible for exploring, describing and interpreting both primary and secondary data, play an important role in achieving some of the other research objectives (refer to section 1.4). Kaplan and Duchon (1988) support the conclusion of applying both reasoning strategies to the study by stating that no single research strategy is intrinsically better than another and that a combination of research strategies ultimately improves the quality of research. The specific qualitative and quantitative research methods that the study adopts are discussed in the next section.

3.3 Research methodology

Numerous methodologies are available to researchers that assist them in conducting the intended research and in interpreting information. Galliers (1991) identified fourteen different methodologies while Hofstee (2010) recognised at least sixteen different categories of research methodologies. However, the suitability of each methodology is determined by the research objectives that guide a particular study. As a result, the methodology applied in this study is based on five approaches; namely, the survey based, descriptive and comparative approach, also focussing on an extended literature reviews and secondary data analysis. The table below provides a comprehensive list of some of the most predominant research methodologies commonly used by researchers and

broadly classifies them as either quantitative (scientific) or qualitative (interpretivist). This is followed by a discussion of the five methodologies adopted in this study and justifies their appropriateness for the intended research in terms of the specified research objectives.

Table 2: Research methodologies

Quantitative (scientific) methods	Qualitative (interpretivist) methods
Theory development	Action research
Survey based research	Content analysis
Correlation based research	Descriptive research
Case studies	Case studies
Critical theorem proof	Historical studies
Forecasting	Evaluative research
Laboratory experiments	Comparative analysis
Simulation/ statistical modelling	Ethnographic research
Field experiments	Extended literature reviews
	Secondary data analysis
	Interdisciplinary research

Adapted from Galliers (1991) and Hofstee (2010)

3.3.1 Survey based approach

The survey based research enables the researcher to obtain data about practices, situations or views at one point in time through questionnaires or interviews. One of the key objectives of this study is to identify the capital budgeting techniques used by companies listed on the Alt X and a comprehensive questionnaire is required to obtain relevant information from the sampled companies. The survey based approach allows a researcher to study more variables at the same time compared to other approaches such as case study based research and laboratory experiments. The Alt X listed companies that are being investigated as well as the capital budgeting decisions and techniques they employ all form part of the “regular” activities that allow these companies to operate as going concerns. The survey based approach permits the researcher to collect factual data

about real world environments, making it ideal for the collection of data from companies that operate in a dynamic environment. Unlike field experiments and correlation based research that offer insight into the relationships that exist among variables and are void of biases because of their scientific nature; the survey based approach is exposed to the biases of respondents and does not yield any insight into the cause of the relationships and occurrences being investigated. Other approaches must be incorporated in conjunction with survey based research in order to effectively analyse the phenomenon under investigation.

3.3.2 Descriptive and exploratory research

From the viewpoint of the objectives of a study; research can be broadly classified as descriptive, correlational, explanatory or exploratory (Kumar, 2005). The descriptive approach to research attempts to systematically describe a situation, problem or phenomenon, while correlational research attempts to discover or establish the existence of a relationship or interdependence between two or more aspects of a situation (Nargundkar, 2003). Engel and Schutt (2009) described explanatory research as an approach that aims to establish why and how there is a relationship between the various elements of a situation or phenomenon and continues to further explain that exploratory research is undertaken to explore and investigate an area where little is known. Given that the theory of capital budgeting techniques, as proposed in this study, is not a new concept in financial management literature, the study will adopt a descriptive approach in terms of the general capital budgeting techniques implemented by the JSE and Alt X listed companies. There is no exclusivity between exploratory, descriptive and explanatory research. In fact, some of the best studies apply various permutations of these different classifications of research (Yin, 1984). Based on the fact that one of the primary objectives of the study is to identify the capital budgeting techniques used by the companies listed on the Alt X and analyse the disadvantages and challenges encountered by the Alt X companies, specifically with regard to the capital budgeting technique that most of them prefer, the research conducted will also be based on an exploratory approach that relies on the primary data collected.

3.3.3 Comparative analysis

The study applies comparative analysis in conducting this research. Hofstee (2010) describes comparative analysis as an approach where the researcher investigates, in a focussed and systematic manner; two or more items in depth and compares them to each other to find the reasons for the difference or similarity. Apart from identifying the capital budgeting practices of the Alt X listed companies, the study also aims to compare the identified capital budgeting practices of the Alt X listed companies to the practices of their counterparts on the main board of the JSE. This necessitates the need for a comparative analysis.

3.3.4 Extended literature review

The study utilises an extended literature review as a method of research. While new information will be disclosed through this study with regard to the capital budgeting practices of the Alt X listed companies, the extended literature review will establish the general implications of these practices as well as disclose the pre-existing knowledge with regard to the capital budgeting practices of the companies in similar studies and those listed on the main board of the JSE. While only one study has attempted to identify the capital budgeting practices of the small and medium companies listed on the Alt X, various studies have explored the capital budgeting practices and behaviours of unlisted companies in South Africa based on their geographical location or industry they operate in such as Fatoki *et al.* (2010).

The information gathered through the extended literature review will allow for proper analysis of the new information, based on what is known about the implications of each capital budgeting technique. The extended literature review will also form basis for comparison between what is discovered about the Alt X listed companies and pre-existing knowledge on the companies listed on the main board with regard to their capital budgeting behaviour.

3.3.5 Secondary data analysis

The secondary data analysis allows a researcher to study data that was collected by previous researchers either to check an aspect of their work or to answer other questions and to realise certain research objectives (Hofstee, 2010). Even though primary data constitutes the fundamental tool of gathering information based on the key objectives of this study, secondary data analysis is a beneficial methodology with regard to reviewing similar studies that were conducted in different settings. The secondary data analysis establishes techniques and strategies that were implemented in previous studies and identifies the ones most appropriate to guide this study. As a result, various local and international journal articles focussing on the capital budgeting practices of small and medium sized companies will be consulted. The section that follows details the research techniques implemented throughout the study in order to achieve the research objectives of the study.

3.4 Research techniques

The research techniques that will be implemented throughout the study emanate directly from the research strategy discussed earlier. They also fortify the research methodologies adopted for this study and reinforce their commitment to achieving the research objectives. The section below discusses the research techniques used concentrating on the different elements of the sampling design, data collection as well as data analysis techniques.

3.4.1 Sampling design

One of the principal objectives outlined for this study is to gather primary data with regard to the capital budgeting practices of the companies listed on the Alt X. A questionnaire was deemed most appropriate for this purpose and as such, will be issued electronically to the target population derived from the units of analysis. Mouton (2001) described a unit of analysis as a factor or entity being studied encompassing various concepts such as social actions and events, individuals, countries or cultures as well as organisations and institutions. For the purpose of this study, the units of analysis are defined as all the business organisations that were listed on the Alt X of the JSE. The sampling criteria are

then responsible for isolating certain units of analysis into a group referred to as the target population. It is from this target population that the sample will be selected using the sampling criteria and sampling technique.

3.4.2 Sampling criteria

For inclusion in the target population, the units of analysis have to fulfil the following criteria:

- They must be classified as small to medium enterprises, in their respective sectors, according to the definitions contained in the Government Gazette of the Republic of South Africa.
- Their primary listing must be on the Alt X board. Companies, whose listing on the Alt X is considered secondary, will be excluded for the purposes for this study.
- Companies considered for inclusion should not be facing any suspension from the Alt X.
- Companies that will be included in the target population must have data that is available, transparent and consistent.
- The contact details of the company must be readily available on their company website to allow for the distribution of questionnaires.

3.4.3 Sampling technique

The choice of a specific sampling technique is guided by the research objectives and the nature of the population being surveyed (Dusabe, 2006). One of the key objectives of the study is to gather primary data about the capital budgeting practices of the Alt X listed companies. There are currently 62 companies listed on the Alt X division of the JSE, representing the total number of units of analysis available for the study. The target population has the potential of being smaller than the total number of units available based on the process of elimination that is induced by the sampling criteria. At the commencement of this investigation, one company had delisted and a further eight could not be included in the target population due to the fact that their primary listings were on

other exchanges⁹. It was discovered that a further six companies were suspended from the Alt X and as a result, these companies were also excluded from the study. This resulted in a target population of 47 companies. Guidelines offered by Gay, Mills and Airasian (2006) recommend that for populations of less than 100 units, sampling would be inappropriate and that surveying the entire targeted population is the most pertinent procedure to gathering the required primary data. Consequently, the entire target population of 47 companies, derived from the sampling criteria, will be surveyed for this study. The section below discusses the procedures that will be used to obtain the data necessary for this investigation.

3.5 Data management approach

The data management approach that is detailed in this section describes the data collection procedures that will be used to gather data for the study. It also discusses the questionnaire that will be used to gather primary data directly from the targeted population. This section also discloses how the primary and secondary data collected, will be recorded and analysed in order to reach the objectives of the study.

3.5.1 Data collection procedure

The data collection procedure used in a study should be associated with the strategy of inquiry and the research methodology adopted for a study. Saunders, Lewis and Thornhill (2009) identified several avenues available for data collection which include questionnaires, sampling, secondary data, observations as well as semi-structured, in-depth or group interviews. Based on the research objectives of this study, data collection will occur through a questionnaire and secondary data. Administering a questionnaire is the most effective procedure of gathering primary data for this study, given the nature of the units of analysis and the type of data needed to achieve some of the research objectives.

⁹ Please refer to Appendix A which details the full list of companies included in the target population as well as justification for those excluded. Companies excluded from this study are highlighted in blue.

3.5.1.1 Webpage creation

For the purpose of this study, a webpage was created where respondents could access and complete the questionnaire anonymously. The webpage is powered by Survey Monkey, an online survey software and questionnaire tool that allows users to create and distribute unique questionnaires based on their objectives and targeted audiences. It also allows users to collect and browse through individual responses and offers various tools of analysis that assist researchers in examining collected data. Survey Monkey can generate frequencies, custom reports and charts while permitting users to export data to programs like SAS and SPSS for more complex analysis. The software is also able to filter results and cross tabulate data from different questions.

3.5.1.2 Survey design

The survey designed to gather primary data about the capital budgeting practices of companies listed on the Alt X contains 28 questions. These questions are grouped into sections that aim to gather specific data about different aspects of each company's capital budgeting practices. Section A of the survey was designed to gather information regarding the demographics of each respondent and the profile of the company that each respondent represented. Seven questions regarding the tenure of each respondent, academic qualification as well as the goals of the company were included in this section. Section B of the survey was intended to collect data about various aspects which surrounded the capital budgeting process of each company. Respondents were asked to disclose how actively involved they are and how frequently they engaged in the analysis of potential investments using capital budgeting techniques. Respondents were also asked about the various sources of long-term funds they rely on to fund proposed projects and the average size of the capital budgets they have at their disposal each year. This was the biggest section of the survey and it contained 13 questions which also aimed to retrieve information about the actual capital budgeting practices implemented by companies listed on the Alt X in their capital budgeting decisions. Questions about the primary and secondary capital budgeting techniques that are implemented by each company were also included in this section.

Furthermore, respondents were asked to indicate how frequently they used these techniques to evaluate various investment activities and whether they encountered instances of capital rationing when evaluating multiple proposed projects. The final section of the survey included 6 questions related to their use of discount rates for capital budgeting purposes. Respondents were asked questions regarding the approaches they use in determining an appropriate discount rate and how often they recalculate it. The entire survey used to gather primary data for this study is included as Appendix D at the end of this document.

3.5.1.3 Pilot testing and survey distribution

As a preliminary test of the webpage and the questionnaire, a pilot test was conducted. The hyperlink associated with the questionnaire was sent out to various colleagues, friends and family members who were asked to complete the survey and offer their opinions and feedback on the design, content and functionality of the web-based survey. The purpose of the pilot test was to increase the quality of the survey and to rectify any observed problems before it was administered to the survey sample. Iraossi (2006) stated that responses from the pilot test allow a researcher to obtain feedback on elements such as wording and question clarity as well as to establish the amount of time required to complete the survey. Finally, conducting a pilot test of the survey will also allow the data collector to verify how the collector settings on data collecting software like Survey Monkey function.

Once feedback from the pilot testing has been analysed and incorporated to improve the survey, telephonic contact will be established with each of the identified personnel in each company that are most likely to be knowledgeable with regard to the company's capital budgeting decision-making process such as the Chief Executive Officer, the Chief Financial Officer and the Financial Director. The objective of contacting potential respondents in advance is to establish personalised correspondence with each individual, inform them about the survey, its confidentiality and how responses will be used. The purpose of the initial contact with respondents will also be to verify their e-mail address and to obtain an address where company websites had not provided any. Odom (1979) found that it helps increase the response rate observed for a study if initial communication

informing potential respondents about the survey is personalised. Wiseman (2009) also conducted research to investigate the effects of the initial mode of contact on the response rate and data quality. He found that personalised correspondence such as telephonic communication, hand-signed letters as well as letters addressed to specific respondents increased the response rates of both web-based and mail surveys. An e-mail will subsequently be sent to these personnel members briefly describing the nature and purpose of the study and inviting these potential respondents to visit the webpage through a hyperlink that will be included in the e-mail for added convenience and ease of access.

Similarly, information extracted through secondary data is essential for achieving the other objectives that require a more descriptive and interpretive approach. This data is represented in the extended literature review and contains information that will assist in the comparison and analysis of the new data gathered through the survey instrument. Both data collection procedures to be applied in this study complement the strategy of inquiry as well as the various methodologies that will be utilised in the study.

3.5.2 Data recording method

All the questionnaires that are completed by respondents on the webpage, as well as the computer-generated output from each questionnaire are automatically saved by Survey Monkey and are available for the researcher to review, analyse and download at any stage. All data collected will be saved into file on a computer and a back-up will be created on a flash disc. The completed questionnaires will also be printed so that hard copies can be filed. Once sufficient data has been gathered from the questionnaires, a database will be compiled using a Microsoft Excel spreadsheet that will contain all the responses necessary for identifying the capital budgeting practices of the Alt X companies. The database will then be used to statistically determine the capital budgeting technique that is most commonly used by these companies and to determine other relevant statistics.

3.5.3 Data analysis

Dusabe (2006) argues that data analysis techniques need to be disclosed and described as the research findings are analysed on the basis of these methods. As with the data

collection procedure, the data analysis method implemented in a study is dependent upon the strategy of inquiry (inductive or deductive) as well as the research methodology (qualitative or quantitative). It was established in earlier sections, based on the nature of the proposed research, that a mixed-method approach would be most effective in terms of the research strategies and methodologies used for the study. The data analysis methods that will be used need to embody characteristics that are appropriate for both inductive/qualitative and deductive/quantitative research. Consequently, the study has chosen to follow a content analysis approach as well as a statistical data analysis approach to some extent. Coolican (1994) described content analysis as an objective procedure used when originally qualitative information is reduced to numerical terms and involves the detailed study of the output from a literature review. The nominal data collected from the questionnaire will be analysed using a statistical approach through functions embedded in the Survey Monkey software are an ideal approach for quantitative data analysis. The statistical data analysis approach will quantify measures of central tendency like the mode (most frequently occurring score) in order to derive valuable information, such as the capital budgeting technique that most of the Alt X companies use.

3.6 Other considerations

The research design and methods implemented in a study must be described and explained by a researcher in order to provide an unambiguous understanding of the various procedures, techniques and approaches that were used to extract data. However, to ensure that the research design detailed in the previous section will yield the required data needed to meet the research objectives, its quality and credibility must be assessed.

The section below demonstrates the quality and credibility of the proposed research design. This is followed by a discussion of the potential biases that could arise during this study as well as the ethical considerations that will be contemplated for the purpose of this investigation.

3.6.1 Quality assessment

Certain measures will be applied to the research design in order to ensure its quality and to enhance the mixed-method approach that is adopted for the study. According to Lincoln and Guba (1985) there are specific criteria used for evaluating the trustworthiness and authenticity of both qualitative and quantitative research. They are summarised in the table below. A discussion of how these criteria will be applied to the study is also contained below.

Table 3: Criteria used for measuring the trustworthiness of qualitative and quantitative research

Qualitative Criteria	Quantitative Criteria
Credibility	Internal Validity
Dependability	Reliability
Confirmability	Objectivity

Source: Lincoln & Guba (1985)

3.6.1.1 Credibility and internal validity

A triangulation strategy will be used to ensure that the study provides accurate descriptions and interpretations of the qualitative data. Triangulation involves using more than one method or source of data in the study of a phenomenon. This will be done through the extended literature review and secondary data from previous studies to confirm the interpretation presented in the study. Multiple reliable authors and sources will be consulted in order to ensure the accurate description and interpretation of the qualitative concepts, which will in turn enhance the credibility of the current research. Validity of research deals with the accurate interpretability of the results (Wiersma & Jurs, 2004). The internal validity of the study will be established through the use of a questionnaire that derives the actual reality and conditions experienced by the respondents. Questionnaires will be conducted electronically which allows respondents to be more honest and the validity of the data is improved because explicit interviewer biases

are avoided. Questionnaires will be completed anonymously on the webpage in order to further enhance the validity (McMillan & Schumacher, 2001). Respondent validation will also be used, which involves submitting the research findings to members of the target population that were studied for confirmation that the interpretation is accurate.

3.6.1.2 Dependability and reliability

To ensure the dependability of the qualitative data analysed throughout this study, the research methods applicable to this study will be described in detail. Complete records of all the research phases - from problem formulation to data analysis - will be kept and made accessible. Peer reviews will also be used to assess that the research design is suitable and applicable with regard to the research objectives and that its implementation is consistent with the chosen methodologies. Reliability of the quantitative research concerns the consistency and the ability to replicate the methods, conditions and results of a study (Wiersma, 2000). To increase the reliability of the questionnaire, respondents will be treated with anonymity and their responses with confidentiality. Furthermore, the questions contained in the questionnaire will not contain ambiguous terms that might have an effect on the responses or persuade the responses given by respondents in any direction.

3.6.1.3 Confirmability and objectivity

“Confirmability is concerned with ensuring that, while recognising that complete impartiality is impossible in business research, the researcher can be shown not to have overtly allowed personal values and theoretical inclinations to sway the conduct of the research and findings derived from it” (Lincoln & Guba, 1985). Reflexive analysis as described in Krefting (1991) will be used as a strategy of confirmability through which the researcher remains cognisant of his or her influence on the research and the data collected. To improve the objectivity of the data collected from the questionnaire, an unbiased target population will be used and leading questions will be omitted from the questionnaire. The section that follows discusses the potential biases that may arise during this investigation and how they will be overcome. This is followed by a segment detailing the ethical considerations associated with this study.

3.7 Potential biases

Dawson (2002) describes biases as a deliberate attempt to either hide what you have found in your study or to highlight something disproportionately to its true existence. As a result, biases that are not subconsciously suppressed often pose a threat to the reliability of research findings. Three potential biases that could have an adverse impact on the investigation were identified and a discussion of each one follows.

3.7.1 Interviewer bias

This bias arises when the interviewer attempts to impose their own beliefs and frame of reference through comments made, tone of questioning and non-verbal behaviour. To avoid this bias, the questionnaire will be externally evaluated in order to identify any implied interviewer biases before being administered to respondents. Conducting the questionnaires electronically, instead of telephonic or personal interviewing, allows the respondents to answer the questions without experiencing any bias from the interviewer. Another way through which interviewer biases may manifest is the manner in which the interviewer interprets responses. Reflexivity, as discussed earlier will be used as a tool throughout the research process to maintain objectivity and to remain aware of any researcher influence that might be exerted on the data.

3.7.2 Response bias

Response bias, in the context of this study, suggests that there is a difference between the capital budgeting practices employed by respondents and non-respondents. In principle, respondents may be willing to participate in the questionnaire but may ultimately paint a partial picture of reality. This is done by providing limited information on the questionnaire based on their perception of the intrusiveness of certain questions or the sensitivity of the information requested (Saunders *et al.*, 2009). In an attempt to reduce non-response bias, two reminder e-mails will be sent to the survey sample inviting them to participate in the survey if they have not already done so. According to Baker, Dutta and Saadi (2010), ensuring that a survey is reasonably short and easy to complete could reduce non-response bias. As a result, the questionnaire contains short effective questions that require

potential respondents to select options rather than to manually complete them. The questionnaire is also designed using the Likert scale method and the survey consequently requires less than 15 minutes to complete based on findings from the pilot test. A cover letter will also be attached to the initial e-mail sent to all the relevant personnel, explaining the nature of the research; the webpage and why certain information is required from them. The cover letter will attempt to reduce response bias by guaranteeing the confidentiality of the potential respondents regarding the information they disclose as well as their anonymity. Furthermore, the cover letter will explicitly state that the information gathered from the questionnaire and any other source is strictly for research purposes and will not be used in any other way to the detriment of the respondents or the organisations they represent.

3.7.3 Social desirability (prestige bias)

This bias reflects the tendency of respondents to provide socially desirable rather than honest answers on questionnaires or in interviews (Dörnyei & Taguchi, 2010). According to Mitchell (1996), this bias can be overcome by using an alternative form approach which requires comparing responses to alternative forms of the same question in order to test the reliability of responses.

3.8 Ethical considerations

In the context of research, ethics refer to the appropriateness of the researcher's behaviour in relation to the rights of those who become subjects of your work or are affected by it (Saunders *et al.*, 2009). The following are some of the ethical considerations associated with this study:

- The researcher needs to adhere to high ethical standards by avoiding any biases throughout the investigation.
- Informed consent from the respondents is critical; the absence of this will render the information collection process unethical.

- Providing any incentives to respondents in order for them to participate in the study is widely deemed as unethical behaviour of the researcher. Consequently, respondents will not be offered any incentives for their co-operation.
- The comfort and privacy of all the participants will be respected at all times during and after this study. This will be done by carefully considering the sensitivities of the respondents and maintaining a high degree of confidentiality.
- Once information is gathered, it will be used appropriately and care will be taken to ensure that the information used has no adverse effect on the respondents; directly or indirectly as this is considered unethical conduct.
- Finally, due diligence will be exercised to avoid incorrect reporting or distortion of the research findings in favour of the researcher or third party interests.

3.9 Conclusion

The previous chapter discussed capital budgeting techniques and how they are implemented in determining the viability of a proposed investment or project. Capital budgeting theory had been used extensively to determine the capital budgeting techniques of firms in many studies both locally and internationally. Capital budgeting theory supported the NPV approach as the most effective technique when determining the wealth maximisation potential of various proposed projects. Studies conducted from the 1970s through to 2005 in other countries and in South Africa found evidence that supports capital budgeting theory, revealing that firms generally prefer to implement advanced capital budgeting techniques, although they do this at differing degrees. However, researchers in the 1970s had already started questioning the applicability of capital budgeting theory to SMEs. Studies confirmed that SMEs possessed certain characteristics and were exposed to various external and self-imposed challenges, which reduced the applicability of existing capital budgeting theory to SMEs. Investigations concluded that SMEs actually implemented elementary capital budgeting techniques (like the payback period) instead of the NPV approach that had been endorsed by capital budgeting theory. This was a direct consequence of their characteristics and the challenges they faced in attempting to acquire external funds. Local and international studies found data which confirmed the

choices of capital budgeting techniques of small firms and their tendency to rely on elementary techniques.

Although the Alt X listed stocks are categorised as SMEs, the fact that they are listed on a regulated exchange reduces their exposure to the difficulties they might have faced in capital markets if they were not listed. It also moderates some of the inherent characteristics associated with SMEs, such as the lack of knowledge of advanced capital budgeting techniques or the lower levels of skills and educational qualifications associated with the decision-makers in unlisted SMEs.

The primary objective of this study is to investigate the capital budgeting techniques of the Alt X companies, given their reduced exposure to the capital budgeting difficulties endured by other SMEs. The study aims to investigate whether they still implement the elementary capital budgeting techniques of typical SMEs or if their unique characteristics are reflected in their choice of an alternative capital budgeting technique. These objectives and the other intentions of this study as detailed in chapter one will be investigated and evaluated using the research design and methodologies discussed in this chapter; which aim to deal with each aspect of the study effectively in order to derive the research objectives.

CHAPTER FOUR

PRESENTATION, ANALYSIS AND INTERPRETATION OF RESEARCH FINDINGS

“All truths are easy to understand once they are discovered; the point is to discover them.”

- Galileo Galilei

4.1 Introduction

The research design and techniques detailed in the previous chapter form an integral part of this empirical study and serve as a compass to guide the collection, investigation and deciphering of primary and secondary data. The purpose of this chapter is to disclose the primary data gathered through the self-administered survey¹⁰ and to analyse, interpret and compare the findings derived from it to those extracted from similar studies detailed in the literature review. The primary data collected were divided into three sections, according to the nature and purpose of the information amassed and as a result, each section will be presented and analysed separately. Before the discussion of the primary data gathered from the survey commences, the chapter begins by discussing survey results, the response rate achieved from the study.

This chapter then presents the demographic data gathered from the questionnaire which shed light on the characteristics of the survey respondents, as well as on the profile of the companies they represent and their objectives. The data collected from this section of the survey will be compared to similar data uncovered in the studies discussed in the literature review. The purpose of this information is to enable the researcher to formulate a distinct analysis of the data derived from subsequent sections of the survey in context with background understanding the researcher would have obtained with regard to the decision-makers and the companies they represent.

¹⁰ Please refer to Appendix B which includes the questionnaire used to gather primary data for this study

The chapter continues with a comprehensive analysis and interpretation of the actual capital budgeting practices that are being implemented by survey respondents. This section will disclose the capital budgeting technique that is most favoured by the Alt X listed companies and will include an analysis of the specific advantages and disadvantages they encounter from implementing their preferred capital budgeting tool. Research findings from this section of the survey also disclose information with regard to the occurrence and causes of capital rationing in Alt X listed companies. The data from the investigation that are presented in this section are gauged against the research findings contained in previous studies to detect trends and changes in the capital budgeting behaviour of Alt X listed companies. These fluctuations will be compared to those observed in unlisted SMEs and large companies, both locally and internationally.

This chapter also examines information gathered with regard to the acceptable rate of returns applied by companies listed on the Alt X in their capital budgeting decisions, methods used to determine the appropriate rate as well as the frequency at which they recalculate it. Once more, statistics published in this section will be compared to those captured in previous studies to allow the researcher to evaluate the choices of Alt X listed companies against those of their unlisted counterparts as well as larger companies.

This chapter concludes by summarising all the findings extracted as primary data from the survey and the interpretation thereof, both in isolation and comparison to the research findings derived from the studies discussed in the literature review. The final section of this chapter will also detail how the information gathered through the literature review and the self-administered questionnaire ultimately fulfilled all the research objectives outlined at the beginning of this study.

4.2 Survey results

Analysis of the 62 companies listed on the Alternative Exchange at the time that the survey was being administered revealed that eight of them were listed on the Alt X as a secondary listing. Five companies were primarily listed on the Alternative Investment Market (AIM) in London and one on the main board of the London Stock Exchange. The remaining two, in addition to being listed on the Alt X, were also listed on the Euro

Multilateral Trading Facility in Luxembourg and on the Malaysian Stock Exchange respectively. Furthermore, as at 1 June 2012, when the survey was being issued to companies listed on the Alt X, it was discovered that one had since delisted from the exchange while another six were facing suspension from the Alt X which technically meant that they were not actively listed members of the exchange¹¹. Based on the inclusion criteria detailed in the previous chapter, these fifteen companies were automatically excluded from the survey and consequently, 47 companies were approached to participate in the study. The resultant target population was smaller than the population analysed by West (2008) because that study did not distinguish between primary and secondary listings of companies. In order to obtain a more accurate understanding of the capital budgeting practices used by South African SMEs listed on the Alt X, the effects of external influences on the data from companies listed elsewhere were excluded from the study. The exclusion of these companies corresponds with findings from Pattillo (1981) as well as Andor, Mohanty and Toth (2011) who revealed that differences between the corporate governance and ownership structures of individual countries could affect the financial practices and capital budgeting decisions of companies that primarily operate there.

At the end of the survey period, fifteen respondents had participated in the study, which represented a response rate of 32%. The response rate achieved for this study was considerably higher than the response rate recorded for a comparable web-based survey by West (2008) which achieved a response rate of 19%. It was also higher than the response rate of 10% that was achieved by Andor, Mohanty and Toth (2011) who surveyed small firms in the central and eastern regions of Europe. However, it was much lower than the response rates of other local studies that investigated the capital budgeting practices of SMEs such as Fatoki *et al.* (2010) which achieved a response rate of 81%. It was also lower than studies that focussed on larger companies such Hall and Millard (2010) which obtained a response rate of 61%. The response rate achieved for the current study did resemble response rates from U.S studies of SMEs such as Runyon (1983) as well as Block (1997) which reported response rates of 25.4% and 27.29% respectively. Furthermore, Baker *et al.* (2011) who investigated the capital budgeting practices of small and large companies in Canada and achieved a response rate of 28%.

¹¹ Appendix A contains a list of all the companies listed on the Alt X as on the 1st of June 2012 and identifies those that were excluded from the study (those companies are highlighted in blue).

4.3 Demographic composition of respondents

Respondents were asked to reveal the current job title they held within the company they represented. The purpose of this information was to establish the suitability of the respondents in terms of them being knowledgeable about the capital budgeting practices of the company. This information would also be useful in comparing the decision-makers in Alt X listed companies to those of their unlisted counterparts and large companies. Respondents were also asked to reveal the academic qualifications that have attained. This information would assist in evaluating their capital budgeting decisions and for comparison with other SMEs and large companies.

4.3.1 Job titles of respondents

The most common positions held by respondents were that of a CFO and financial director, each representing 26.7% of the respondents. This was followed by positions such as financial manager (20%), CEO (13.3%), as well as CIO and chief corporate accountant with 6.7% respectively. A further 6.7% chose the “other” category and specified that they held the position of group financial manager¹². This is comparable to previous studies, such as Baker, Dutta and Saadi (2011), where respondents were predominantly CFOs as well as the study by Hall and Millard (2010) in which 50% of the respondents were financial managers. Furthermore, West (2008) specifically targeted CFOs as potential respondents in a study to determine the capital budgeting practices of companies listed on the Alt X. The job title of the respondents assists the researcher in assessing the suitability of the respondents and the knowledge they might possess with regard to the capital budgeting practices of the company. All the positions held by respondents are those of personnel most likely to be able to answer questions regarding the company’s capital investment practices comprehensively.

When asked about the duration of their tenure in the companies they represent, 53.3% of respondents revealed that they had held their current position in the company for a period

¹² For every question in the survey where respondents were given a list of alternatives, the “other” option was also included to allow respondents to disclose an answer not included on the list of options and to increase the accuracy of the findings.

of between one and five years, 40% of them for less than a year, while 6.7% indicated a period of five to ten years. A majority of the respondents have been employed in their current positions in the companies they represent for a period of time that would allow them to understand the operations of the company as well as the processes and techniques they implement as part of their capital budgeting strategy.

4.3.2 Academic qualifications

The highest academic qualification attained by 46.7% of respondents was that of a chartered accountant CA(SA), followed by an honours degree (26.7%), a master's degree (20%) and finally a bachelor's degree for 6.7% of the respondents. Higher levels of academic achievement were recorded in studies that investigated larger companies such as Bennouna *et al.* (2010) which found that 59.7% of their respondents held master's degrees or higher and that 40.3% of them had undergraduate degrees. While the academic qualifications of the respondents of this study are overshadowed by those attained by their counterparts in larger firms, these respondents representing the Alt X outperformed their counterparts who also represented smaller firms. The study by Danielson and Scott (2006) revealed that 52% of their respondents did not have an undergraduate degree and that only 13% of them held degrees superior to the undergraduate qualification. Similarly, a study by Olufunso *et al.* (2010), which analysed unlisted SMEs in the Eastern Cape province, found that the highest academic proficiency among 44% of the respondents was a high school certificate, 28% obtained diplomas, 18% held bachelor degrees and only 3% held a master's degree and above.

Fatoki *et al.* (2010) observed that low levels of financial literacy can impact the extent to which decision-makers in SMEs implement sophisticated investment appraisal techniques. Respondents from this study exhibited a stronger inclination to academic achievement than was previously anticipated due to the findings released by previous studies on both international and local SMEs. Furthermore, as discussed earlier, the Alt X requires all directors of companies that list on the exchange to enrol in the Directors' Induction Programme that they offer in partnership with the Witwatersrand Business School. This programme serves as additional training for decision-makers with regard to their responsibilities and liabilities as well as techniques of financial analysis. These findings,

that reveal higher levels of academic qualification among respondents from the Alt X in conjunction with the Directors' Induction Programme, suggest a level of financial education and sophistication that possibly distinguishes the decision-makers of Alt X listed companies and gives them a firm advantage over their unlisted counterparts in their capital budgeting decisions.

4.4 Analysis of company profiles

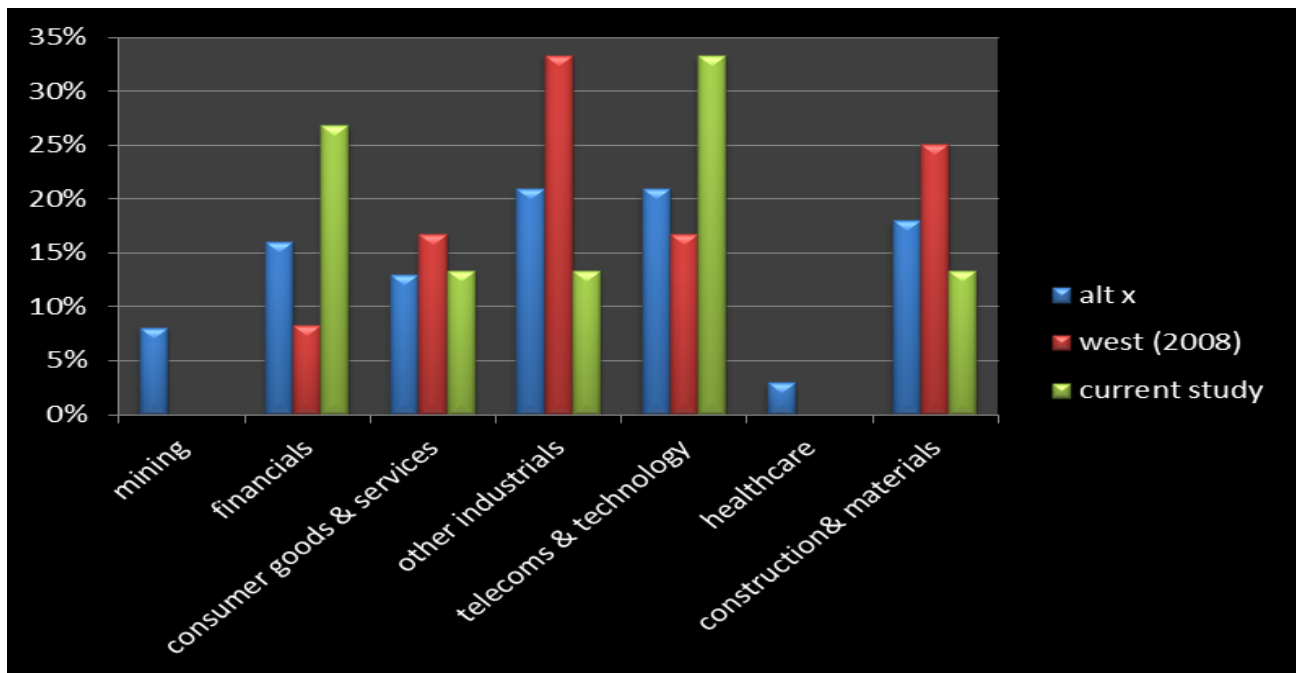
While it was important to assess the demographic composition of the respondents to the survey, it was of equal importance to examine and understand the various profiles of the companies that each respondent represents. Respondents were asked to disclose information about the sector in which their companies operate, their reasons for listing on the Alt X and some of the operational objectives of the company. This analysis further allows the researcher to access information about the company that will be used to contextualise the findings of this investigation.

Data from the survey revealed that 33.3% of the respondents operate in the technology sector and 26.7% represent the financial services sector. The retail and wholesale sector as well as the construction industry are each represented by 13.3% of respondents. The balance of the respondents were evenly distributed between property and media activities. The variety of sectors that were captured in this study is similar to those captured in the study by West (2008) and resembles those represented on the Alt X. This reduces the sector-related bias that could have resulted if the respondents were concentrated in a specific industry as the data and findings derived from the study would be weighted with responses from only a few industries rather than representing the practices employed by the targeted population. The graph below compares the actual sector representation on the Alt X to the sector representation captured in the study by West (2008) and to the current study. As illustrated in the graph, the Alt X has a slightly higher concentration of companies in the telecoms and technology sector as well as in the category classified as other industrials. On the other hand, the mining sector and the healthcare sector had relatively low representation on the Alt X. The respondent-sector distribution in both studies of Alt X listed companies captured this by showing higher percentages of respondents from the telecoms and technology sector as well as other industrials. Both

studies also showed lower percentages of respondents from the mining and healthcare sectors, which mirrored their actual representation on the exchange.

This also increases the viability of the results derived from the study as the companies that participated in the survey represent the population from which they were derived. This means that the findings reflected here are not biased to capital intensive sectors such as manufacturing, property development or construction, which often require larger capital budgets than labour intensive sectors such as consulting and service provision.

Graph 3: Sector representation on the Alt X, in comparison to West (2008) and the current study.



This outcome is also comparable to the variation in the sectors represented in previous local studies of SMEs, such as the study by Brijlal and Quesada (2009) which found that respondents were distributed between the services sector (46%), the retail sector (34%) and the manufacturing sector (20%). International studies on small companies, such as the study conducted by Danielson and Scott (2006), also emphasised the importance of data that reflected a wide range of sectors and found that 48% of their respondents were from the retail/wholesale sector, while 20% represented the services sector and 24% operated in the construction/manufacturing sector.

When asked how long their respective companies had been listed on the Alt X, 46.7% of the respondents revealed that their companies had been listed on the exchange for five years while 6.7% of the companies had been listed for a decade. This was followed by listing periods of four years and six years, which were each selected by 13.3% of the respondents. The rest of the respondents were distributed equally between the one year, two year and four year listing period categories. The listing periods disclosed by respondents suggest that managers have developed a success track record and a long history of compliance to the Alt X requirements and regulations.

4.4.1 Reasons for listing on the Alt X

Respondents were then asked to disclose one of the reasons that most accurately describe why the companies they represent chose to list on the Alt X. A majority of the respondents (66.7%) stated that increased access to capital and future financing opportunities was a driving force that motivated their companies to list on the exchange. This fact is indicative of the challenges that most unlisted SMEs experience in the pursuit of the necessary funds that encourage development and sustainability of the business. Suppliers of both debt and equity capital become more willing to lend the company money and to invest in it as information regarding the company's financial health becomes publicly available and its operations are regulated to some extent by the rules of the Alt X. Listing thus reduces the perceived risk associated with the company, making capital suppliers more inclined to finance the growth opportunities presented by these listed companies, which ultimately attracts unlisted SMEs to the Alt X.

Increased visibility and prestige were identified as reasons for aspiring to list on the Alt X by 20% of the respondents. The Toronto Stock Exchange explains that the benefits of increased visibility and prestige from listing arise from greater public awareness through media coverage as well as the coverage that a company's shares will receive from sector investment analysts. A further 6.7% of the respondents indicated that providing liquidity for existing shareholders was a primary incentive for listing as the company's shares become readily tradable in the market. The Toronto Stock Exchange further states that listing provides investors with an efficient and regulated avenue through which they can conveniently trade their shares. The remainder of the respondents (6.7% of them) used

the “other” option provided for the question to disclose that the desire to attract Tier 1 clients influenced their decision to seek a listing on the Alt X. Tier 1 clients are typically high net worth individual investors (Collins Stewart Wealth Management, 2012). None of the respondents indicated the possibilities of creating an employee incentive mechanism, attracting institutional investors or the desire to eventually progress onto the main board of the JSE as reasons for listing on the Alt X.

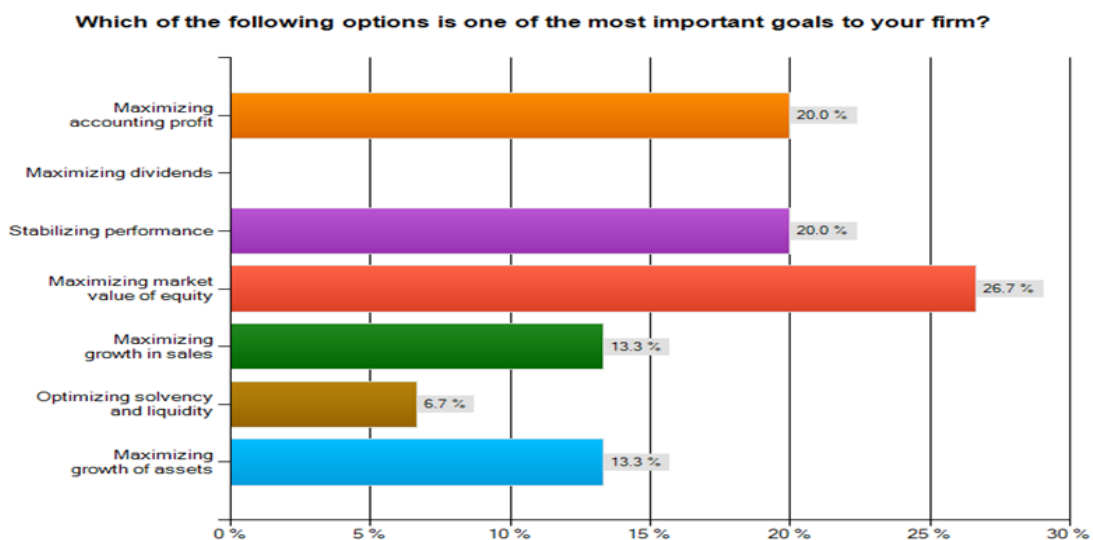
4.4.2 Operating objectives of Alt X listed companies

Previous studies which aimed to investigate the financial decision-making behaviour of small and medium enterprises found that, in some instances, the owners of SMEs might be motivated by alternative objectives other than the maximisation of wealth objective typically offered in capital budgeting theory. Ang (1991) found that small business owners prefer investments that preserve the independence of the business over investments that promote the enhancement of value. Keasey and Watson (1993) revealed findings from their study which suggested that maintaining the long-term viability of the business was more important than the maximisation of wealth for the owners of SMEs.

To determine whether the findings from these studies also apply to the SMEs on the Alt X, respondents were asked to identify, from a list of seven options, the objective that motivates their respective companies in their capital budgeting decisions. The option that was chosen by more respondents than any other was the objective to maximise the market value of their equity, which was chosen by 26.7% of the respondents. The graph below depicts the goals that are most important to companies listed on the Alternative Exchange. Like their larger counterparts, both locally and internationally, these respondents base their capital budgeting decisions on the premise that the proposed project will ultimately result in the increase of wealth for their shareholders. This finding which relates to Alt X listed companies pursuing activities that maximise the market value of equity, contradicts the decision-making behavioural pattern that was identified in unlisted SMEs during other studies such as Ang (1991) as well as Keasey and Watson (1993). Ang (1991) as well as Keasey and Watson (1993) both found evidence in their respective studies that SMEs could be motivated by objectives like the preservation of independence and not necessarily the maximisation of shareholder wealth. The disparity

between these findings related to unlisted SMEs and those found in the current study could be a result of the inherent nature of the Alt X listed companies. While the companies listed on the Alt X are SMEs, listing on the Alt X makes the pursuit of objectives such as the preservation of independence unrealistic for them as listing relinquishes the company of an autonomous control structure. The addition of new shareholders through an initial public offering could result in the objectives of SMEs listed on the Alt X, resembling those of larger companies than the objectives of their unlisted counterparts. Like large companies with many shareholders, Alt X listed companies focus on activities that promote the maximisation of shareholder wealth to retain current investors and attract more investors.

Figure 1: Goals of companies listed on the Alt X



Capital budgeting theory supports the pursuit of objectives that maximise shareholder value. The most popular objective of the companies listed on the Alt X of maximising market the value of equity, supports the goal of maximising shareholder value. This suggests that the practices of Alt X listed companies are aligned with recommendations from capital budgeting theory. However, the percentage of companies pursuing this goal is lower than expected given that previous studies revealed a higher appreciation among publicly held companies for projects that maximised shareholder value. Analysis of data from the survey found that 20% of the respondents still prioritise the stabilisation of performance as the most important goal to their respective companies while another 20%

undertake projects that primarily maximise their accounting profits. Findings from the current study revealed that 13.3% of the respondents indicated that their companies had a tendency to choose projects that maximise growth in sales. Another 13.3% indicated that maximising the growth of assets was an important goal to their companies. A further 6.7% of the respondents indicated that their companies focus on optimising solvency and liquidity and therefore implement projects that promote this objective. More than one quarter of the respondents showed evidence of decision-making behaviour that was aligned with the behaviour found in larger companies that aimed to maximise shareholder value. While preserving independence and autonomous control is no longer feasible for Alt X listed companies, the alternative objectives displayed by the majority of respondents support the findings from Keasey and Watson (1993) which disclosed that SMEs prioritised investments that were geared towards maintaining the long-term viability of the company over those that promoted the creation of shareholder wealth.

Interestingly, some studies also showed that larger companies found other goals more important than the maximisation of shareholder wealth. Brounen, De Jong and Koedijk (2004) revealed that companies in the UK focussed on the goal of optimising profit and growth while the maximisation of dividends remained at the bottom of their corporate goals. Andor, Mohanty and Toth (2011), on the other hand, found that stabilising performance and optimising liquidity were the most important goals among small and large Eastern European companies and maximising dividends as well as asset growth received the lowest priority.

While theory often suggests that the maximisation of wealth should be at the central focus of a company's goals, the current study, and those such as Ang (1991), Keasey and Watson (1993) as well as Chadwell-Hatfield *et al.* (1997), disclose that other objectives are often prioritised above the maximisation of shareholder wealth among companies in various countries. The difference among the goals of companies in various countries could also reflect the effect that the environment has on the companies that operate in it. La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998) found that capital market developments and legal systems in a country affect the influence that shareholders have on the objectives pursued by a company. The right to vote awarded to shareholders and how it is enforced depends on the legal rules of the regions in which securities are issued

(La Porta *et al.*, 1998). This right allows shareholders to vote out company managers who are not engaging in activities that are targeted towards maximising shareholder value. As a result, the voting power awarded to shareholders could indirectly influence managers to pursue activities and projects that maximise shareholder wealth. Proper enforcement of these rights allows shareholders to protect themselves against managers who engage in self-enriching activities at the expense of shareholders. Managers who are committed to pursuing activities that are favourable to shareholders tend to use the NPV technique in capital budgeting decisions as it results in them selecting projects that primarily maximise shareholder wealth.

Managers who undertake projects that fulfil their own interests could implement projects that are to the detriment of the value that shareholders get from a company. Research by Turner and Guilding (2012) revealed that in some cases, the remuneration earned by management is often based on a percentage linked to the revenue and profits of a company. Managers therefore have incentive to try and attract more funds from shareholders, as greater funding is consistent with higher revenues and profits (Turner and Guilding, 2012). The incentive to attract more funds to fulfil their own interests could result in capital budgeting cash flow forecast (CBCFF) biasing. Turner and Guilding (2012) explain that CBCFF biasing arises when managers looking to attract greater funding from shareholders inflate projected cash flows and deflate outflows in the proposed projects that they present to shareholders. Their study found evidence that high usage of the PBP technique by managers in capital budgeting decisions resulted in higher CBCFF biasing than when using the IRR or NPV techniques. This suggests that managers looking to pursue self-interests might use the PBP technique to the detriment of the interests of shareholders as using the PBP technique does not necessarily recommend projects that aim to increase shareholder wealth.

A country in which companies and their managers are cognisant of the legal insulation that is supporting the rights of a shareholder, allows managers to focus on activities that are geared at creating and maximising shareholder value. Goals of a company that demonstrate lesser importance to the pursuit of activities that maximise shareholder value could indicate inferior levels of legal backing, as companies face reduced legal retaliation

from shareholders for prioritising other goals and managers face less threat of being voted out by dissatisfied shareholders.

The information gathered in Section A of the survey enables the researcher to analyse and interpret data presented in subsequent sections of the questionnaire in context with the insight that was obtained about the demographics of the various respondents as well as the profiles of the companies they each represent. Information, such as the job titles held and the education levels of the respondents as well as the operating objectives of the company, will be correlated with the capital budgeting practices they implement. This analysis will be guided by findings from previous studies which found that the capital budgeting behaviour of companies strongly depends on the profile of its decision-makers and its objectives. Section B and Section C of the survey administered to respondents were designed to investigate whether any perceived superiority of the Alt X listed companies over their unlisted counterparts was evident in the capital budgeting decisions they make as well as in the discount rates they implemented, if any.

4.5 Other aspects associated with capital budgeting decisions

Section B of the questionnaire investigated the capital budgeting settings and practices of companies listed on the Alt X. Four questions in Section B were designed to obtain information about aspects that surround the actual capital budgeting practices of the company, such as how often the company uses capital budgeting techniques, how involved respondents are in the entire process and whether any additional people contribute to the decision-making process. Respondents were also asked about the sizes of the annual capital budgets that are available for investment. The first question respondents were asked related to the frequency with which they use capital budgeting techniques to analyse potential investments or projects. Respondents were given options based on a Likert scale which ranged from never (0% of the time), to rarely (between 0% and 25% of the time) through occasionally (between 25% and 50% of the time), to often (between 50% and 75% of the time) and finally always (more than 75% of the time). Most of the respondents (66.7%) indicated that they implemented capital budgeting techniques often, when evaluating investment opportunities. A further 25% of them disclosed that they

always use capital budgeting techniques while another 8.3% stated that they use them occasionally. None of the respondents chose the never or rarely option.

4.5.1 Involvement in capital budgeting process

Respondents were then asked to disclose how involved they are in the capital budgeting processes of their respective companies. Of the respondents, 91.7% stated that they are often to always involved, while only 8.3% indicated that they were rarely involved. Bennouna, Meredith and Marchant (2010) suggested that attention to the technical accuracy of the capital budgeting techniques implemented by companies could often take second place to time demands imposed on the decision maker. The time dedicated by the respondents in the current study to engage in project appraisal activities, could suggest that more diligence is used in assessing the technical accuracy of the capital budgeting techniques they use. The high level of participation in this process by the respondents who showed strong academic proficiency suggests that superior decisions could be derived in terms of implementing capital budgeting techniques that are aligned with the operating objectives of the company such as the maximisation of shareholder wealth or accounting profit.

Furthermore, 25% of the respondents revealed that one additional member of staff is assigned to assist in the capital budgeting process, while 58.4% of them indicated that they had a team of two to four employees that contribute to the process. The remainder of the respondents receive input during the investment decision-making process from five to ten other members of staff. Fatoki and Odeyemi (2010) advised that SMEs need to use additional staff in their capital budgeting processes to bring expertise and to guide their investment decisions. The findings from the current study differ with findings from previous studies such Soldofsky (1964), who analysed small manufacturing US companies, as well as the study of small firms in the Western Cape conducted by Brijlal and Quesada (2009). These studies both found that unlisted SMEs often encountered challenges in the capital budgeting process due to the fact that they did not have the financial knowledge needed or sound understanding of various appraisal techniques to effectively assess proposed projects. They also found that these unlisted SMEs did not have the additional staff and could not afford to retain external consultants that could guide and contribute to the

process. This disadvantage often lead to these companies pursuing inferior investments that did not compliment the company's objectives, produced returns much lower than anticipated and resulted in scarce financial resources being unavailable for more lucrative projects.

Danielson and Scott (2006) found that small staff sizes, amongst other things, constrain the amount of capital budgeting analyses that the SMEs in their study could perform. Bennouna, Meredith and Marchant (2010) argued that various administrative and support procedures such as a capital investment manual, full-time capital budgeting staff and post-investment audits could assist managers in ensuring that the capital budgeting techniques, and in particular DCF techniques, are applied in accordance with textbook approaches.

4.5.2 Capital budget sizes

The size of the annual capital budget that is available for investing in potentially viable projects is of particular interest when evaluating the capital budgeting practices adopted by companies. Studies such as Pattillo (1981) had found through hypothesis testing, that the widespread discarding of sophisticated techniques by small firms in America was because they believed that their capital budgets were of insufficient size to warrant the use of sophisticated techniques. The study conducted by Andrews and Butler (1986) also attributed the increased sophistication in the capital budgeting techniques implemented by the large South African firms they surveyed, to the increase in the general size of annual capital budgets available to those companies over the decade that they analysed. Graham and Harvey (2001) found a statistically significant negative relationship between the size of the capital budget and the use of techniques like the PBP in project evaluation. There is therefore an underlying relationship that exists between the size of the annual capital budget that a company has available, its attitude regarding the importance of the process of capital budgeting and the resultant practices they implement.

Results from the survey show that 33.3% of the respondents have annual capital budgets that are between R5 million and R10 million, while 25% of respondents have capital budgets between R10 million and R50 million allocated to the annual capital budgeting needs of the company. A further 25% revealed that their companies have annual capital

budgets that are less than R5 million while companies with capital budgets that were between R50 million and R100 million and those with more than R100 million available to finance proposed projects represented 8.3% of the respondents, respectively. Findings from the study by West (2008) which also investigated the capital budgeting practices of companies listed on the Alt X, revealed that 41.67% of the companies represented in that study had capital budgets smaller than R5 million. A further 41.67% of the respondents had capital budgets that ranged between R10 million and R50 million while 8.33% of the companies had annual capital budgets between R50 million and R100 million. The rest of the respondents had chosen not to reveal the sizes of the annual capital budgets available to their respective companies. The table below summarises data regarding the sizes of the capital budgets available to Alt X listed companies in 2008 and in 2012.

Table 4: Change in the capital budget sizes of Alt X listed companies

Size of annual capital budget	Findings from West (2008)	Findings from the current study (2012)
Less than R5 million	41.67%	25%
Between R5 million and R10 million	0%	33.3%
Between R10 million and R50 million	41.67%	25%
Between R50 million and R100 million	8.33%	8.3%
More than R100 million	0%	8.3%
Unknown	8.33%	0%

Data for 2008 was adapted from West (2008)

According to Ryan and Ryan (2002) the size of the annual capital budget available to a company is a significant factor in the selection of capital budgeting techniques used. They found that a positive relationship exists between the size of the capital budget and the use of the NPV and IRR technique. This means that the bigger the capital budget, the higher the possibility that a company is using discounted cash flow techniques in their capital budgeting decisions. As shown in the table, the proportion of companies with annual capital budgets greater than R5 million, has increased from 58.33% in 2008 to 75% in 2012. This implies that on average, the companies listed on the Alt X have bigger capital budgets in 2012 than they did in 2008. The increase in the sizes of the capital budgets

available to companies listed on the Alt X could also suggest that these companies are using discounted cash flow techniques in their capital budgeting decisions.

4.5.3 Sources of long-term funds

Daunfeldt and Hartwig (2012) conducted research which investigated factors that affect the choice of capital budgeting techniques in companies listed on the Stockholm Stock Exchange. Their study found that the sources of long-term funding used by companies could influence the capital budgeting techniques that managers should be implementing in their capital budgeting decisions. The use of external sources of funding, such as straight debt and external common equity, is typically associated with market-determined costs of capital (Uddin, 2009). These costs need to be incorporated (usually as a discount rate) when assessing the cash flows expected from proposed projects. The NPV technique as well as the IRR technique account for these market-determined costs of capital when evaluating proposed projects. These techniques also promote the acceptance of projects that aim to fulfil the interests of both external creditors; who expect a fixed stream of interest payments and shareholders; who expect the value of their investments to increase (La Porta *et al.*, 1998). As a result, the implementation of these techniques is expected to be high, particularly in the capital budgeting decisions of companies that rely on straight debt and external common equity as sources of funding. Determining the sources of funding used by companies listed on the Alt X could offer insight into the capital budgeting techniques that can be expected among Alt X listed companies based on deductions from theory.

In order to determine the source of funds used by companies in their capital budgeting decisions, respondents were asked to disclose the various origins of their long-term funds and how often they rely on them to finance proposed projects. To extract more information regarding the sources of long-term funds, respondents were asked to use a Likert scale in order to rank how frequently they use various available sources of funding. Respondents were also given the option to mention another source of funding that is not included in the question and asked to disclose how often they depended on it as a source of long-term funding. The structure of the question allowed respondents to reveal more about their capital budgeting preferences and their relationships with all sources of funding which in

turn, gave the researcher a better perspective on the capital budgeting practices of the companies. The figure below illustrates findings regarding the sources of long-term financing for Alt X listed companies.

As displayed in the figure below, the source of funding that was most favoured under the 'always' category was the retained earnings that the company accumulates, which was chosen by 45.5% of the respondents. Straight debt received the highest ranking as the source of funding used most often by respondents while the hire-purchase agreement was the most popular supplier of long-term funds that was occasionally relied on by respondents. External common equity was chosen by most of the respondents (25% of them) when they were asked to indicate the source that they rarely used to finance investments. The least favoured source of long-term funding among respondents was the convertible bond option, with 88.9% of the respondents to this question indicating that they never use convertible bonds.

Table 5: Sources of long-term funding for Alt X listed companies

Which of the following sources of long-term funds does your firm rely on to finance investments?					
	Always	Often	Occasionally	Rarely	Never
Retained earnings	45.5% (5)	27.3% (3)	0.0% (0)	18.2% (2)	9.1% (1)
Restructuring of assets	0.0% (0)	0.0% (0)	33.3% (3)	22.2% (2)	44.4% (4)
Straight debt	18.2% (2)	45.5% (5)	27.3% (3)	9.1% (1)	0.0% (0)
Convertible bonds	0.0% (0)	0.0% (0)	0.0% (0)	11.1% (1)	88.9% (8)
External common equity	12.5% (1)	12.5% (1)	0.0% (0)	25.0% (2)	50.0% (4)
Hire purchase or leasing	16.7% (2)	25.0% (3)	41.7% (5)	16.7% (2)	0.0% (0)
Other	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	100.0% (4)

If you selected "Other", please specify in the space provided below

At a first glance at the data displayed in the figure above, it would appear that retained earnings was the more widely employed source of funds used to finance proposed investments, followed by straight debt, hire-purchase agreements, restructuring of assets,

external common equity and finally convertible bonds. But all the data in the figure needs to be analysed when determining the preferences of the Alt X listed companies. For example, if one class of funds has two respondents who indicate that they always use it while another class has five respondents who express using it occasionally; it follows that the source of funding used occasionally should be considered more favourable, *ceteris paribus*.

In order to do this, declining weights were assigned to each Likert scale category with every “always” receiving 4 points and each subsequent category receiving one less point than the one before it. However, the “never” category was assigned a point of -1 as any indication from the respondents who revealed that they never use a certain class of funding to finance their investment opportunities should be seen as undesirable and as a result detract from its popularity. Table 6 details how the aggregate weighted preference of each source of funding was obtained. It also reveals the order in which the Alt X listed companies prefer to obtain funding for proposed projects.

Table 6: Aggregate weighted preference for each source of funding

	Always (4 points)	Often (3 points)	Occasionally (2 points)	Rarely (1 point)	Never (-1 point)	Aggregate weight
Retained earnings	4 × 45.5 = 182	3 × 27.3 = 81.9	2 × 0 = 0	1 × 18.2 = 18.2	-1 × 9.1 = -9.1	273
Straight debt	4 × 18.2 = 72.8	3 × 45.5 = 136.5	2 × 27.3 = 54.6	1 × 9.1 = 9.1	-1 × 0 = 0	273
Hire-purchase or lease	4 × 16.7 = 66.8	3 × 25 = 75	2 × 41.7 = 83.4	1 × 16.7 = 16.7	-1 × 0 = 0	241.9
External common equity	4 × 12.5 = 50	3 × 12.5 = 37.5	2 × 0 = 0	1 × 25 = 25	-1 × 50 = -50	62.5
Restructuring of assets	4 × 0 = 0	3 × 0 = 0	2 × 33.3 = 66.6	1 × 22.2 = 22.2	-1 × 44.4 = -44.4	44.4
Convertible bonds	4 × 0 = 0	3 × 0 = 0	2 × 0 = 0	1 × 11.1 = 11.1	-1 × 88.9 = -88.9	-77.8

After considering all the information offered by respondents relating to their preferences among the various sources of funding, slightly different conclusions can be derived compared to those initially reached after the first glance at the data contained in Table 5. As shown in Table 6 both retained earnings and straight debt are equally preferred by respondents as they were each awarded an aggregate weighted preference score of 273 points. This was followed by the hire-purchase or lease agreement option which had a score of 241.9 and the option to issue common equity which had an aggregate weighted preference score of 62.5. The option to restructure assets which had previously appeared to be more favourable than the option to issue new stock, received a score of 44.4 which placed it behind the common equity option after considering all the information provided by the respondents. Convertible bonds remained the least popular source of funds among respondents, receiving a score of -77.8, which revealed an aversion to reliance on convertible bonds by respondents.

These findings are comparable to those in the study by Andor, Mohanty and Toth (2011) who found that respondents in their study also indicated that retained earnings was their most preferred source of funds to finance new investments. Similar to the findings of the current study, Andor *et al.* (2011) also found that straight debt received high popularity among respondents in their study. Convertible bonds were also the least preferred source of long-term funds to finance investment projects among respondents to the latter study.

The study by Daunfeldt and Hartwig (2012) revealed that companies with lower reliance on retained earnings as a source of funding for proposed projects and lower instances of capital rationing, utilised unsophisticated techniques like the PI calculation in their capital budgeting decisions. Consequently, companies with a higher dependence on retained earnings are expected to implement sophisticated capital budgeting techniques in their project selection decisions. Findings from the current study show that Alt X listed companies have a strong preference for retained earnings as a source of long-term funding. This might be an indication that these companies encounter instances of capital rationing. Furthermore, the reliance on retained earnings as a source of funding could also induce the use of sophisticated capital budgeting techniques in the companies listed on the Alt X as suggested by Daunfeldt and Hartwig (2012).

The high preference of straight debt as a long-term source of funding could be accompanied by techniques like the NPV technique and the IRR technique as these techniques consider the cost of debt when analysing proposed projects (McInish & Kudla, 1981). Projects are only acceptable if the returns expected from the project exceed what the company needs to be able to repay the various suppliers of capital for their contribution. As a result, using the NPV and IRR technique ensures that the interests of creditors (along with other suppliers of capital) are considered when evaluating proposed projects. Therefore, through inference from theory, it is expected that companies that aim to keep their commitment to creditors will use the NPV or IRR technique in their capital budgeting decisions as they promote the interests of creditors, *inter alia*.

Research conducted by Graham and Harvey (2001) supports arguments made by McInish and Kudla (1981). Their study found that companies with strict debt targets tend to use the ARR method and PI more often than companies that rely heavily on debt as a source of long-term funding. Findings from Daunfeldt and Hartwig (2012) explain that the ARR method indicates how an investment is expected to affect the debt ratio, and could therefore be employed more extensively in strict debt-target companies with low reliance on debt as a source of long-term funding. High reliance on straight debt could suggest the use of better techniques like IRR and NPV in capital budgeting decisions. The high preference of retained earnings and of straight debt might suggest the possibility that Alt X listed companies could be implementing the NPV and IRR technique in their capital budgeting decisions. The next section discloses the actual capital budgeting techniques that are implemented by companies listed on the Alt X.

4.6 Capital budgeting techniques of Alt X listed companies

Eight of the questions in the questionnaire were specifically oriented around the actual capital budgeting techniques of the companies listed on the Alt X. These varied from questions regarding the actual techniques that the companies implement in their capital budgeting decisions to questions about pre-listing capital budgeting practices. The information gathered from Section A of the questionnaire provided the researcher with demographic insight about the primary decision-makers responsible for the capital budgeting practices of each company as well as about the profiles, aspirations and

objectives of each company that would allow for a more comprehensive analysis of the actual capital budgeting practices of the Alt X listed companies. This section reveals information disclosed by respondents regarding their use of primary and secondary capital budgeting techniques as well as their preferences among the various techniques available. This section also includes findings from the study which disclosed reasons why some companies use multiple techniques, how frequently they use the various capital budgeting techniques to evaluate different investment activities as well any instances of capital rationing that the companies might incur when making their capital budgeting decisions.

4.6.1 Primary capital budgeting techniques

The next section of questions in the survey were aimed at addressing the capital budgeting techniques that are used by the Alt X listed companies. Respondents were asked to identify the technique they use as a primary tool in their capital budgeting techniques from a list of several options. The technique that was most favoured was the IRR which was chosen by 41.7% of the respondents. This was followed by the NPV technique which is being implemented as a primary tool for project analysis by 33.3% of the respondents.

A similar study conducted by West (2008) gathered information that indicated that the primary technique favoured by Alt X listed companies was the earnings multiple approach (36.4%) followed by the IRR (27.3%) and finally the NPV technique (18.2%). Results from that study illustrated that Alt X companies had a higher implementation rate of non-DCF techniques (54.55%) in comparison to the superior DCF techniques. The current study now reveals an improvement in the capital budgeting practices of companies listed on the Alt X as it reflects that 75% of the respondents employ discounted cash flow techniques as a primary tool, compared to only 45.45% in the study conducted by West (2008) a few years earlier.

The findings from this study, which investigated the capital budgeting practices of companies listed on the Alt X, deviated from the recent trends evident in studies on small unlisted companies in South Africa (Brijlal & Quesada, 2009) as well as other small companies in America (Danielson & Scott, 2006). The study by Brijlal and Quesada (2009)

found that 39% of unlisted SMEs in South Africa favoured the payback period as a primary tool in the evaluation of capital investments. This was followed by the profitability index and the NPV approach which were both being implemented by 27% of the respondents. Danielson and Scott (2006) revealed that the most common response among surveyed companies was the “gut feel” alternative or intuition, which was employed by 26% of the respondents. While the subjective judgement or intuition option was not the most favoured tool among respondents in the current study, 16.7% of them expressed that it played a principal role in their decision-making process. Danielson and Scott (2006) revealed that a further 19% of the respondents stated that they relied on the payback period measure while 14% of them indicated that they use the accounting rate of return as a primary tool to assess the financial viability of a major investment. None of the respondents from the current study indicated that they use the payback period, the profitability index or the accounting rate of return as a primary tool. Both studies, based on local and international companies, reflected that unlisted SMEs had a strong dependence on the capital budgeting recommendations derived from the inferior non-discounted cash flow techniques.

One of the primary objectives of this study was to identify the capital budgeting practices of companies listed on the Alt X and to compare those to the practices used by companies listed on the main board of the JSE. The current study analysed the capital budgeting practices of all the companies listed on the Alt X, without focussing on companies that operate in any specific sector. Consequently, findings from the current study need to be compared to findings from studies that analysed the capital budgeting practices of companies listed on the main board of the JSE, without focussing on companies in any particular sector. Klammer (1972) explained that capital budgeting findings derived from studies that focus on specific sectors could be bias. Sectors that are widely classified as being capital intensive tend to dedicate more time and effort on capital budgeting as the process is of more significance to the profitability of these companies (Klammer, 1972).

This bias reduces the comparability of findings from the current study to those studies that analysed the capital budgeting practices of companies on the main board, but limited their samples to specific sectors like mining (Andrews & Butler, 1986) and industrials (Hall, 2000 and Hall & Millard, 2010). A few studies such as those conducted by du Toit and

Pienaar (2005) as well as Correia and Cramer (2008) analysed all the companies listed on the main board, without targeting any particular sector. The findings from the study by du Toit and Pienaar (2005) and Correia and Cramer (2008) are more compatible to findings from the current study as they analysed the capital budgeting practices of all the companies listed on the main board of the JSE. Du Toit and Pienaar (2005) found that the IRR was the most popular method, followed by the net present value tool and the return on investment measure among the respondents to their survey. According to Taylor (1995), the terms ROI and the accounting rate of return are synonymous and are often interchangeable in various studies such as Parry and Firer (1990) as well as Carter, McDonald and Cheng (1997).

Correia and Cramer (2008) revealed that the most preferred technique among respondents to their study was the NPV technique. This was followed by the IRR, and the payback period. While there was a slight difference in the findings from both the studies, they revealed that discounted cash flow techniques were the most implemented capital budgeting techniques among the companies listed on the main board, without targeting any particular sector. A comparison of the results from du Toit and Pienaar (2005) and Correia and Cramer (2008) to results from the current study shows that the capital budgeting practices of the companies on the Alt X are consistent with those of their larger peers displayed on the main board of the JSE. The current study reveals that the companies listed on the Alt X also implement discounted cash flow techniques as primary tools in their capital budgeting decisions.

The more recent study of the capital budgeting techniques of all companies listed on the main board by Correia and Cramer (2008) shows that the practices of those companies are aligned with the recommendations of financial theory which advocates the use of the NPV over the IRR. International studies such as Ryan and Ryan (2002) as well as Baker, Dutta and Saadi (2011) found that the large companies they surveyed also preferred the NPV technique more the IRR as a primary tool of analysis in capital budgeting decisions. While the findings from the current study show that the companies listed on the Alt X are implementing discounted cash flow techniques like their larger counterparts, their practices diverge in the choice of DCF technique used as a primary tool. The Alt X listed companies revealed that they prefer the IRR as a primary technique over the NPV.

The discrepancy between the preference of the Alt X listed companies and the recommendations of financial theory could be associated with the characteristics of the techniques themselves. Ryan and Ryan (2002) argue that the perception of a percentage return expected from a proposed project (obtained from using the IRR technique) is more easily understood and comparable with those of other investment alternatives than an absolute monetary increase in shareholder wealth (as expressed by the NPV). One of the main reasons offered by Bhattacharyya (2004) as justification to why managers prefer the IRR is that this measure conveys information regarding the risks associated with the projects under evaluation. As a result, the IRR makes it easier for them to estimate the probability of not producing the returns expected by shareholders. This characteristic of the internal rate of return makes it particularly attractive to the managers of the companies listed on the Alt X. Listing on the Alt X provides these companies with access to additional sources of financing through the funds invested by new shareholders. In order to retain these new shareholders and to attract even more of them, these companies need to develop a reputable track record which reflects the company's consistent delivery of the returns expected by shareholders. Bhattacharyya (2004) explains that the IRR technique assists them in assessing the probability of "financial embarrassment" of not delivering expected returns from each viable proposed project.

Hypothesis testing conducted by Hall (2000) revealed that the capital budgeting methods used by respondents were influenced by the size of the annual capital budget available. Findings from that study are also supported by those from the study by Ryan and Ryan (2002) which revealed a significant correlation between the size of the capital budget available to a company and its subsequent choice of capital budgeting method. Results from the current study have already shown that the sizes of the annual capital budgets available to companies listed on the Alt X have gradually increased over the past few years in comparison to findings from West (2008) who also investigated the same group of companies. Furthermore, results from the current study show that the capital budgeting practices of these companies have improved from primarily using non-DCF techniques to now using discounted cash flow techniques when assessing proposed projects. These combined findings suggest that the capital budgeting techniques of the companies listed on the Alt X are also correlated to the sizes of the annual capital budgets available and that their capital budgeting practices have improved as the sizes of their capital budgets

have increased. The relationship between capital budget sizes and capital budgeting techniques that was observed in companies listed on the Alt X, corresponds with findings from other studies where improved capital budgeting practices have been associated with increased capital budget sizes.

4.6.2 Secondary capital budgeting techniques

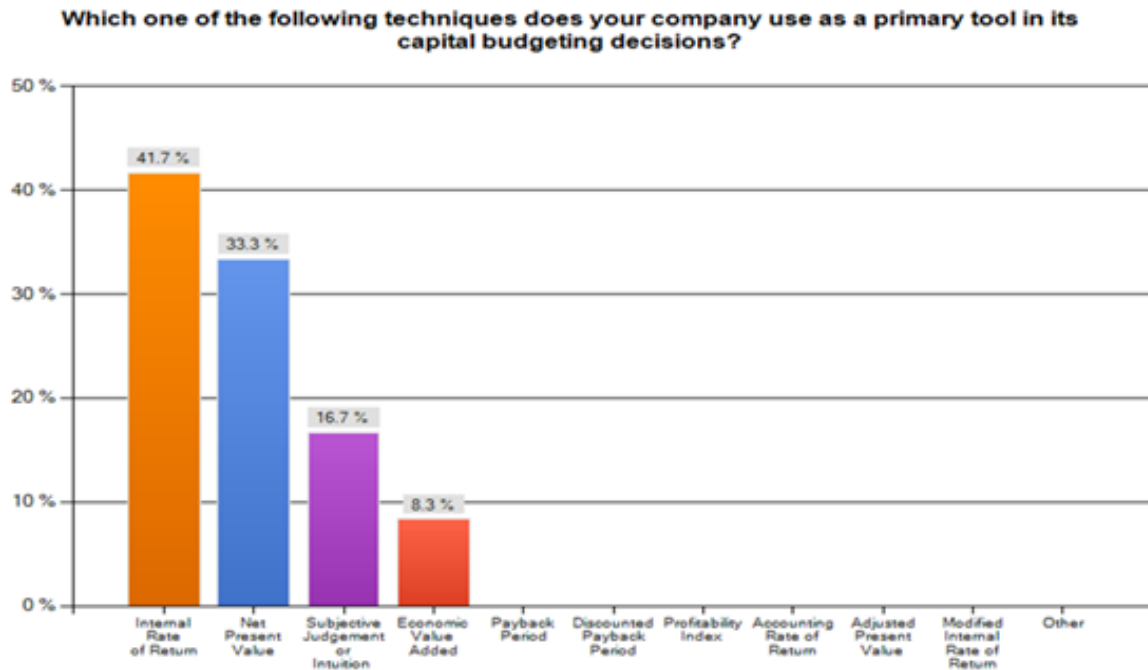
Respondents were asked to state whether their respective companies use any secondary capital budgeting tools and, if so, to identify them from the options provided. Research by Pike (1996) found that companies had begun using two to four additional investment appraisal techniques. As a result, respondents were not limited to one selection in order to accurately determine the complementary techniques used by companies listed on the Alt X. Analysis of the responses revealed that only one company did not use a secondary technique and relied on recommendations from the primary technique only. Most of the respondents declared that they used only one secondary technique while 20% of the respondents revealed that they used three different secondary techniques in conjunction with their primary technique.

The most favoured secondary capital budgeting technique among respondents was the subjective judgement or intuition option which is used by 33.3% of the respondents. This was followed by the NPV technique and the payback period measure, each of which were preferred by 25% of the respondents. The PI, the ARR, the IRR as well as the discounted payback period each received a percentage distribution of 8.3% of the respondents.

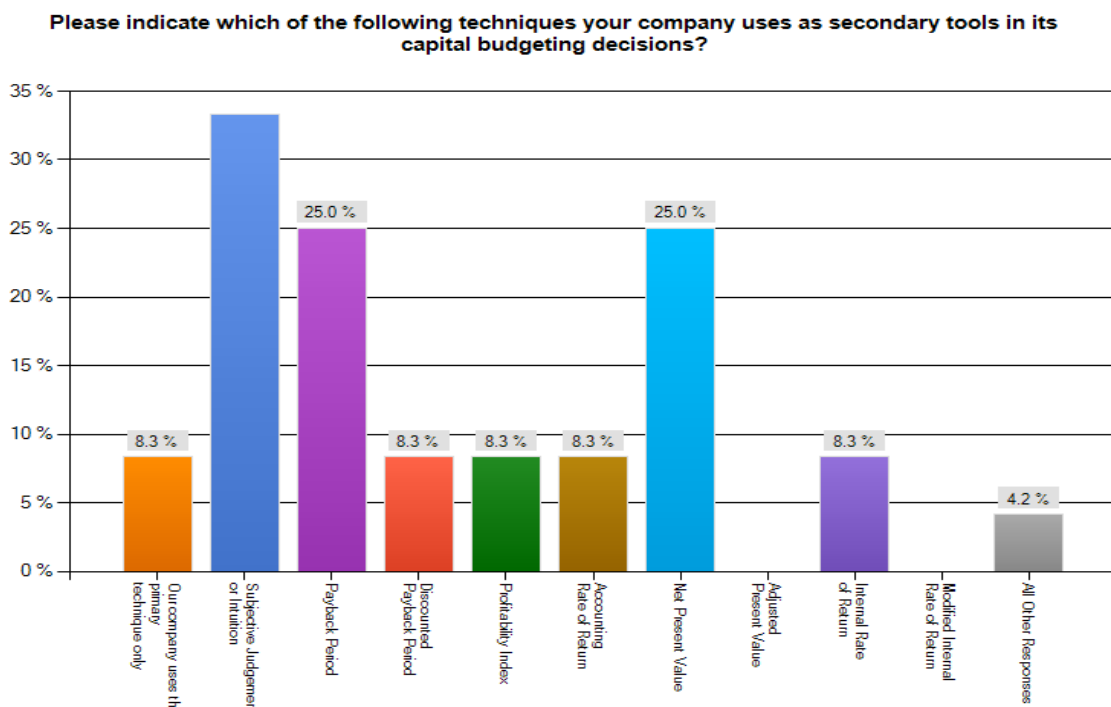
These results indicate that the Alt X listed companies had a stronger preference for sophisticated techniques as a primary tool of analysis while non-DCF techniques like subjective judgement and the payback period were predominantly used as secondary tools. Gitman and Forrester (1977) found a similar trend among the companies they surveyed, which revealed that discounted cash flow techniques were used as primary tools and the less sophisticated techniques were reserved for use as secondary tools in their capital budgeting decision-making processes. The figure below compares and summarises the responses received regarding techniques that are implemented as primary and secondary tools.

Figure 2: Preferences of primary and secondary techniques among respondents

Panel A



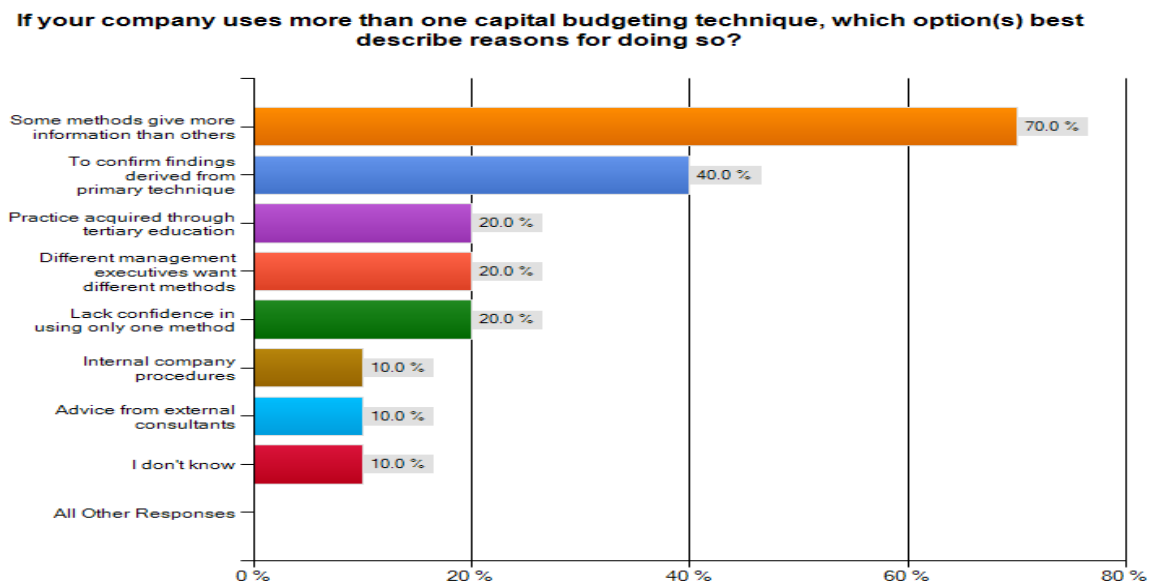
Panel B



4.6.3 Reasons for multiple techniques

In order to gain sound understanding with regard to why the companies which disclosed using multiple techniques do so, respondents were asked to specify why their companies implemented more than one capital budgeting tool. To derive an accurate assessment, respondents were given the freedom to choose as many reasons from the choices present, as well as the option to document a reason not included on the list of options. The data obtained from respondents indicated that the most common justification for using multiple capital budgeting techniques, which was chosen by 70% of respondents, was because some methods give information that other methods might not. Methods such as the internal rate of return and the net present value are efficient in terms of determining the internal viability of a project, which is of interest to shareholders. However, Block (1997) explains that financial institutions can also exert pressure on the techniques used by SMEs in determining the suitability of proposed projects. These institutions are particularly interested in the firm's ability to repay any loans granted and the time frame required by these small businesses to recoup the initial capital investment made by banks. This would explain why some techniques, such as the payback period calculation, were not chosen as primary techniques but increased in popularity as secondary techniques. Figure 3 discloses all of the reasons stated by respondents for using multiple capital budgeting techniques.

Figure 3: Reasons stated for using multiple capital budgeting techniques



As illustrated in the figure above, another four respondents indicated that the main reason for using multiple techniques was that the secondary tools can help confirm the findings gathered from their primary analysis of the various proposed projects they must choose between. The use of multiple techniques as an accepted practice acquired through tertiary education, the lack of confidence in using only one method and the fact that different management executives want different methods used were each listed by 20% of the respondents. A further 10% of the respondents indicated that they used multiple capital budgeting techniques based on advice received from external consultants while another 10% revealed that the practice is adopted because of internal company procedures that advocate its use. One respondent reported not knowing why their company used multiple capital budgeting techniques.

The discounted cash flow techniques are widely accepted as the superior tools for capital budgeting analysis purposes. While the practical application of the NPV over the IRR remains a contentious debate among decision-makers, using any one of them in the investment appraisal process will result in recommendations that are both viable and will produce expected returns for the company, *ceteris paribus*. Despite the various benefits of using the DCF techniques that have been proven and published over the decades, evidence was found from previous studies that showed low implementation of these techniques, especially by SMEs (Graham & Harvey, 2001; Danielson & Scott, 2006 and Brijlal & Quesada, 2009). Several reasons were offered in these studies which included a lack of managerial knowledge and expertise about the DCF techniques (Graham & Harvey, 2001) and small staff sizes (Danielson & Scott, 2006) to explain why respondents fail to implement these advanced techniques.

Based on the responses received to questions about the primary and secondary capital budgeting techniques used by respondents, three of them revealed that they do not use the NPV or the IRR at any stage of their capital budgeting process. As was noted earlier, the companies listed on the Alternative Exchange differ from their unlisted counterparts in that their managers generally have high levels of financial education and they are able to retain additional staff members employed to assist in the capital budgeting process. It follows that an evaluation needs to be conducted of the reasons offered by companies which do not use discounted cash flow techniques as either a primary or secondary tool.

Two of the three respondents indicated that they do not know why their respective companies do not use the DCF techniques while the remaining respondent stated that the difficulty associated with estimating the inputs required for the DCF techniques was the reason that their company did not use them. The fact that some respondents are unaware of the exact reasons why their companies do not employ the DCF techniques could be implicitly related to different management executives imposing their preferences of different methods that are easier for them to understand on those in the decision-making process. As a result, decision-makers succumb to the requirements of their superiors without understanding the reasons behind these choices. The difficulties faced in estimating inputs for the DCF techniques are not unique to the companies listed on the Alt X. Drury and Tayles (1997) state that despite the increased use of more theoretically advanced techniques, companies are underinvesting in proposed projects due to the misapplication and misinterpretation of DCF techniques. Prudent cash flow forecasts combined with excessive discount rates and the inaccurate treatment of inflation were some of the highlighted elements that pose challenges in the estimation of inputs and ultimately lead to ineffective investment decisions (Drury and Tayles, 1997).

4.6.4 Frequency of use

The first few questions of this section of the survey gathered information about the capital budgeting preferences of the companies listed on the Alternative Exchange. Respondents were then asked to indicate how frequently they used the techniques that they listed as primary and secondary tools. Respondents were asked to rank their level of use on a Likert scale varying from rarely (less than 25%) to always (more than 75%). Each company expressed different levels of use for each technique and only the levels of use (rarely to always) with the highest rating for each technique are disclosed here.

Analysis of the individual responses obtained from survey participants allowed the researcher to see how frequently each company used its specific primary and secondary techniques separately. The majority of companies which had indicated that they rely on the IRR as a primary technique, stated that they always used it in their capital budgeting process while those that listed it as a secondary tool only use it occasionally (25% to 50% of the time). The NPV also received high levels of use, with the most of the companies that

use it as primary techniques disclosing that they always use it. The NPV continued to receive high levels of use among the companies which chose it as a secondary tool, with most of them indicating that they use it often (between 50% and 75%) in their investment appraisal procedures. Subjective judgement or intuition was being used often as a primary technique and occasionally as a secondary technique among respondents who revealed that they employ it in their project analysis. Techniques such as the profitability index, the payback period, the discounted payback period and the accounting rate of return, were being implemented in 50% to 75% of the decisions made by companies which listed them as secondary tools of analysis. The higher levels of use of the techniques declared as primary tools over those declared as secondary tools confirms the importance of the primary tools in the capital budgeting decisions taken by the companies listed on the Alt X and supports the reasons offered for the use of the secondary techniques as complementary tools of analysis.

4.6.5 Investment activities

After determining the various sources of the funds used by the companies listed on the Alt X and the capital budgeting practices they implement in order to determine where to invest such funds, the survey also aimed at assessing the different investment activities for which the capital budgeting processes of a company are used. Respondents were asked how frequently they used their disclosed capital budgeting techniques (both primary and secondary) for a range of listed investment activities. The order in which activities are often to always analysed using capital budgeting techniques are firstly the expansion of current operations followed by new proposed projects and thirdly, mergers and acquisitions. Baker, Dutta and Saadi (2011) also found similar trends among respondents who revealed that the top three activities for which they often to always used their capital budgeting techniques were the evaluation of new operations, mergers and acquisitions and expansion projects. West (2008) found that respondents showed no inclination to any specific investment activity and that they used their capital budgeting techniques equally to assess new projects and capital replacement projects. Hall and Millard (2010) found that the capital budgeting tools implemented by respondents were primarily for the appraisal of

current project abandonment decisions, followed by general capital investment projects and proposals to expand existing operations¹³.

Findings from the current study show that foreign operations followed by replacement projects ranked fourth and fifth respectively, as investment activities that respondents assess using capital budgeting techniques. At the lower end of the spectrum were decisions regarding abandoning current projects and social (altruistic) projects which received the lowest levels of use of the capital budgeting techniques among respondents. West (2008), who also investigated the capital budgeting behaviour of Alt X listed companies, found that only 28% of them often approved investments that reflected their environmental responsibility and enhanced community relations.

The evidence from this study confirms findings from Hall and Millard (2010) who found a positive correlation between the use of capital budgeting techniques and value-generating classes of projects. The higher frequency of use of capital budgeting techniques among Alt X listed companies was for investment activities such as the expansion of current operations as well as new proposed projects; activities which are traditionally known to create value for a company that embarks on them. Similarly, less time and effort is dedicated to the appraisal of social concern projects that reflect a company's corporate responsibility (either to society, the environment or enforced by government) and generally produce negligible returns.

4.6.6 Pre-listing use of capital budgeting practices

Two questions of this section of the survey were designed to explore whether the Alt X listed companies had used the same capital budgeting practices before listing on the exchange. Furthermore, the survey also wanted to determine reasons for a change in capital budgeting practices of those companies that disclose that they modified their practices after listing. This question produced a mixture of results with 50% of the respondents to this question indicating that their practices have been consistent before

¹³ Implementation of the ROI and "other" category of capital budgeting technique were excluded from this study to allow the comparison of all these studies to relate to the same capital budgeting techniques disclosed in all four studies.

and after listing while the other half¹⁴ revealed that they do not know whether the practices implemented by the company had changed since listing. Most of the studies on the capital budgeting practices of SMEs that have been discussed throughout this research study have reflected that unlisted SMEs tend to prefer unsophisticated capital budgeting practices such as the payback period (Brijlal & Quesada, 1997) and intuition (Danielson & Scott, 2006).

The findings from this study and the study conducted by West (2008) have revealed that the SMEs listed on the alternative exchange differ from their unlisted counterparts and have a stronger preference for advanced capital budgeting techniques. Interestingly, for half of the respondents, this preference existed before their companies listed on the Alt X which partially melts away any preconceived notion that listing on the exchange encourages the companies to adapt better capital budgeting practices.

West (2008) also attempted to discover if the capital budgeting practices of companies listed on the Alt X had changed and how. Responses were also equally divided with 6 respondents indicating that their approaches had indeed changed. Of the respondents who confessed to changing their practices, 50% stated that they moved from using one technique to using multiple techniques, 33.3% stated that their companies no longer employed inferior techniques and now rely on the DCF techniques while the remaining 16.7% revealed that their company went from using no techniques to now using at least one. Unfortunately, the study did not disclose any events, including general maturing or listing on the Alt X, that could be described as reasons for these changes.

A possible explanation for the phenomenon where companies indicated consistent use of the same techniques could be related to the fact that they have had the same decision-makers before and after listing, that are educated about the best practices available for capital budgeting. The study by Pike (1996) suggested that the availability of computer software and an enhancement in the education of managers resulted in more respondents implementing sophisticated capital budgeting practices. Evidence relating to the levels of education of respondents was found through earlier questions of the survey which

¹⁴ Only 10 of the 15 respondents chose to answer this question which resulted in the 50/50 distribution of responses.

revealed that the key decision-makers involved in the capital budgeting processes of a company have obtained on average, an honours degree. This makes them more knowledgeable about the practical benefits of sophisticated techniques than the average decision-maker of most unlisted SMEs. As a result, these managers were able to adopt sophisticated techniques independently and prior to the company listing on the exchange.

The use of sophisticated techniques could have had a domino effect on these companies because the use of the NPV and the IRR would have led to the acceptance of viable projects which helped them grow; part of which is listing on the alternative exchange. Listing on the Alt X might not have been associated with the capital budgeting practices used by this group of companies as they were already distinguished from other unlisted SMEs by the profiles of their decision-makers and the resulting quality of the decisions made. A primary reason can be offered which could explain the case of the respondents who did not know if their respective companies had been using the same capital budgeting practices before listing. This phenomenon could be related to the shorter tenure of some of the respondents who were not employed at the company before it listed on the exchange. Consequently, they would not be aware of any changes in capital budgeting practices of the company that might have taken place soon after the company listed.

Whilst the pre-existing education levels of decision-makers are associated with the superior capital budgeting practices implemented by some of the respondents even before their respective companies listed, the study cannot overlook the benefits that SMEs potentially gain from listing which indirectly affect their capital budgeting practices. Listing on the Alt X gives SMEs access to funds which are used for activities that aim to develop the company, such as the procurement of additional staff. Some of these additional staff members are employed to assist in the capital budgeting decision-making process (as was established earlier in the survey) and could lead to an improvement or a transformation in the practices used by companies.

4.6.7 Capital rationing

The final question of this section that specifically investigated the capital budgeting practices of companies listed on the Alt X, aimed to determine whether these companies

encountered instances where they had to engage in capital rationing. The most cited option, chosen by 30% of the respondents, was that they always encounter capital rationing where they have had to reject viable projects because the company had insufficient funds available to embark on them all. A further 40% of the respondents were evenly distributed between experiencing capital rationing occasionally and often. Interestingly, 20% of the respondents revealed that they never face the challenge of capital rationing while the remaining respondents indicated that they rarely encounter situations where they have limited financing for multiple proposed projects. The high instances of capital rationing found among respondents in the current study are consistent with survey results from Baker *et al.* (2010) who indicated that SMEs are more susceptible to instances of capital rationing with 43% of small firms indicating that they encounter capital rationing while it was present in only 34% of larger firms. The findings from the current study are also consistent with findings from the study by Daunfeldt and Hartwig (2012) who had found a connection between companies that rely heavily on retained earnings and higher instances of capital rationing.

Respondents who disclosed that they experience capital rationing were asked to indicate how certain factors influence capital rationing in their respective companies. Borrowing limits set by senior managers was chosen as the most common reason for capital constraints, followed by the aversion of capital suppliers to provide additional funds to companies. The third most influential factor that caused capital rationing among respondents was the company's restrictive policies regarding external financing. Studies such as Gitman and Forrester (1977), Chan, Haddad and Sterk (2008) as well as Baker and English (2011) also found that the most prevalent cause of capital rationing among respondents was borrowing ceilings placed by internal management. Gitman and Forrester (1977) explain that internal management is likely to set limitations on the borrowing capacity of the company based on its targeted debt to equity ratio that they attempt to maintain. While studies such as Myers (1984) as well as Baker and English (2011) found that capital rationing could be caused by a desire to reserve borrowing capacity for even more lucrative projects in the future, the current study found very little evidence of this argument among respondents.

4.7 Discount rate analysis

The purpose of the last section of the survey was to examine the discount rates used by respondents in their capital budgeting processes. While the evaluation of the discount rates employed by companies on the Alt X is not among the primary objectives of this study, they do form part of the comprehensive analysis of the capital budgeting practices that they use. The first question asked respondents if their respective companies used any discounting rates for capital budgeting purposes. It was designed to filter respondents so that the survey would end automatically for those that do not use any. This was done to save time for respondents who don't need to see any of the discount rate related questions and to increase the accuracy of the results as it avoided receiving responses to further questions from respondents who had already indicated that they do not use any discounting rates. Ten of the fifteen respondents chose to participate in this section of the survey and all ten of the respondents indicated that they use some discount rate for capital budgeting purposes.

As a follow-up question, respondents were asked to reveal the approach that their respective firms use to determine an acceptable rate of return for proposed capital investments. The weighted average cost of capital (WACC) was the most popular alternative; with 70% of the respondents indicating that they use it, followed by 20% of the respondents who stated that the rate used is based on managements' experience. The remaining respondents to this question revealed that they use a historical rate of return. The high use of the WACC found among Alt X listed companies corresponds with recommendations from academia, which promotes the use of the WACC as a discounting rate (Ryan & Ryan, 2002). Interestingly, none of the respondents indicated that they exclusively use the cost of the specific funds intended to finance a proposed project such as the cost of debt or equity as a discount rate.

Prather *et al.* (2009), who surveyed small rural American businesses, found that 62.7% of their respondents did not use any formal capital budgeting techniques but relied heavily on managerial experience and intuition. These techniques do not require users to perform any cost of capital calculations and as a result, they found very little evidence of techniques used to determine appropriate discount rates among these small businesses. Furthermore,

respondents to that study revealed that they were unfamiliar with the various approaches used to determine acceptable rates of return and that they lack the time, staff or experience to implement such techniques when assessing proposed capital investments. Andor, Mohanty and Toth (2011) also found low levels of use of the appropriate methods of determining acceptable rates of returns among small businesses in their study. They revealed that 64.5% of the small firms they surveyed preferred to use a general discount rate for all projects of the company which is comparable to the historical rate of return used by respondents in the current study. Only 29% of them indicated that they use the WACC method while the remaining respondents stated that their practices, used to determine a suitable discount rate, were not consistent. While there is some level of similarity between the Alt X listed companies and their unlisted counterparts, the level of use of inferior methods, such as the historical rate of return, among the former is much lower (10% of respondents).

The findings from the current study do however, correspond with findings in studies of larger companies which found that a significant number of companies are using the WACC. Schall, Sundem and Geijsbeek (1978) found that a large portion of respondents (46%) use the weighted average cost of capital to determine their discount rate and another 20% base the calculation on past experience. Data from their study also found that 34% of respondents were equally distributed between using the cost of debt and expectations with respect to growth rates and dividend payouts. Ryan and Ryan (2002) concluded that 83.2% of respondents from the Fortune 1000 chose the WACC; while 7.4% indicated that they used the cost of debt. Other approaches used to determine the discount rate for capital budgeting purposes that were cited in their study include the cost of retained earnings which was being used by 1.5% of respondents and the cost of equity by a further 1% of the respondents. More recently, Baker *et al.* (2011) presented findings which were also consistent with financial theory. They reported that 63.6% of the responding firms use the weighted average cost of capital, while 43.5% relied on managerial experience and a further 38.2% on the cost of the specific funds.

The respondents who acknowledged using the WACC as a foundation to determining their discount rate were asked to reveal how the weights of each component of the WACC are defined. Book value weights derived from the balance sheet and market value weights

showed equal popularity among respondents to the current study, each attracting 42.9% of the respondents, while target weights are only used by 14.3% of the respondents. The high use of market value weights among respondents corresponds with financial theory. Financial theory does, however advocate the use of targeted weights over the use of book value weights (Bennouna *et al.*, 2010). Bruner, Eades, Harris and Higgins (1998) explain that the choice between target value weights and market value weights is not an easy one for publicly trading companies. While the market value proportions of debt and equity are preferable, investors can often exert pressure on the company for them to employ weights based on the targeted capital structure. Small firms surveyed by Baker *et al.* (2011) also showed greater reliance on weights derived from the market value of various sources of capital, followed by target value weights and finally book value weights.

Findings from studies which investigated larger companies such as Gitman and Vandenberg (2000) found that respondents sequentially preferred target values (49.5%), market values (34.2%) and book values (19.8%) as weights to define the calculation of the WACC. Bennouna *et al.* (2010) found that 50% of respondents base their WACC calculation on target value weights, 29.6% on book value weights and finally 20.4% on market value weights. A recent study which assessed the weights used by larger companies found a similar trend to that detected in the Alt X listed companies with regard to their preference for book value weights over market value weights. The larger respondents in the study by Baker *et al.* (2011) showed stronger preference for market weights but like the respondents in the current study, preferred book value weights before target value weights. Brigham and Ehrhardt (2010) found that executives favoured using book value weights as these values are reflected on financial statements, which makes them easier to find and bond rating agencies focussed on book value weights. Moyer, McGuigan, Rao and Kretlow (2012) also found evidence of companies that showed a stronger preference for book value weights. They explain that some firms show a stronger preference for book value weights in the calculation of the WACC because it becomes impractical to constantly adjust the WACC as market values change on a daily basis.

4.7.1 Frequency of recalculations

Benounna *et al.* (2010) explain that the WACC is rate of return that a firm requires on investment proposals that carry the same risk profile as the firm's existing assets. Consequently, this rate should be adjusted upward for projects that carry greater risk such as expanding current operations and undertaking new proposed projects. Similarly, a downward adjustment is suitable for projects that are associated with lesser risks such as replacements and abandoning current projects. Ross, Westerfield, Jordan and Roberts (2005) assert that management's subjective judgement could be used to adjust the WACC¹⁵.

Respondents were asked how frequently they adjusted the WACC of their respective companies based on the subjective judgement approach. Of the respondents, 42.9% indicated that they recalculate the WACC when significant changes to parameters occur. According to Bruner *et al.* (1998), the changes in parameters include high-impact economic events, acquisitions, fluctuations in taxes as well as any changes in the financial leverage of a business which change the relationship between the various sources of capital used to calculate the WACC. Furthermore, fluctuations in the risk profile of projects need to be accounted for by adjusting the WACC appropriately. Andor, Mohanty and Toth (2011) found that 51% of the small companies in their study adjust the cost of capital to reflect the risks related to different projects. Small firms in the study by Baker *et al.* (2011) showed results that were more consistent with financial theory. They found that 79% of them constantly differentiate projects based on their riskiness and adjust the discount rate accordingly.

Earlier studies of the practices of larger companies such as Bruner *et al.* (1998) show that only 7% of the respondents adjusted their respective company's cost of capital continually or for every investment. Graham and Harvey (2001) reported an improvement with 51% of large firms in their study stating that they use a risk-matched discount rate to evaluate each of the company's projects. More recently, Andor *et al.* (2011) found that 73% larger companies alter their cost of capital to accommodate significant changes to parameters

¹⁵ Other techniques such as the pure play approach used to adjust the WACC lie beyond the scope of this analysis and are excluded from this study.

that are inherent to each project. Similarly, Baker *et al.* (2011) reported that 68% of large companies measure project risk individually and allow changes in the discount rate to correlate to fluctuations induced by each project.

Other recalculation frequencies were also displayed by the respondents to the current study with 28.6% of them revealing that they adjusted the WACC annually. The remaining respondents were equally distributed between monthly and bi-annually while none of the respondents indicated that they reassess the WACC as financial markets fluctuate. The use of scheduled reviews of an organisational WACC dominated the Alt X listed companies despite financial theory recommending that it must be adjusted in the event of significant changes to parameters derived from each project. Andor *et al.* (2011) reported that 49% of surveyed SMEs also use a company-wide discount rate but did not disclose how often it is reviewed. Baker *et al.* (2011) found the prevalence of a standard WACC that is applied to all company divisions and projects much lower with only 23% of the small firms in their study citing its use.

Bruner *et al.* (1998) discovered that 37% of large firms in their study review their WACC annually and 19% review it quarterly. A further 11% schedule to review the WACC semi-annually while another 4% engage in monthly reappraisals. Graham and Harvey (2002) found that nearly 60% of the large firms in their study use a single company-wide discount rate that isn't adjusted per project to reflect the different risk characteristics of each project. More recently, Andor *et al.* (2011) and Baker *et al.* (2011) both found that the practices of larger companies are aligning with prescribed practices as a declining number of large companies in each of their studies were relying on a single discount rate to be applied to assess all investment proposals. None of these studies investigated how frequently firms that do use an organisational WACC arrange to reassess and adjust it.

4.7.2 Other uses of the weighted average cost of capital

The final question related to the WACC was designed to investigate whether the respondents used the WACC for purposes other than capital budgeting. While 28.6% of the respondents indicated that they did not use the WACC for alternative purposes, 71.4% of them revealed that they do. Not much effort has been dedicated in previous studies to

investigating how companies, both small and large, use the cost of capital for other activities. Evidence of alternative uses of the cost of capital by surveyed companies was found in a study by Bruner *et al.* (1998). They found that 51% of the respondents in that study used the cost of capital for other purposes such as the evaluation of divisional performance.

Only two of the respondents in the current study, that stated that they used the WACC for other activities, chose to disclose how their respective companies used it for purposes other than capital budgeting. One respondent expressed that they used the WACC to determine the cost of funding their short-term requirements by using micro financing facilities offered by banks which take cession of their debtors' book as security. Typically, a company has funds tied up in debtors awaiting collection but needs funds in the interim to continue its operations. Such a company then approaches a financial institution or debt financing company in order to obtain a micro loan used to fulfil its short-term requirements. The Nedbank Small Business Services Management Guide (2004) explains that upon granting the loan, the institution typically takes control of the debtor's book of the company and the funds tied up in it as security against the loan granted. The cost of funding the debtors' book through the loan increases with the risk profile of the debtors which includes the general quality of the debtors and the age of the debt. Using the WACC allows the company to gauge the interest rate required to finance the loan against the current weighted average cost of the company's existing capital sources.

The other respondent disclosed that their company uses the WACC to evaluate potential funding. The sources of funding that a company employs affect its WACC as additional financing costs are incurred. Tax benefits often make debt a cheaper and attractive form of financing. Cohen (2004) adds that a rise in debt up to a certain extent is associated with a decline in the WACC. However too much debt increases the default risk associated with the firm and causes interest rates required by potential borrowers to increase. As a result companies need to determine the optimal capital structure that contains the ideal proportions of debt and equity, where the WACC is at its minimum value. The weighted average cost of capital curve as discussed in Cohen (2004) allows companies to select the optimal capital structure and allows them to evaluate the effects of potential funding on the WACC curve.

4.8 Conclusion

Findings from the empirical study that were presented in this chapter paint an interesting picture of the companies listed on the Alternative Exchange and their respective capital budgeting practices. Contrary to findings from other studies that focussed on the capital budgeting behaviour of SMEs, primary data gathered from the survey revealed that decision-makers in Alt X companies are generally more educated and knowledgeable about the capital budgeting process and its various components than the decision-makers of both local and international SMEs. The majority of respondents revealed that their companies chose to list on the Alt X as this increased their access to capital and other future financing opportunities. This reason supports statements from the Alt X that listing assists SMEs in the acquisition of additional funds needed to sustain their growth and development. Alt X listed companies continue to use straight debt and retained earnings to finance investments avoiding sources such as issuing common equity that tend to dilute ownership and control.

Analysis of data from the survey also shows that the capital budgeting practices of these companies has improved in recent years which could be associated with increased capital budget sizes. More companies listed on the Alt X are using discounted cash flow techniques as primary tools while subjective judgements dominates as the preferred secondary tool for investment appraisal. Despite the increased capital budgets a high number of respondents expressed that they always encounter instances of capital rationing with borrowing limits set by internal management being cited as one of the main factors that induce capital rationing.

Most of the respondents disclosed that they use the weighted average cost of capital as the acceptable rate of return when evaluating proposed capital investments. This is similar to evidence found in studies related to larger companies and is in alignment with theory recommendations. However, respondents tend to define weights used in the weighted average cost of capital using market value weights or book value weights. Drury and Tayles (1997) observe that the high use of the incorrect weighting structures could suggest that respondents might misinterpret the inputs needed for efficient use of DCF techniques and consequently derive inaccurate analyses of the various proposed projects.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

“To accomplish great things, we must not only act, but also dream; not only plan, but also believe.”

- Anatole France

5.1 Introduction

Small and medium sized companies play a very important role in the growth and development of an economy. They alleviate poverty through the creation of jobs and nurturing entrepreneurial innovation. Despite their importance, many of these SMEs often fail in the fledgling years of their business cycle due to the various challenges they encounter. They need additional funds in order for them to undertake investment projects and ventures that allow them to expand and increase their sustainability. However, suppliers of additional funds are often very cautious and prudent in terms of investing and advancing loans to SMEs. This is because unlisted small and medium sized companies are not obliged to publish and publicise their financial statements. This generally increases the perceived default risk that external investors associate with SMEs, as critical information regarding the company’s current state and performance is not easily available for them to assess. In addition to scarce external funding, foundational research on the capital budgeting practices of SMEs (Soldofsky, 1964 and Block, 1983) found that the lack of education among decision-makers and their limited knowledge regarding available capital budgeting practices were leading factors that often resulted in the poor utilisation of limited financial resources on investments that are not viable.

Governments around the world, particularly in developing countries, have become more cognisant of the role that SMEs play in the economy and the assistance they need in acquiring finance and in promoting their general development. The South African government introduced Khula Enterprise Finance Limited to provide financial support to SMEs while the mandate of the Ntsika Enterprise Promotion Agency was to offer mentorship and other non-financial aid to local SMEs. The Johannesburg Securities

Exchange launched the Alternative Exchange through a partnership with the Department of Trade and Industry. The Alt X was designed to be an incubator programme for small and medium sized companies by offering them business support and granting them access to external capital markets. One of the main aspirations of the Alt X, which verifies its effectiveness as an incubator, is for successful members to eventually graduate onto the main board of the JSE.

The main aim of this study was to investigate the capital budgeting practices implemented by companies listed on the Alt X of the JSE. These were compared to findings derived from other studies that analysed the practices of their unlisted counterparts, companies on the main board of the JSE as well as small and larger international companies. The investigation first attempted to discover whether the inherent challenges faced by unlisted SMEs were also evident in the Alt X listed companies as previous research has shown that these difficulties result in the capital budgeting choices made by SMEs. This information allowed the researcher to analyse the capital budgeting practices of Alt X listed companies in the context of their capital budgeting environment. It also led to the determination of any differences between the challenges faced by Alt X listed companies and those of unlisted SMEs and whether the differences were reflected in the capital budgeting behaviour of the former. The objectives of this study were achieved through a comprehensive literature review and an empirical analysis of new data collected through a self-administered web-based survey.

5.2 Findings from the literature review

The literature review section of this study disclosed findings derived from previous studies that analysed the capital budgeting practices implemented by small and large local companies as well as international companies of corresponding sizes. Findings from the studies that focussed on South African SMEs found that the most preferred capital budgeting techniques among them were the payback period and other elementary tools of investment appraisal such as “gut feel” or intuition. While studies of the capital budgeting practices of SMEs in other countries revealed that those companies were persistently in favour of the payback period and intuition, a trend in the overall data reflected that the percentages of SMEs that use discounted cash flow techniques had increased slightly

through the decades. Evidence from earlier studies found no conclusive results regarding which discounted cash flow technique was favoured more between the IRR and the NPV. This continues to be the case among studies that investigated the capital budgeting practices of local SMEs with some reporting that local SMEs prefer the IRR approach (Gilbert, 2003) and others disclosing that they favour the NPV technique (Brijlal & Quesada, 2009). Findings from international studies of SMEs have however shown that over time the practices of international SMEs correspond with recommendations from financial theory as more of them tend use the NPV approach more than the IRR (Baker, Dutta & Saadi, 2011). This practice corresponds with the recommendations of financial theory.

Local studies such as Gilbert (2003) as well as international studies like Graham and Harvey (2001) showed early signs of SMEs employing multiple capital budgeting techniques. They found that respondents persistently used methods such as the payback period along with other techniques because it provided management with additional information not given by other techniques, such as the perceived risk associated with the investment period of a project (Gilbert, 2003). Data obtained from questionnaires and interviews with respondents showed that decision-makers lacked the relevant education and knowledge regarding capital budgeting techniques. This often resulted in them excluding advanced techniques from their capital budgeting processes due to perceived difficulty in implementing them. Furthermore, the costs of retaining additional staff or external consultants that could assist with the implementation of discounted cash flow techniques made them a less feasible choice for SMEs. Finally, evidence from these studies found a strong correlation between the size of the capital budget available to companies and the effort and techniques applied in their investment appraisal process, with smaller budgets handled less formally.

Local and international studies that investigated the capital budgeting behaviour of large companies found that their practices incorporated more of the discounted cash flow techniques as primary tools than results found from studies that concentrated on the practices of SMEs. They attributed this to the widespread availability of computer software that can be used in calculations (Pike 1996) and the higher levels of academic qualification attained by decision-makers in large companies (Bennouna *et al.*, 2010). Additional

possible explanations for the observed increase in the use of quantitative techniques was that large companies generally have bigger capital budgets in comparison to SMEs, which warrants the use of advanced techniques when deciding how these funds should be allocated to various projects.

In recent times, most of the international studies found that large companies generally used the net present value technique as their preferred investment appraisal tool often followed by internal rate of return analysis (Ryan & Ryan, 2002; Bennouna *et al.*, 2010 and Baker *et al.*, 2011). This result was not surprising given that most of the decision-makers in large companies have acquired higher levels of education and are considered to be more knowledgeable about the theoretically advised technique of using the NPV to assess proposed projects. The observed popularity of the internal rate of return as a secondary approach was often attributed to its appeal to managers as it results in percentages that are easier to compare among potential investments (Baker *et al.*, 2011). Similarly, studies based on large South African companies also suggested that their capital practices were becoming more compliant with the recommendations of financial theory in more recent years even though they reported slightly lower levels of implementation (Correia & Cramer, 2008 and Hall & Millard, 2010). Both local and international studies detected a trend in the practices of large companies that corresponded with findings from studies based on SMEs which revealed that they use a medley of capital budgeting techniques in their investment appraisal decisions to support conclusions reached through their primary technique (Bennouna *et al.*, 2010 and du Toit & Pienaar, 2005).

The inclusion of other studies into an investigation like the current one often serves the purpose of providing a foundation from which to analyse and interpret current results, in comparison to other studies. In addition, they assist in the extraction of trends, identification of where the current population lags in comparison to global practices as well as in the contextualising of findings. However, certain elements such as the country in which the study was conducted, the definition of the population investigated as well as the year during which the analyses was conducted create data biases which reduce the accuracy of the comparison. Furthermore, sampling techniques and data collection procedures can lead to perceived differences in findings. Consequently and where possible, studies that evaluated the same population using the same techniques should be

included in the study to increase the comparability of findings derived from the current study.

West (2008) also investigated the capital budgeting techniques implemented by companies listed on the Alternative Exchange. The study included all the companies listed on the Alt X and used web-based software to administer the survey. Findings from the study revealed that the most used capital budgeting technique was the earnings multiple approach which was being implemented as a primary tool of analysis. Respondents also showed high preference for the discounted cash flow techniques as primary tools which contrasted with findings related to the capital budgeting techniques of unlisted SMEs. Notably, findings from the study revealed that Alt X listed companies showed a stronger preference to the IRR approach instead of NPV analysis as prescribed by academia. While results from unlisted local SMEs were mixed, the choices made by Alt X listed in the battle between the NPV and the IRR, as first evidenced in West (2008), deviated from those of large South African companies as well as those of international companies both small and large. As with other studies, West (2008) also found that the companies listed on the alternative exchange use multiple capital budgeting techniques in their investment appraisal decisions with the payback period cited as the most favoured secondary tool.

5.3 Findings from the empirical study

The empirical study was based on the analysis of primary data gathered from a web-based survey that was administered to companies listed on the Alt X. The methodology used in this study resembles the process used by West (2008) which involved establishing initial contact with the relevant employees in each company and including all companies actively listed on the exchange. While the questionnaire devised for this study was more comprehensive than the one used in West (2008), several similar questions were asked in both studies and this increases the comparability of the findings from the current study to those of that similar study conducted a few years earlier. Additionally, the questions used in this study also correspond with questions asked in previous studies that investigated local and international companies.

Findings from this suggested revealed that the decision-makers in the companies listed on the Alt X have higher levels of academic qualifications than those found among local and international unlisted SMEs. The majority of the respondents revealed that their companies had been listed on the Alt X for periods of at least four years respectively, which implied that the managers of these companies had developed a record of successful compliance with the Alt X requirements. This could also imply that these companies were saturating the benefit of listing on the Alt X which could result in their eventual graduation onto the main board of the JSE.

Most of the respondents expressed that the desire to increase their access to capital needed to finance projects was the main reason they pursued a listing on the Alt X. Interestingly, none of the respondents indicated that the reason they enrolled on the exchange was to eventually progress onto the main board despite the Alt X being launched as an incubator for the main board. The pursuit of additional sources of capital through the Alt X confirms findings from earlier studies that identified limited access to capital markets as one of the primary challenges that confront unlisted SMEs.

Respondents revealed that they often to always used capital budgeting techniques to analyse potential investments or projects with the majority of them stating that they, along with additional staff, are always involved in the process. These findings contrast with those derived in studies of unlisted SMEs, which revealed that small staff sizes as well as the lack of managerial knowledge and access to external consultants reduced the frequency with which they employ capital budgeting techniques in their investment appraisal decisions.

The most cited sources of long-term funds used to finance investments among respondents were straight debt and retained earnings. This trend was also observed in studies that analysed unlisted SMEs; who listed retained earnings as their first source of funds as this allowed them to maintain ownership and control of the company. Studies that investigated larger companies also found that these sources of funding were the first to be used by respondents. While listing on the Alt X forced companies to relinquish some part of their ownership and control to new shareholders, the introduction of straight debt as a

favoured source of funding instead of issuing additional equity points to these companies' desire to preserve some ownership and control despite going public.

The capital budgets of companies listed on the Alt X were slightly larger than the typical capital budgets available to their unlisted counterparts. This could be attributed to the increased access to capital gained by listing on the exchange which makes more funds available to finance potential ventures and projects, amongst other things. The primary capital budgeting tools used by companies listed on the Alt X, such as the IRR and the NPV, resembled practices used by larger companies. Furthermore, the use of discounted cash flow techniques among Alt X listed companies had increased since the study conducted by West (2008). Respondents continued to show stronger preference of the IRR technique over the NPV approach. The use of advanced investment appraisal techniques corresponds with the increased sizes of the capital budgets available to the companies on the Alt X in comparison to those found in unlisted SMEs. However, no definite conclusions could be derived about whether companies listed on the Alt X had persistently employed advanced techniques or whether listing on the exchange influenced their practices.

The presence of capital rationing is not unique to Alt X listed companies. Studies of both small and large organisations revealed that they often encounter instances where they must reject projects because the company does not have enough funds available to finance all potentially viable investments. The more commonly offered reason among SMEs for capital rationing is lenders' aversion to providing money to the company while it was found that in larger companies, reasons such as debt limits set by the company itself prevented them from undertaking all viable projects. Findings from the current study show that capital rationing among respondents was mostly caused by internal influences such as borrowing limits set by senior managers. This was followed by lenders' aversion to providing the company with funding. Noticeably, the reasons provided by companies listed on the Alt X combined those stated by larger companies and those expressed by other SMEs. Consistent with the results found throughout the study, this once again suggests that Alt X listed companies are some form of hybrid between the two company size extremes.

Chan, Haddad and Sterk (2008) found that internal factors often found in larger companies that cause capital rationing, could be motivated by the desire to maintain control of the company by limiting issued equity and to monitor the financial flexibility of a company through the minimisation of debt. The lenders' aversion cited by respondents indicates that while listing on the Alt X provided these companies with access to additional funds and allowed them to increase investor confidence in the company's operations by improving transparency, lenders possibly continue to experience some hesitation due to their perception of the default risk they associate with smaller companies.

The majority of respondents revealed that they use a discount rate in their investment appraisal process. This corresponds with the higher usage of advanced capital budgeting techniques found among respondents. The weighted average cost of capital was the most preferred approach of deriving an acceptable rate of return for accessing proposed capital investments. Furthermore, respondents revealed that they base their WACC calculation on book value and market value weights and recalculate it when significant changes to parameters occur. These results were generally similar to recent practices found in larger companies both in South Africa (Correia & Cramer, 2008) and internationally (Bennouna *et al.*, 2010). On the other hand, the use of varying discount rates derived from formal procedures deviated from practices of other SMEs who expressed using general discount rates that are calculated at irregular intervals using the manager's discretion (Brijlal & Quesada, 2009 and Andor *et al.*, 2011).

5.4 Recommendations and areas for further research

The analysis of the capital budgeting practices of companies listed on the Alt X of the JSE was the primary objective of this study. The analysis was conducted using primary data gathered through a self-administered web-based survey and the evaluation of secondary data related to other companies both small and large. The response rate from this survey was much higher than that of a similar study conducted on the same population and higher than the average response rate of web-based surveys. However, it is recommended that future studies use mail surveys or personal interviews as these methods produce even better response rates which ultimately increases the accuracy of findings from the study.

It became very evident through compiling this dissertation that the majority of studies that investigate capital budgeting practices of companies in South Africa and around the world tend to focus on large companies while the evaluation of capital budgeting techniques among SMEs remains an under explored area of study, despite their observed importance. Studies that did evaluate SMEs often focussed on companies that operated in a specific sector and in a specific region which lead to biases in the data. As a result, it is suggested that further research concentrate on the analysis of the capital budgeting practices of SMEs both locally and internationally, without discriminating based on industry or geographical location. The Alt X is one of many alternative exchanges launched to nurture SMEs and provide them with access to the additional capital needed to grow. Similar studies need to be conducted of SMEs listed on the New York Stock Exchange's Alternext, the Alternative Investment Market (AIM) in London and similar boards in other countries for comparison with findings from this study as well as to detect any patterns in companies listed on alternative exchanges.

International studies such as Bennouna *et al.* (2010) as well as Baker, Dutta and Saadi (2011) state that the use of real options has been one of the main developments in capital budgeting literature over the last decade. However, very little evidence of this was found among the Alt X listed companies and studies in South Africa in general. Future studies could endeavour to determine the prevalence of this approach to capital budgeting among South African companies.

Data from the current study suggested that the companies listed on the Alt X generally employ advanced capital budgeting techniques in comparison to their unlisted counterparts. However, findings were inconclusive regarding whether listing on the Alt X influenced their practices. It could be worth investigating further whether listing on the Alt X improved their practices. While respondents revealed that graduating onto the main board of the JSE was not a highly ranked motivation for listing on the Alt X, the development of a financial model designed to determine the graduation potential of companies listed on the Alt X could be an invaluable tool to these companies. This could be achieved by analysing companies that have successfully progressed onto the main board and their financial data during their transitional period to determine common factors among them. It could help companies currently listed on the Alt X track their progress as graduating onto the main

board grants them access to even more of the crucial capital needed to sustain their growth and development.

Findings from this study revealed that some companies listed on the Alt X face capital rationing due to the reluctance of lenders in supplying financing to them. This is despite the increased transparency given to lenders through Alt X regulations that require listed companies to disclose details regarding their financial performance. Owing to time and financial constraints, a lender-side analysis was excluded from this dissertation although this plays a relevant role in the capital budgeting process of companies listed on the Alt X. Consequently, it is recommended that future research be conducted on how the various suppliers of capital perceive the Alt X listed companies as these companies could use such information to improve investor confidence and ultimately attract capital.

5.5 Conclusion

The development of small and medium enterprises is an important factor to the growth of the South African economy. Ventures such as the Alt X aim to nurture, offer guidance and encourage the sustainability of these companies given the challenges they incur in the pursuit of financing. This study provided valuable practical insight into the behaviour of companies listed on the Alt X. Data from the survey found that respondents tend to use discounted cash flow techniques now than the study conducted a few years earlier indicated, revealing an improvement in their practices towards recommended DCF techniques. It showed that many aspects of their capital budgeting processes resemble those of larger companies that employ sophisticated techniques. This means that the allocation of scarce capital among proposed investments is done using theoretically approved approaches which result in the acceptance and implementation of viable projects that offer investors great returns. Listing on a regulated exchange that requires disclosure of a company's financial health has to some extent reduced the perceived risk that lenders typically associate with SMEs, which has resulted in increased capital budgets for the growth and development of these SMEs.

This research has also shed light on this unique group of companies that are often overlooked on the JSE. Furthermore, this study has contributed to financial theory by

revealing that companies listed on the Alt X differ from their unlisted counterparts and that most of the findings from previous studies regarding SMEs are not universal to all SMEs. It has laid the foundation for future research on the capital budgeting practices of listed SMEs in South Africa and around the world as findings from such studies could be compared to those included in this study to identify patterns among listed SMEs.

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APPENDIX A

- List of Alt X companies included in the study -

	Company Name	Comment	Decision
1	Accentuate Holdings		
2	Africa Cellular Towers	Suspended from exchange	Excluded from study
3	African Dawn Capital Limited		
4	African Eagle Resources Plc	Primary listing on AIM	Excluded from study
5	Ah-Vest Limited		
6	Alert Steel Holdings Limited		
7	Alliance Mining Corporation Limited	Suspended from exchange	Excluded from study
8	Ansys Limited		
9	B and W Instrumentation and Electrical Ltd		
10	Beige Holdings Limited		
11	Bioscience Brands Limited		
12	Blackstar Group	Primary listing on AIM	Excluded from study
13	Blue Financial Services Limited		
14	Brikor Limited		
15	BSI Steel Limited		
16	Chemical Specialities Limited		
17	Chrometco Limited		
18	Curro Private Schools		
19	Diamondcorp Plc	Primary listing on AIM	Excluded from study
20	Erbacon Investment Holdings Limited		
21	Finbond Group Limited		
22	Foneworx Holdings Limited		
23	Gooderson Leisure Corporation Ltd		
24	Hardware Warehouse Limited		
25	Huge Group Limited		
26	Ideco Biometric Security Solutions		
27	IFCA Technologies	Primary listing in Malaysia	Excluded from study
28	Interwaste Holdings Limited		
29	IPSA Group Plc	Primary listing on AIM	Excluded from study
30	IQUAD Group Limited		
31	ISA Holdings Limited		
32	Kibo Mining Plc	Primary listing on AIM	Excluded from study

33	Lonrho Plc	Primary listing on LSE	Excluded from study
34	MAS Plc	Primary listing in Luxembourg	Excluded from study
35	Moneyweb Holdings Limited		
36	Nutritional Holdings Limited		
37	O-line Support Systems	Delisted from exchange	Excluded from study
38	Oasis Crescent Property Fund		
39	Onelogix Group Limited		
40	Pinnacle Point Group Limited	Suspended from exchange	Excluded from study
41	Poynting Holdings Limited		
42	PSV Holdings Limited		
43	Quantum Property Group Limited	Suspended from exchange	Excluded from study
44	Queensgate Hotels and Leisure Group	Suspended from exchange	Excluded from study
45	Racec Group Limited		
46	Rare Holdings Limited		
47	RBA Holdings Limited		
48	RGT Smart Market Intelligence Ltd		
49	SA French Limited		
50	Sable Holdings Limited		
51	Silverbridge Holdings Limited		
52	Skinwell Holdings Limited		
53	Stratcorp Limited		
54	Telemasters Holdings Limited		
55	Top Fix Holdings		
56	Total Client Services Limited		
57	Ububele Holdings Limited		
58	Vunani Limited		
59	W G Wearne Limited		
60	William Tell Holdings Limited	Suspended from exchange	Excluded from study
61	Workforce Holdings Limited		
62	Zaptronix Limited		

APPENDIX B

- E-mailed letter of invitation-

Good Afternoon,

My name is Thabani Sibanda and I'm a masters student at the University of Pretoria. I am currently working towards completing my dissertation which involves analysing the capital budgeting practices of Alt X listed companies. Alt X listed companies are an integral part of the South African economy and make a distinct contribution to its growth, yet very little research has been focussed towards understanding this group of companies. It is therefore the sole purpose of this survey to shed some light on this unique group of companies. Please click on the link included below to access the survey.

Here is the link to the survey:

<https://www.surveymonkey.com/s/AltXCapitalBudgetingPractices>

This survey is endorsed by the University of Pretoria; please find attached the letter of endorsement from the university signed by my supervisor Professor John Hall and I. The survey should not take more than 15 minutes of your time and is completely anonymous, which means that you and the company you represent cannot be identified.

Thank you in advance for your participation! Your contribution to academic knowledge is invaluable and highly appreciated!

Kind Regards
Thabani Sibanda

APPENDIX C

- University consent and approval form-

**Invitation for participation in an academic
research study**

Dept. of Financial Management Sciences

**CAPITAL BUDGETING PRACTICES: AN EMPIRICAL STUDY OF COMPANIES LISTED ON
THE ALT X**

Research conducted by:

Ms. T.I. Sibanda (26061288)
Cell: 072 317 7717

Dear Respondent

You are invited to participate in an academic research study conducted by Thabani Idaishe Sibanda, a Masters student from the Department of Financial Management Sciences at the University of Pretoria.

The purpose of the study is to analyse and interpret the capital budgeting practices of companies listed on the Alt X.

Please note the following:

- This study involves an anonymous survey. Your name will not appear on the questionnaire and the answers you give will be treated as strictly confidential. You cannot be identified in person based on the answers you give.
- Your participation in this study is very important to us. You may, however, choose not to participate and you may also stop participating at any time without any negative consequences.
- Please answer the questions in the attached questionnaire as completely and honestly as possible. This should not take more than 15 minutes of your time.
- The results of the study will be used for academic purposes only and may be published in an academic journal. We will provide you with a summary of our findings on request.
- Please contact my supervisor, Professor. J.H Hall via the following email address: john.hall@up.ac.za, if you have any questions or comments regarding the study.



Thabani Sibanda
Researcher



Professor John Hall
Study supervisor

APPENDIX D

- Capital budgeting survey-

AltX Capital Budgeting Practices

Demographics

1. What job title do you hold within the company?

- Chief Financial Officer (CFO) Corporate Controller Chief Corporate Accountant
 Chief Executive Officer (CEO) Financial Manager Other
 Chief Investment Officer (CIO) Financial Director

If you selected "Other", please specify in the space provided below

2. How long have you held the position indicated in the previous question within this company?

Number of years

Please select an option from the drop-down menu

3. What is the highest level of academic qualification you have attained?

- Certificate or Diploma Master's Degree Other
 Bachelor's Degree Doctorate Degree
 Honours Degree MBA

If you selected "Other", please specify in the space provided below

4. Which sector represents your company's predominant area of activity?

- Energy Technology Mining
 Manufacturing Retail and Wholesale Other
 Financial Services Healthcare
 Utilities Transportation

If you selected "Other", please specify in the space provided below

5. How long has your company been listed on the Alt X?

Number of years

Please select an option from the drop-down menu

If you selected "Other", please specify in the space provided below

AltX Capital Budgeting Practices

6. Which one of the following reasons best describe why your company chose to list on the Alt X?

- Increased access to capital and future financing opportunities
- Increased visibility and prestige
- To attract institutional investors
- To progress onto the main board of the JSE
- Provide liquidity for existing shareholders
- To create employee incentive mechanisms
- I don't know
- Other

If you indicated "Other", please specify in the space provided below

7. Which of the following options is one of the most important goals to your firm?

- Maximizing accounting profit
- Maximizing dividends
- Stabilizing performance
- Maximizing market value of equity
- Maximizing growth in sales
- Optimizing solvency and liquidity
- Maximizing growth of assets

Capital Budgeting Practices

8. How frequently does your company use capital budgeting techniques to analyze potential investments or projects?

- Always (more than 75%)
- Often (between 50% and 75%)
- Occasionally (between 25% and 50%)
- Rarely (between 0% and 25%)
- Never (0%)

9. How actively involved are you in the company's capital budgeting process?

- Always (more than 75%)
- Often (between 50% and 75%)
- Occasionally (between 25% and 50%)
- Rarely (between 0% and 25%)
- Never (0%)

10. Please indicate the number of staff members (excluding yourself) that are assigned to capital investment analysis?

Number of additional
staff members

AltX Capital Budgeting Practices

11. Which of the following sources of long-term funds does your firm rely on to finance investments?

	Always	Often	Occasionally	Rarely	Never
Retained earnings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Restructuring of assets	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Straight debt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Convertible bonds	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
External common equity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hire purchase or leasing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If you selected "Other", please specify in the space provided below

12. On average, what is the size of the annual capital budget that is available for investing in potentially viable projects?

- Less than R5 million
 Between R50 million and R100 million
 Between R5 million and R10 million
 More than R100 million
 Between R10 million and R50 million

Capital Budgeting Practices

13. Which one of the following techniques does your company use as a primary tool in its capital budgeting decisions?

- Subjective Judgement or Intuition
 Accounting Rate of Return
 Modified Internal Rate of Return
 Payback Period
 Net Present Value
 Economic Value Added
 Discounted Payback Period
 Adjusted Present Value
 Other
 Profitability Index
 Internal Rate of Return

If you indicated "Other", please specify in the space provided below

AltX Capital Budgeting Practices

14. Please indicate which of the following techniques your company uses as secondary tools in its capital budgeting decisions?

- | | | |
|--|--|---|
| <input type="checkbox"/> Our company uses the primary technique only | <input type="checkbox"/> Profitability Index | <input type="checkbox"/> Internal Rate of Return |
| <input type="checkbox"/> Subjective Judgement or Intuition | <input type="checkbox"/> Accounting Rate of Return | <input type="checkbox"/> Modified Internal Rate of Return |
| <input type="checkbox"/> Payback Period | <input type="checkbox"/> Net Present Value | <input type="checkbox"/> Economic Value Added |
| <input type="checkbox"/> Discounted Payback Period | <input type="checkbox"/> Adjusted Present Value | <input type="checkbox"/> Other |

If you indicated "Other", please specify in the space provided below

Capital Budgeting Practices continued...

15. If your company does not use either the Net Present Value or Internal Rate of Return technique in its capital budgeting decisions, which option(s) best describe reasons for not doing so?

- | | | |
|---|---|---------------------------------------|
| <input type="checkbox"/> Lack of expertise or knowledge about the technique | <input type="checkbox"/> Lack of applicability to our business | <input type="checkbox"/> I don't know |
| <input type="checkbox"/> Requires unrealistic assumptions | <input type="checkbox"/> Too complex to apply in practice | <input type="checkbox"/> Other |
| <input type="checkbox"/> Difficulty in estimating inputs | <input type="checkbox"/> Does not help managers make better decisions | |

If you selected "Other", please specify in the space provided below

Capital Budgeting Practices continued...

AltX Capital Budgeting Practices

16. Please indicate how frequently your company uses the capital budgeting technique (s) selected in Question 13 and Question 14.

	Always	Often	Occasionally	Rarely
Subjective Judgement or Intuition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Payback Period	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discounted Payback Period	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Profitability Index	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Accounting Rate of Return	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Net Present Value	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Adjusted Present Value	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internal Rate of Return	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Modified Internal Rate of Return	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Economic Value Added	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17. If your company uses more than one capital budgeting technique, which option(s) best describe reasons for doing so?

- | | |
|---|--|
| <input type="checkbox"/> Our company uses one technique only | <input type="checkbox"/> Internal company procedures |
| <input type="checkbox"/> Practice acquired through tertiary education | <input type="checkbox"/> Approach recommended by trade journals and articles |
| <input type="checkbox"/> Some methods give more information than others | <input type="checkbox"/> Advice from external consultants |
| <input type="checkbox"/> To confirm findings derived from primary technique | <input type="checkbox"/> In-house training seminars |
| <input type="checkbox"/> Different management executives want different methods | <input type="checkbox"/> Other |
| <input type="checkbox"/> Lack confidence in using only one method | <input type="checkbox"/> I don't know |

If you selected "Other", please specify in the space provided below

AltX Capital Budgeting Practices

18. Please indicate how frequently your company uses capital budgeting techniques for each of the following investment activities.

	Always (more than 75%)	Often (50% to 75%)	Occasionally (25% to 50%)	Rarely (0% to 25%)	Never (0%)
Expanding current operations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
New proposed projects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Replacement projects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Abandoning current projects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social (altruistic) projects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mergers and acquisitions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Foreign operations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If you selected "Other", please specify in the space provided below

19. Did your company use the same capital budgeting practices before listing on the Alt X?

- Yes
 No
 I don't know

Capital Budgeting Practices continued...

20. Which one of the following reasons best describes why your company changed capital budgeting practices after listing on the Alt X?

- Desire to follow industry practices
 Increased understanding of better techniques
 Similar practices were being used by other Alt X listed companies
 New approach was recommended by trade journal or articles
 Change in corporate strategy
 I don't know
 Increased size of capital budget
 Other

If you selected 'Other', please specify in the space provided below

Capital Rationing

AltX Capital Budgeting Practices

21. How often does your company encounter instances where it has to engage in capital rationing (i.e. have multiple acceptable projects but insufficient funds available to invest in all of them)?

- Always (more than 75%)
- Often (50% to 75%)
- Occasionally (25% to 50%)
- Rarely (0% to 25%)
- Never (0%)

Capital Rationing

22. Please indicate how each of the following factors influence capital rationing in your company?

	Always	Often	Occasionally	Rarely	Never
Borrowing limits set by senior managers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lenders' unwillingness to provide money to the company	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The company's reluctance to obtain external financing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Senior managers' aversion to down-side risk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The company's desire to reserve borrowing capacity to fund more lucrative projects in future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Cost of Capital

23. Does your firm use a discount rate for capital budgeting purposes?

- Yes
- No
- I don't know

AltX Capital Budgeting Practices

24. Which of the following approaches is used by your firm to determine the acceptable rate of return for a proposed capital investment?

- | | |
|--|--|
| <input type="radio"/> Cost of debt | <input type="radio"/> Historical rate of return |
| <input type="radio"/> Rate is based on management's experience | <input type="radio"/> Divisional discount rate |
| <input type="radio"/> Cost of equity capital | <input type="radio"/> An arbitrarily chosen figure is used |
| <input type="radio"/> Weighted average cost of capital | <input type="radio"/> Other |

If you selected "Other", please specify in the space provided below

Cost of Capital

25. How are the weights defined by your firm in order to determine the Weighted Average Cost of Capital (WACC)?

- Book value weights derived from the balance sheet
- Market value weights
- Target value weights
- Other

If you selected "Other", please specify in the space provided below

26. How frequently do you re-calculate your WACC?

- Bi-annually
- Annually
- When significant changes to parameters occur
- As financial markets fluctuate
- I don't know
- Never
- Other

If you indicated "Other", please specify in the space provided below

27. Does your firm use its WACC for purposes other than capital budgeting?

- Yes
- No

If you indicated "Yes", please specify in the space provided below

Cost of Capital

AltX Capital Budgeting Practices

28. How does your firm estimate its cost of equity capital

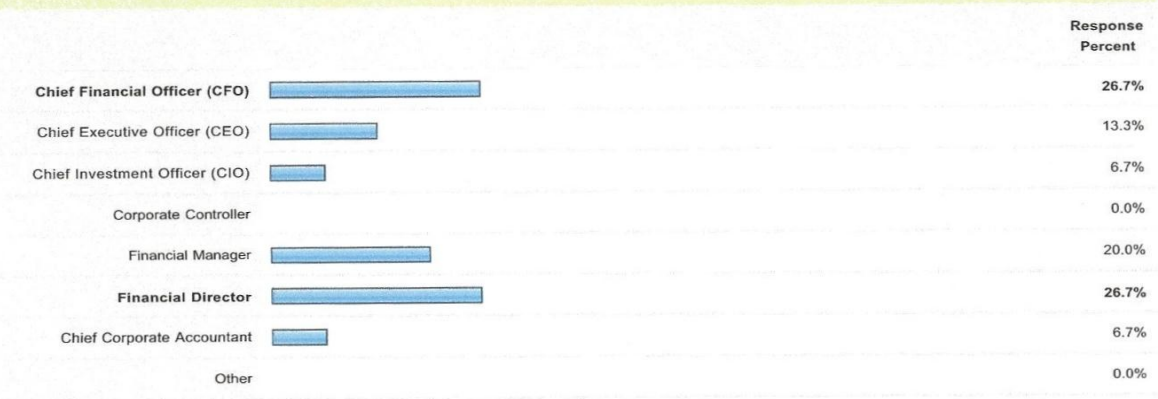
- | | |
|--|---|
| <input type="radio"/> Dividend growth model | <input type="radio"/> Cost of debt plus an equity premium |
| <input type="radio"/> Capital asset pricing model (CAPM) | <input type="radio"/> Regulatory decisions |
| <input type="radio"/> Accounting return on equity | <input type="radio"/> I don't know |
| <input type="radio"/> Earnings/Price ratio | <input type="radio"/> Other |

If you selected "Other", please specify in the space provided below

APPENDIX E

- Primary data collected from the survey-

1. What job title do you hold within the company?



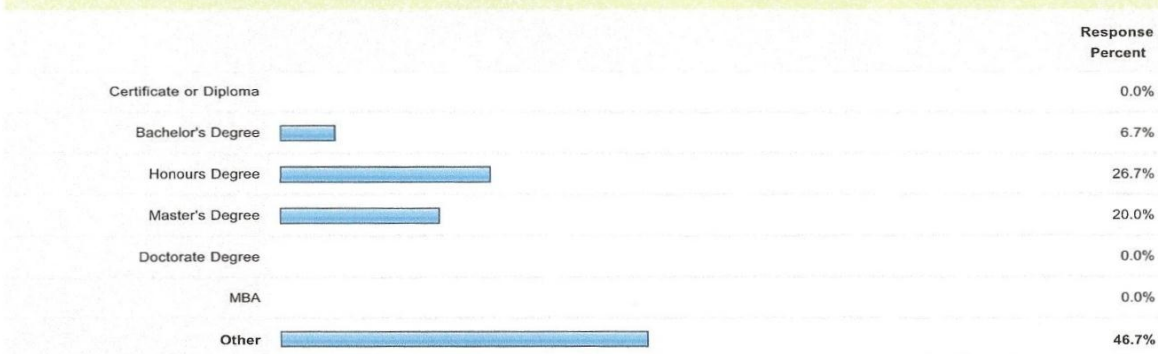
If you selected "Other", please specify in the space provided below

2. How long have you held the position indicated in the previous question within this company?

Number of years

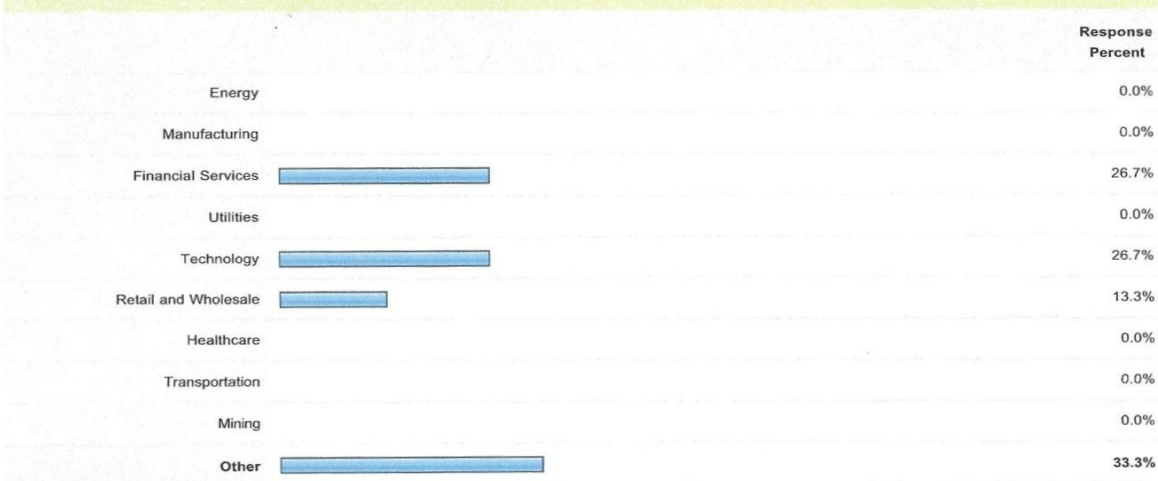
	Less than 1 year	Between 1 year and 5 years	Between 5 years and 10 years	Between 10 years and 15 years	Between 15 years and 20 years	Between 20 years and 30 years	More than 30 years
Please select an option from the drop-down menu	40.0% (6)	53.3% (8)	6.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)

3. What is the highest level of academic qualification you have attained?



If you selected "Other", please specify in the space provided below

4. Which sector represents your company's predominant area of activity?



If you selected "Other", please specify in the space provided below

5. How long has your company been listed on the Alt X?

Number of years

	Less than 1 year	1 year	2 years	3 years	4 years	5 years	6 years	7 years	8 years	9 years	10 years
Please select an option from the drop-down menu	0.0% (0)	6.7% (1)	6.7% (1)	13.3% (2)	6.7% (1)	46.7% (7)	13.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	6.7% (1)

If you selected "Other", please specify in the space provided

6. Which one of the following reasons best describe why your company chose to list on the Alt X?

	Response Percent
Increased access to capital and future financing opportunities	66.7%
Increased visibility and prestige	20.0%
To attract institutional investors	0.0%
To progress onto the main board of the JSE	0.0%
Provide liquidity for existing shareholders	6.7%
To create employee incentive mechanisms	0.0%
I don't know	0.0%
Other	6.7%

If you indicated "Other", please specify in the space provided below

7. Which of the following options is one of the most important goals to your firm?

	Response Percent
Maximizing accounting profit	20.0%
Maximizing dividends	0.0%
Stabilizing performance	20.0%
Maximizing market value of equity	26.7%
Maximizing growth in sales	13.3%
Optimizing solvency and liquidity	6.7%
Maximizing growth of assets	13.3%

8. How frequently does your company use capital budgeting techniques to analyze potential investments or projects?

	Response Percent
Always (more than 75%)	25.0%
Often (between 50% and 75%)	66.7%
Occasionally (between 25% and 50%)	8.3%
Rarely (between 0% and 25%)	0.0%
Never (0%)	0.0%

9. How actively involved are you in the company's capital budgeting process?

	Response Percent
Always (more than 75%)	66.7%
Often (between 50% and 75%)	25.0%
Occasionally (between 25% and 50%)	0.0%
Rarely (between 0% and 25%)	8.3%
Never (0%)	0.0%

10. Please indicate the number of staff members (excluding yourself) that are assigned to capital investment analysis?

	0	1	2	3	4	5	5 to 10	More than 10
Number of additional staff members	0.0% (0)	25.0% (3)	16.7% (2)	25.0% (3)	16.7% (2)	8.3% (1)	8.3% (1)	0.0% (0)

11. Which of the following sources of long-term funds does your firm rely on to finance investments?





	Always	Often	Occasionally	Rarely	Never
Retained earnings	45.5% (5)	27.3% (3)	0.0% (0)	18.2% (2)	9.1% (1)
Restructuring of assets	0.0% (0)	0.0% (0)	33.3% (3)	22.2% (2)	44.4% (4)
Straight debt	18.2% (2)	45.5% (5)	27.3% (3)	9.1% (1)	0.0% (0)
Convertible bonds	0.0% (0)	0.0% (0)	0.0% (0)	11.1% (1)	88.9% (8)
External common equity	12.5% (1)	12.5% (1)	0.0% (0)	25.0% (2)	50.0% (4)
Hire purchase or leasing	16.7% (2)	25.0% (3)	41.7% (5)	16.7% (2)	0.0% (0)
Other	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	100.0% (4)

If you selected "Other", please specify in the space provided below

12. On average, what is the size of the annual capital budget that is available for investing in potentially viable projects?










	Response Percent
Less than R5 million	25.0%
Between R5 million and R10 million	33.3%
Between R10 million and R50 million	25.0%
Between R50 million and R100 million	8.3%
More than R100 million	8.3%

13. Which one of the following techniques does your company use as a primary tool in its capital budgeting decisions?

	Response Percent
Subjective Judgement or Intuition 	16.7%
Payback Period	0.0%
Discounted Payback Period	0.0%
Profitability Index	0.0%
Accounting Rate of Return	0.0%
Net Present Value 	33.3%
Adjusted Present Value	0.0%
Internal Rate of Return 	41.7%
Modified Internal Rate of Return	0.0%
Economic Value Added 	8.3%
Other	0.0%

If you indicated "Other", please specify in the space provided below

14. Please indicate which of the following techniques your company uses as secondary tools in its capital budgeting decisions?

	Response Percent
Our company uses the primary technique only 	8.3%
Subjective Judgement or Intuition 	33.3%
Payback Period 	25.0%
Discounted Payback Period 	8.3%
Profitability Index 	8.3%
Accounting Rate of Return 	8.3%
Net Present Value 	25.0%
Adjusted Present Value	0.0%
Internal Rate of Return 	8.3%
Modified Internal Rate of Return	0.0%
Economic Value Added	0.0%
Other 	8.3%

If you indicated "Other", please specify in the space provided below

15. If your company does not use either the Net Present Value or Internal Rate of Return technique in its capital budgeting decisions, which option(s) best describe reasons for not doing so?

	Response Percent
Lack of expertise or knowledge about the technique	0.0%
Requires unrealistic assumptions	0.0%
Difficulty in estimating inputs	10.0%
Lack of applicability to our business	10.0%
Too complex to apply in practice	0.0%
Does not help managers make better decisions	0.0%
I don't know	30.0%
Other	50.0%

If you selected "Other", please specify in the space provided below

16. Please indicate how frequently your company uses the capital budgeting technique(s) selected in Question 13 and Question 14.

	Always	Often	Occasionally	Rarely
Subjective Judgement or Intuition	25.0% (2)	25.0% (2)	37.5% (3)	12.5% (1)
Payback Period	0.0% (0)	25.0% (2)	37.5% (3)	37.5% (3)
Discounted Payback Period	0.0% (0)	28.6% (2)	42.9% (3)	28.6% (2)
Profitability Index	0.0% (0)	28.6% (2)	14.3% (1)	57.1% (4)
Accounting Rate of Return	0.0% (0)	28.6% (2)	28.6% (2)	42.9% (3)
Net Present Value	33.3% (3)	44.4% (4)	22.2% (2)	0.0% (0)
Adjusted Present Value	14.3% (1)	14.3% (1)	42.9% (3)	28.6% (2)
Internal Rate of Return	44.4% (4)	22.2% (2)	33.3% (3)	0.0% (0)
Modified Internal Rate of Return	14.3% (1)	0.0% (0)	57.1% (4)	28.6% (2)
Economic Value Added	0.0% (0)	14.3% (1)	14.3% (1)	71.4% (5)
Other	0.0% (0)	0.0% (0)	20.0% (1)	80.0% (4)

17. If your company uses more than one capital budgeting technique, which option(s) best describe reasons for doing so?

	Response Percent
Our company uses one technique only	0.0%
Practice acquired through tertiary education	20.0%
Some methods give more information than others	70.0%
To confirm findings derived from primary technique	40.0%
Different management executives want different methods	20.0%
Lack confidence in using only one method	20.0%
Internal company procedures	10.0%
Approach recommended by trade journals and articles	0.0%
Advice from external consultants	10.0%
In-house training seminars	0.0%
Other	0.0%
I don't know	10.0%

18. Please indicate how frequently your company uses capital budgeting techniques for each of the following investment activities.

	Always (more than 75%)	Often (50% to 75%)	Occasionally (25% to 50%)	Rarely (0% to 25%)	Never (0%)
Expanding current operations	40.0% (4)	50.0% (5)	10.0% (1)	0.0% (0)	0.0% (0)
New proposed projects	77.8% (7)	11.1% (1)	11.1% (1)	0.0% (0)	0.0% (0)
Replacement projects	33.3% (3)	11.1% (1)	33.3% (3)	22.2% (2)	0.0% (0)
Abandoning current projects	12.5% (1)	12.5% (1)	37.5% (3)	25.0% (2)	12.5% (1)
Social (altruistic) projects	0.0% (0)	0.0% (0)	25.0% (2)	37.5% (3)	37.5% (3)
Mergers and acquisitions	55.6% (5)	22.2% (2)	11.1% (1)	0.0% (0)	11.1% (1)
Foreign operations	44.4% (4)	0.0% (0)	33.3% (3)	22.2% (2)	0.0% (0)
Other	50.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	50.0% (1)

If you selected "Other", please specify in the space provided below

19. Did your company use the same capital budgeting practices before listing on the Alt X?






	Response Percent
Yes	50.0%
No	0.0%
I don't know	50.0%

20. Which one of the following reasons best describes why your company changed capital budgeting practices after listing on the Alt X?

	Response Percent
Desire to follow industry practices	0.0%
Similar practices were being used by other Alt X listed companies	0.0%
Change in corporate strategy	0.0%
Increased size of capital budget	0.0%
Increased understanding of better techniques	0.0%
New approach was recommended by trade journal or articles	0.0%
I don't know	0.0%
Other	0.0%

If you selected 'Other', please specify in the space provided below


21. How often does your company encounter instances where it has to engage in capital rationing (i.e. have multiple acceptable projects but insufficient funds available to invest in all of them)?

	Response Percent
Always (more than 75%) 	30.0%
Often (50% to 75%) 	20.0%
Occasionally (25% to 50%) 	20.0%
Rarely (0% to 25%) 	10.0%
Never (0%) 	20.0%

22. Please indicate how each of the following factors influence capital rationing in your company?

	Always	Often	Occasionally	Rarely	Never
Borrowing limits set by senior managers	14.3% (1)	28.6% (2)	28.6% (2)	14.3% (1)	14.3% (1)
Lenders' unwillingness to provide money to the company	12.5% (1)	25.0% (2)	25.0% (2)	25.0% (2)	12.5% (1)
The company's reluctance to obtain external financing	0.0% (0)	28.6% (2)	28.6% (2)	28.6% (2)	14.3% (1)
Senior managers' aversion to down-side risk	0.0% (0)	0.0% (0)	42.9% (3)	28.6% (2)	28.6% (2)
The company's desire to reserve borrowing capacity to fund more lucrative projects in future	0.0% (0)	28.6% (2)	57.1% (4)	14.3% (1)	0.0% (0)

23. Does your firm use a discount rate for capital budgeting purposes?

	Response Percent
Yes 	100.0%
No	0.0%
I don't know	0.0%

24. Which of the following approaches is used by your firm to determine the acceptable rate of return for a proposed capital investment?

	Response Percent
Cost of debt	0.0%
Rate is based on management's experience	20.0%
Cost of equity capital	0.0%
Weighted average cost of capital	70.0%
Historical rate of return	10.0%
Divisional discount rate	0.0%
An arbitrarily chosen figure is used	0.0%
Other	0.0%

25. How are the weights defined by your firm in order to determine the Weighted Average Cost of Capital (WACC)?

	Response Percent
Book value weights derived from the balance sheet	42.9%
Market value weights	42.9%
Target value weights	14.3%
Other	0.0%

If you selected "Other", please specify in the space provided below

26. How frequently do you re-calculate your WACC?

	Response
Bi-annually	14.3%
Annually	28.6%
When significant changes to parameters occur	42.9%
As financial markets fluctuate	0.0%
I don't know	0.0%
Never	0.0%
Other	14.3%

If you indicated "Other", please specify in the space provided below

27. Does your firm use its WACC for purposes other than capital budgeting?

	Response Percent
Yes	71.4%

If you indicated "Yes", please specify in the space provided below

28. How does your firm estimate its cost of equity capital

	Response Percent
Dividend growth model	0.0%
Capital asset pricing model (CAPM)	0.0%
Accounting return on equity	0.0%
Earnings/Price ratio	0.0%
Cost of debt plus an equity premium	0.0%
Regulatory decisions	0.0%
I don't know	0.0%
Other	0.0%

If you selected "Other", please specify in the space provided below