CAPITAL BUDGETING PRACTICES: AN EMPIRICAL STUDY OF LISTED SMALL EN MEDIUM ENTERPRISES

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Abstract

There have been many studies on the capital budgeting practices of large listed companies, but relatively little research has been undertaken on the capital budgeting practices of small listed companies. The main purpose of this study was therefore to analyse the capital budgeting practices of small and medium South African listed companies and to compare their capital budgeting practices to the capital budgeting practices of large listed companies. The results of the study indicate that the primary capital budgeting techniques employed by small listed companies are based on the IRR and the NPV, resembling the practices used by larger companies. Furthermore, the use of discounted cash flow techniques amongst small listed companies had increased over the last decade.

Keywords: SME's, Capital Budgeting, South Africa

1. INTRODUCTION

The capital budgeting techniques used by firms has been widely researched across the world. The findings of studies conducted from the 1970s to the present show that firms generally prefer to implement sophisticated capital budgeting techniques, although they do so to different degrees. However, in the 1970s researcher already started questioning the applicability of capital budgeting theory to small and medium enterprises (SMEs). Some studies confirmed that SMEs have a number of unique characteristics and face various external and self-imposed challenges that reduced the applicability of existing capital budgeting theory to SMEs. These studies showed that SMEs actually implemented elementary capital budgeting techniques, such as the payback period (PBP), instead of the more sophisticated net present value (NPV) approach (Grablowsky and Burns, 1980; Runyon, 1983; Lazaridis, 2004). These capital budgeting choices by SMEs seem to be a direct consequence of SMEs' characteristics, and of their challenges in acquiring external funds for investment purposes.

Research conducted on SMEs and their capital budgeting techniques, both in South Africa (Gilbert, 2003; Fatoki *et al.*, 2010) and internationally (Pattillo, 1981), has focused predominantly on small businesses operating in specific sectors, such as manufacturing. Two studies on South African companies by Brijlal and Quesada (2009) and by Olufunso *et al.* (2010) investigated small businesses, concentrating on the capital budgeting practices of business in specific geographic areas. Soldofsky (1964) and Andor *et al.* (2011) also investigated the capital budgeting practices of SMEs, focusing on SMEs in specific regions of the United States (US) and Europe.

Companies listed on the Alt X Exchange of the Johannesburg Stock Exchange (JSE) are classified as small businesses, but they possess special characteristics, such as being publicly listed, which provides them with greater access to capital. Alt X-listed companies also operate in a distinctive environment where their shares trade in a regulated market, in contrast to the shares of their unlisted counterparts. In addition, they are also obliged to publicise their financial statements, which allows external investors greater access to information than is available for unlisted companies. These distinguishing factors suggest that the capital budgeting practices of Alt X listed companies may differ from both those of larger listed companies, and those of unlisted companies. Extensive searches through older and more recent economic and financial publications revealed that although several studies have investigated the capital budgeting practices of unlisted SMEs in South Africa, not much attention has been paid to the capital budgeting techniques and practices of the SMEs listed on the Alt X.

The main purpose of this study was therefore to analyse the capital budgeting practices of the small and medium companies listed on the Alt X and to compare their capital budgeting practices to those of companies listed on the main board of the JSE. The study was guided by the following research objectives: to identify the capital budgeting techniques used by companies listed on the Alt X; to identify the capital budgeting technique most favoured by the Alt X-listed companies; to compare the capital budgeting practices of companies listed on the Alt X to those listed on the main board of the JSE; and to determine the companies' use or non-use of a specific discount rate in their capital budgeting practices.

This study aims to contribute to the existing capital budgeting literature on listed SMEs. Companies listed on the Alt X could also derive some practical benefits from the study, as they will be able to compare their practices to those of their peers on the Alt X and to those of their larger counterparts listed on the main board of the JSE.

The remainder of the paper is organized as follows: a literature review is presented in the next section, discussing the capital budgeting practices of companies in recent decades, and comparing the findings of prior studies on larger companies to those of studies on SMEs. Next, the research method used in gathering the data by means of a questionnaire is discussed, followed by a discussion of the empirical results. Finally, the conclusions and recommendations based on the results of the study are presented.

2. LITERATURE REVIEW

Capital budgeting practices are frequently researched in corporate finance. Over the last few decades, there has been a marked escalation in the use of sophisticated capital budgeting techniques (Farragher *et al.*, 1999), in contrast to earlier practices noted in earlier studies, such as those conducted by Klammer (1972), Gitman and Forrester (1977) and Kim and Farragher (1981). Farragher *et al.* (1999) found that higher percentages of US firms were implementing sophisticated capital budgeting techniques: 80% of their respondents revealed that they preferred the internal rate of return (IRR) as a primary technique in evaluating potential projects, and 78% of respondents used the NPV approach as a primary evaluation measure. Farragher *et al.* (1999) also found a decline in the use of capital budgeting techniques such as the payback period (PBP), which was used by only 52% of the respondents in their study, a noteworthy decline from the 84% level of PBP use found by Bierman (1993), just six years earlier.

Ryan and Ryan (2002) conducted an extensive study of the capital budgeting practices of the Fortune 1000 companies. Contrary to the findings of several previous studies which found evidence of 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%), and found a significant correlation between the size of the capital budget available to a company and its subsequent choice of capital budgeting method. Bennouna *et al.* (2010) investigated the capital budgeting practices of large firms, and also found a greater preference for the NPV than for the IRR technique.

A number of studies were conducted in the 1980s on the capital budgeting techniques of large South African companies. The findings suggested that the capital budgeting technique most implemented by these companies was the IRR. At the turn of the century, Hall (2000) investigated the capital budgeting practices of South African industrial companies listed on the JSE, revealing a decline in the use of the IRR technique (32%), compared to a 45% use reported by Andrews and Butler (1986). Of the companies surveyed in 2000, 17% were implementing the NPV approach, a noteworthy rise compared to only 8% recorded in 1986. Hall's (2000) findings suggested that large South African companies were progressing towards the implementation of sophisticated techniques, even though the NPV approach generally recommended by academics remained under-used. Hall's (2000) study revealed that the capital budgeting method used by a company tended to be influenced by the size of the company's annual capital budget.

More recent studies of large South African firms listed on the JSE have revealed that the capital budgeting practices adopted are similar to those used in the US. Correia and Cramer (2008) reported that in 2008 listed South African companies in their sample were using the NPV technique more (82%) than the IRR (79%), and that only 54% used the PBP. Two years later, Hall and Millard (2010) investigated the capital budgeting practices of companies listed on the JSE, and reported that the NPV, the theoretically superior measure, was the preferred technique for 29% of the respondents, followed by the IRR, which was being implemented by 24% 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).

The findings from the studies discussed above reflect the fact that large unlisted and listed companies have gradually begun to implement more sophisticated capital budgeting techniques over the last three decades. However, researchers from as early as the 1970s, such as Deek (1973), have questioned the general applicability of existing capital budgeting theory and studies to SMEs. They have observed that SMEs have a number of distinctive characteristics and operate under financial conditions and constraints that raise questions about the applicability of traditional capital budgeting theory to SMEs.

Several studies, for example by Ang (1991), Keasey and Watson (1993) and Chadwell-Hatfield *et al.* (1997), have considered the objectives of some small companies, which is not necessarily the maximisation of wealth objective pursued by larger companies, which could explain why some SMEs use capital budgeting techniques other than the theoretically recommended NPV. These objectives include maintaining the independence of the business (Ang, 1991) or the viability of the enterprise (Keasey and Watson, 1993). Chadwell-Hatfield *et al.* (1997) reported that the managers of the SMEs included in their survey indicated that they would disregard the NPV technique and the value-maximising of investments and would rather use techniques such as the PBP and the accounting rate of return (ARR), because the latter two methods are more widely understood and accepted by stakeholders outside the financial operations of the company. Using the NPV technique may this be less helpful to SMEs that pursue objectives that are not necessarily related to wealth maximisation.

Brink *et al.* (2003) investigated the unique circumstances of small businesses in South Africa. Respondents indicated that their greatest financial challenge was obtaining finance or credit. Capital constraints in small unlisted companies could influence their capital budgeting techniques. A study on small companies by Danielson and Scott (2006) identified factors that may cause self-imposed

capital constraints in SMEs. For example, they found that 45% of the companies in their sample would rather delay making a promising investment until it can be financed with internally generated funds. The limited internally generated funds make the time horizons of proposed projects important to SMEs, as projects with shorter payback periods make funds available sooner to fulfil the current obligations of the company as they become due. These constraints also result in increased use of the PBP technique in capital budgeting. Brigham (1992) argues that in some cases, small firms 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.

The alternative objectives of SMEs identified as possibly having an effect on their capital budgeting decisions and the capital constraints they face could make pre-existing capital budgeting theory less appropriate when trying to understand the capital budgeting decisions of SMEs. The limited amount of funds 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 and the difficulty in determining a discount rate could make it challenging for SMEs to implement discounted cash flow (DCF) techniques.

One of the earliest studies of capital budgeting in SMEs was conducted by Soldofsky (1964), who found that the capital budgeting technique that most of the respondents in his study preferred was the PBP, and that none of his respondents used the IRR or NPV in their project evaluation processes. He attributed these findings to a combination of factors, including management's lack of understanding of capital budgeting techniques in general, and the costs associated with hiring an external consultant to assist in the process. Pattillo (1981) reported that 75% of the financial officers in his sample did not use DCF techniques because of the complexities involved in quantifying the required inputs. Danielson and Scott (2006) found that in the capital budgeting decisions of SMEs in the US the primary technique that firms used to assess a project's financial viability was the unsophisticated 'gut feel' or 'intuition', used by 26% of the respondents. The next most popular method was the PBP (19%), followed by the ARR (14%). DCF techniques were only employed by 12% of the respondents of their US study.

Andor *et al.* (2011) argues that SMEs are less likely than larger firms to use sophisticated capital budgeting techniques, because SMEs do not have the necessary expertise to conduct the formal capital budgeting processes required by sophisticated capital budgeting techniques. Moreover, they found that firms with international exposure were more likely to use formal analysis than small locally owned independent firms. Similarly, Baker *et al.* (2010) observe that 'one size does not fit all' in corporate finance practices. They note that there are important institutional and other differences between countries in areas such as corporate governance, ownership structure and firm size, and that such differences appear to influence the managerial decisions made by companies in the various countries in respect of their financial practice choices.

In South Africa, the investigation of the capital budgeting behaviour of small and medium firms has only received attention in more recent years, for example, in studies by Gilbert (2003), Brijlal and Quesada (2009) and Fatoki *et al.* (2010). Gilbert (2003) found that a combination of the various techniques was used, and that the PBP was the most popular at 79%, followed by the return on investment (ROI) at 72%, the IRR (42%) and the NPV (47%). On the basis of Gilbert's (2003) results, it seems that there is a difference between the capital budgeting practices of small South African firms and those of their US counterparts – none of the US respondents in Danielson and Scott's (2006) study used ROI. However, the use of ROI was evident even amongst large South African firms in studies conducted by Hall (2000) and Gilbert (2003).

Brijlal and Quesada (2009) also investigated the capital budgeting practices of SMEs in South Africa. Their results confirmed the findings of Gilbert (2003) that small South African firms favoured the PBP as a primary tool in evaluating capital investments, with 39% of respondents selecting it. Brijlal and Quesada (2009) found no evidence of the use of ROI were found, but the profitability index (PI) was as popular as the NPV approach, each being preferred by 27% of the respondents, followed by the IRR (20%), and ARR (17%), and 15% of the respondents admitted that they did not use any formal technique (they relied on 'gut feel and 'intuition'). Fatoki *et al.* (2010) evaluated the investment appraisal techniques of small manufacturing firms in South Africa, and found that 69% of respondents did not use sophisticated investment appraisal techniques to make investment decisions and that most of respondents preferred the PBP as a tool for analysis.

Despite the different demographics of the populations investigated in each of the studies discussed above, they all seem to be unified by one common element, which is the finding of the relatively high use of elementary capital budgeting techniques such as the PBP by SMEs. The PBP as a capital budgeting technique is ideal to address capital constraints, as projects or investments are chosen according to their respective initial investment recovery periods; this liquidity could be a crucial factor for the financial wellbeing of an SME. However, the benefits of the PBP are negligible compared to the advantages of using capital budgeting techniques such as the NPV or IRR, even for smaller firms. The choice of unsophisticated capital budgeting techniques by unlisted SMEs revealed in studies such as those by Danielson and Scott (2006), Brijlal and Quesada (2009), Fatoki *et al.* (2010) and Andor *et al.* (2011) is attributed to the various challenges SMEs encounter, due to constraints such as low levels of relevant knowledge among decision-makers and external investor perceptions regarding SMEs' riskiness.

West (2008) conducted the only prior study similar to the current study, looking at the capital budgeting practices of companies listed on the Alt X. West (2008) found that 45% of his respondents used DCF techniques in evaluating new projects, and 64% applied non-DCF techniques in their capital budgeting decisions. The reliance on non-DCF

techniques by this group of SMEs was similar to the results found in previous studies, such as those of Brijlal and Quesada (2009) and Danielson and Scott (2006), with regard to listed and unlisted SMEs. West (2008) found that none of his respondents used the PBP, but 36% used the earnings-multiple approach, an approach that can be considered a variation of the PBP technique. The IRR was used by 27% of West's (2008) respondents. These findings contrast with findings from other studies investigating the capital budgeting practices of small and medium unlisted companies in South Africa, such as those by Gilbert (2003) and Fatoki *et al.* (2010). West (2008) suggests that the superior capital budgeting practices used by Alt X listed companies could be indicative of the underlying characteristics associated with SMEs listed on the Alt X. The possible additional pressure applied by external investors could affect the capital budgeting choices these companies make, as they need to undertake projects that employ the capital provided by external investors efficiently in order to satisfy the investors through value maximisation of their investments.

The literature study revealed that little research has been conducted on the capital budgeting practices of SMEs, especially on listed SMEs in South Africa. Significant differences between the capital budgeting practices of large listed companies and SMEs have been found. The objective of the present study, to investigate the capital budgeting practices of listed SMEs, therefore fills a gap in the literature and will contribute to the body of knowledge on the subject matter of capital budgeting. In the research method section, the data gathering as well as the questionnaire design are discussed.

3. RESEARCH METHOD

One of the principal objectives outlined for this study is to gather primary data on the capital budgeting practices of companies listed on the Alt X. A questionnaire was deemed most appropriate for this purpose. A questionnaire was therefore issued electronically to the target population. At the time of the study (2012), a total of 62 companies were listed on the Alt X division of the JSE. At the commencement of data gathering, it was found that one company had delisted, eight companies had a primary listing on other exchanges, six companies had been suspended from the Alt X, leaving a target population of 47 companies. For the purposes of this study, a web page was created where respondents could access and complete the questionnaire anonymously. The web page was 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.

The questionnaire contained 28 questions. Section A of the questionnaire gathered information on the demographics of each respondent and the profile of the company that each respondent represented. Seven questions regarding the tenure of each respondent, his/her academic qualifications and the goals of the company were included in this section. Section B of the questionnaire collected data on various aspects of the capital budgeting process of each company. Respondents were asked to indicate how actively involved they are and how frequently they engage in the analysis of potential investments using capital budgeting techniques, the average size of the capital budgets they have at their disposal each year, as well as the primary and secondary capital budgeting techniques implemented by each company. The final section of the survey contained six questions related to the use of discount rates for capital budgeting purposes. Respondents were asked about the approaches they use in determining an appropriate discount rate and how often they recalculate it. As a preliminary test of the web page and the questionnaire, a pilot test was conducted. The data collected from the questionnaires were compiled in a data basis. The analysis of the data followed a content analysis approach and a limited statistical data analysis approach. The nominal data collected from the questionnaire were analysed using a statistical approach through functions embedded in the Survey Monkey software.

To increase the reliability of the data acquired from the questionnaire, respondents' answers were treated as anonymous and confidentially. The questions in the questionnaire did not contain ambiguous terms that might have had an effect on the responses, or that might influence respondents in any direction. To improve the objectivity of the data collected from the questionnaire, an unbiased target population was used and there were no leading questions in the questionnaire. Conducting the survey electronically, instead of telephonically or by means of personal interviews allows respondents to answer the questions without experiencing any bias from the interviewer. In an attempt to reduce non-response bias, two reminder e-mails were sent to the survey sample inviting them to participate in the survey if they had not already done so.

The primary objective of this study was to investigate the capital budgeting techniques of companies listed on the Alt X exchange of the JSE. The study aimed to investigate whether these companies still implemented the elementary capital budgeting techniques of typical SMEs, or whether their unique characteristics were reflected in their choice of an alternative capital budgeting technique. These objectives were pursued using the research design and methodologies discussed in this section.

4. EMPIRICAL RESULTS

Of the 62 companies listed on the Alt X exchange, a sample of 47 companies was asked to participate in the study. A total of 15 usable responses were received, representing a response rate of 32%. The demographic profile is discussed first, followed by the capital budgeting techniques employed and lastly the respondents' use of a discount rate.

Most respondents held the position of chief financial officer (CFO) (27%) or financial director (27%), followed by financial manager (20%), chief executive officer (CEO) (13%), and chief information officer (CIO) (7%) and chief corporate accountant (7%), and 6% indicated their position as group financial manager. These results are comparable to those of previous studies, such as those of Baker *et al.* (2011), whose respondents were predominantly CFOs, and of Hall and Millard (2010), in whose study 50% of the respondents were financial managers. In

respect of the duration of their tenure in the companies they represented, 53% of respondents in the current study indicated that they had held their current position in the company for a period of between one and five years, 40% of them for less than a year, and 7% indicated a period of five to ten years.

The highest number of respondents (47%) had a chartered accountant CA(SA) qualification, 27% had an Honours degree, 20% a Master's degree and 6% of respondents had a Bachelor's degree. Higher levels of academic qualifications were recorded in studies that investigated larger companies (Bennouna *et al.,* 2010), which found that 60% of their respondents held Master's degrees or higher, and 40% of respondents had Bachelor's degrees. Fatoki *et al.* (2010) observe that low levels of financial literacy can have an impact on the extent to which decision-makers in SMEs implement sophisticated investment appraisal techniques. Respondents from the current study exhibited stronger academic background than respondents in previous studies on both international and local SMEs (Danielson and Scott, 2006; Olufunso *et al.*, 2010).

The current study shows that 33% of the respondents are in the technology sector, 27% in the financial services sector, 13% in the retail and wholesale sector, and 13% in the construction industry. The remainder of the respondents were evenly distributed between the property and media sectors. The variety of sectors captured in this study is similar to those captured in the study by West (2008), and represents the various sectors of the Alt X. This distribution of participants reduces the sector-related bias that could have resulted if the respondents were concentrated in a specific industry.

In the second section of the questionnaire the respondents were asked about the frequency with which they use capital budgeting techniques to analyse potential investments or projects. Most of the respondents (67%) indicated that they implemented capital budgeting techniques 'often' when evaluating investment opportunities, 25% 'always' use capital budgeting techniques, while another 8% use them 'occasionally'. None of the respondents chose the 'never' or 'rarely' option.

A study conducted by Andrews and Butler (1986) attributed the increased use of sophisticated capital budgeting techniques implemented by large South African firms to the increase in the size of annual capital budgets available to those companies. This is similar to a finding by Graham and Harvey (2001). The table below summarises data regarding the sizes of the capital budgets available to Alt X listed companies in 2008 and in 2012.

Table 1. 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	42%	25%
Between R5 million and R10 million	0%	34%
Between R10 million and R50 million	42%	25%
Between R50 million and R100 million	8%	8%
More than R100 million	0%	8%
Unknown	8%	0%

Source: Data for 2008 adapted from West (2008), 2012 data generated by survey in current study

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 the capital budgeting techniques used. They found a positive relationship between the size of the capital budget and the use of the NPV and IRR technique. As shown in Table 1, the proportion of SMEs listed on the Alt X with annual capital budgets greater than R5 million increased from 58% in 2008 to 75% in 2012.

The results from the present study indicate that the most popular capital budgeting technique was the IRR (42%), followed by the NPV (33%). The results of the study conducted by West (2008) indicated that the primary technique favoured by Alt X listed companies was the earnings multiple approach (36%), followed by the IRR (27%) and finally the NPV technique (18%). Results from West's (2008) study illustrated that Alt X companies had a higher implementation rate of non-DCF techniques (55%) in comparison to the superior DCF techniques. The current study shows an improvement in the capital budgeting practices of companies listed on the Alt X, as it reflects that 75% of the respondents now employ DCF techniques as a primary capital budgeting technique, compared to only 45% in the study conducted by West (2008) four years previously.

The findings from the current study, which investigated the capital budgeting practices of companies listed on the Alt X, differ from the recent trends evident in studies on small unlisted companies in South Africa (Brijlal and Quesada, 2009), as well as on small companies in the US (Danielson and Scott, 2006). The study by Brijlal and Quesada (2009) found that 39% of unlisted SMEs in South Africa favoured the PBP as a primary tool in the evaluation of capital investments, followed by the PI (27%) and the NPV (27%). Danielson and Scott (2006) reported that the most common response amongst their US respondents was 'gut feel' or 'intuition' (26%), whereas in the current study only 17% of respondents chose this method. In Danielson and Scott's (2006) study, 19% of the respondents relied on the PBP measure, and 14% used the ARR 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 PBP, the PI or the ARR as a primary capital budgeting technique. The studies of Brijlal and Quesada (2009), as well as of Danielson and Scott (2006) suggest that unlisted SMEs had a strong preference for non-DCF techniques,, in contrast to the findings of the current study.

In studies on South African data on large listed companies, Du Toit and Pienaar (2005) found that the IRR was the most popular method, followed by the NPV and the ROI technique, whilst Correia and Cramer (2008) revealed that the preferred technique

among respondents to their study was the NPV technique, followed by the IRR and the PBP. Despite a slight difference between the findings of these two studies, they both showed that DCF techniques were the most implemented capital budgeting techniques amongst large listed companies. 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 larger listed companies in South Africa, confirming that the companies listed on the Alt X also implement DCF techniques as the primary techniques in their capital budgeting decisions. International studies by Ryan and Ryan (2002), and by Baker *et al.* (2011) found that the large companies they surveyed also preferred the NPV technique to the IRR as a primary capital budgeting technique, similar to the findings of the current study.

Therefore, the current study shows that the capital budgeting practices of the respondents have improved from primarily using non-DCF techniques to now using DCF techniques in assessing proposed projects. These 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 capital budgeting practices have improved as the sizes of capital budgets have increased. These findings are in line with the findings of other studies.

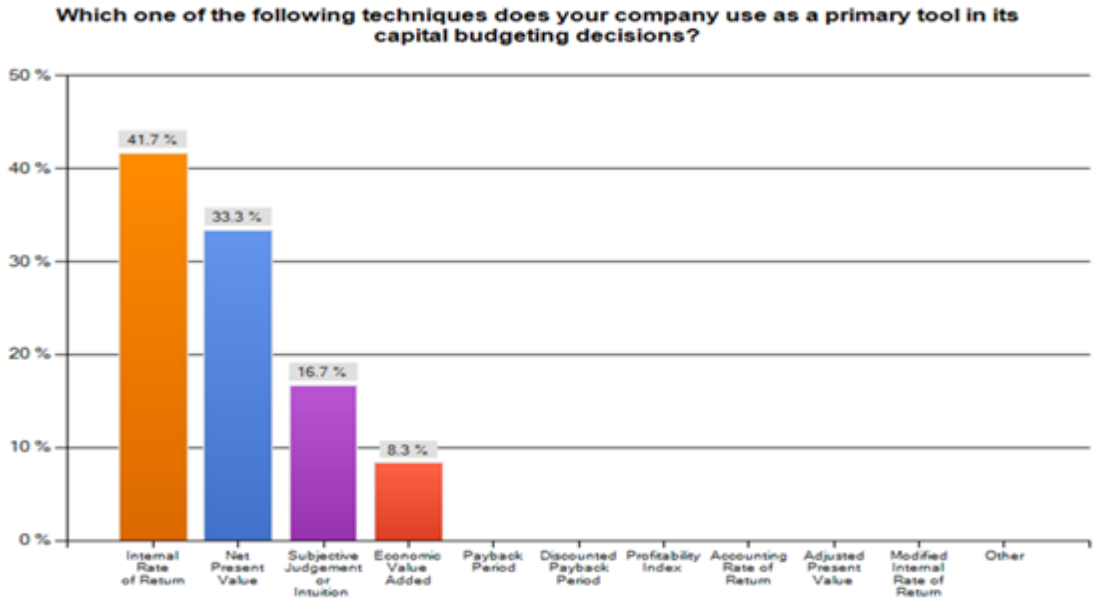
The favoured secondary capital budgeting technique among respondents in the current study was subjective judgement or intuition, which is used by 33% of the respondents. This was followed by the NPV (25%) and the PBP (25%). The PI, the ARR, the IRR and the discounted payback period each recorded a 8% popularity.

These results indicate that the Alt X listed companies had a stronger preference for sophisticated techniques as a primary tool of analysis, and that non-DCF techniques such as subjective judgement and the PBP are predominantly used as secondary capital budgeting techniques. Gitman and Forrester (1977) found a similar trend among the companies they surveyed, suggesting that DCF techniques may be used as primary tools and that the less sophisticated techniques are reserved for use as secondary tools in capital budgeting decision-making processes. The figure below compares and summarises the responses received regarding techniques that are implemented as primary and secondary capital budgeting techniques from the present study.

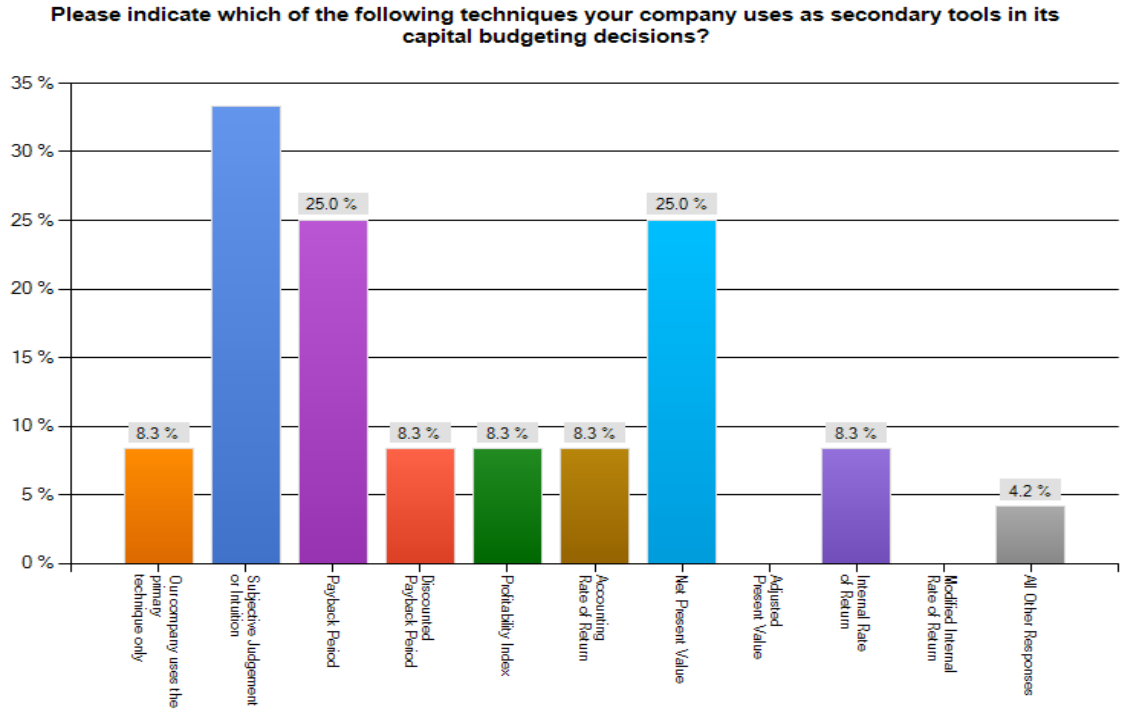
Respondents were asked how frequently they used their disclosed capital budgeting techniques (both primary and secondary) for a range of listed investment activities. The order in which activities are 'often' to 'always' analysed using capital budgeting techniques are firstly the 'expansion of current operations', followed by 'new proposed projects' and thirdly, 'mergers and acquisitions'. Baker *et al.* (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 decisions', followed by 'general capital investment projects' and 'proposals to expand existing operations'. Findings from the present study show that 'foreign operations' followed by 'replacement projects' ranked fourth and fifth respectively as investment activities that respondents assess using capital budgeting techniques.

Figure 1. Preferences of primary and secondary techniques among respondents

Panel A



Panel B



Ten of the 15 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 used to determine an acceptable rate of return for proposed capital investments. The weighted average cost of capital (WACC) was the most popular option, 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. 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 US businesses situated in rural areas, found that 63% of their respondents did not use any formal capital budgeting techniques or discount rate calculation, but relied heavily on managerial experience and intuition. Andor *et al.* (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 65% of the small firms they surveyed preferred to use a general discount rate, and only 29% of respondents use WACC.

The findings from the present study do, however, correspond with findings in studies of larger companies which found that a significant number of companies are using the WACC. Schall *et al.* (1978) found 46% of their respondents use WACC, whilst Ryan and Ryan (2002) concluded that 83% of their respondents from the Fortune 1000 companies chose the WACC. More recently, Baker *et al.* (2011) presented findings which were also consistent with financial theory, reporting that 64% of the responding firms use the WACC, while 44% relied on managerial experience and a further 38% used the cost of the specific funds.

The respondents of the present study 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 were equally popular among respondents to the current study, each attracting 43% of the respondents, while target weights are only used by 14% of the respondents. The high use of market value weights among respondents corresponds with financial theory. 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 preferred (in order of preference) target values (50%), market values (34%) and book values (20%) as weights to calculate the WACC. Bennouna *et al.* (2010) found that 50% of their respondents based their WACC calculation on target value weights, 30% on book value weights and 20% on market value weights.

Of the respondents in the current study, 43% indicated that they recalculated the WACC when significant changes to parameters occurred. Andor *et al.* (2011) found that 51% of the small companies in their study adjusted the WACC to reflect the risks related to different projects, whilst the study by Baker *et al.* (2011) on small firms found that 79% of respondents constantly differentiated between projects based on their riskiness, and adjusted the discount rate accordingly.

Other recalculation frequencies were also displayed by the respondents of the current study, with 29% of them revealing that they adjusted the

WACC annually. The remaining respondents were equally distributed between adjustments made monthly and bi-annually, while none of the respondents indicated that they reassessed the WACC as financial markets fluctuated. Bruner *et al.* (1998) found that 37% of large firms in their study reviewed their WACC annually, 19% reviewed it quarterly, 11% reviewed the WACC semi-annually, while another 4% engaged in monthly re-appraisals. Graham and Harvey (2001) found that nearly 60% of the large firms in their study used a single company-wide discount rate that was not 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 a declining number of large companies relied on a single discount rate to be applied to assess all investment proposals.

In the current study, the final question related to the WACC was designed to investigate whether the respondents used the WACC for purposes other than capital budgeting. Only 29% of the respondents indicated that they did not use the WACC for alternative purposes, whereas 71% of them revealed that they do. Evidence of alternative uses of the cost of capital by surveyed companies was found in a study by Bruner *et al.* (1998), who found that 51% of the respondents in that study used the cost of capital for other purposes, such as the evaluation of divisional performance.

Findings from the present study brought new insights regarding the companies listed on the Alt X and their capital budgeting practices. Contrary to findings from other studies that focused on the capital budgeting behaviour of SMEs, the findings of this study indicate that decision-makers in Alt X companies are generally similar to or more educated than the decision-makers in both local and international SMEs. Analysis of the data from this study study shows that the capital budgeting practices of SMEs listed on the Alt X has improved in recent years, a finding which can be attributed to increased capital budget sizes. Most companies listed on the Alt X are using DCF techniques as primary capital budgeting techniques, although subjective judgements dominate as the preferred secondary tool for investment appraisal.

The greater portion of the respondents from the current study reported that they use the WACC 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 corporate finance theory recommendations. Respondents from the current study tended to apply market value weights or book value weights in the WACC calculation. Overall, the findings of the current study are in line with a number of findings from other studies and in general paints a positive picture of the capital budgeting practices of small listed companies; they use the NPV and IRR as primary capital budgeting techniques, they use the WACC as a discount rate and they adjust WACC on a regular basis. In the next section, recommendations based on these findings are made.

5. CONCLUSION AND RECOMMENDATIONS

Governments around the world, particularly in developing countries, have become more cognisant of the role that SMEs play in the economy, the assistance they need to acquire finance and to promote their financial development. The main objective 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 small unlisted companies, companies on the main board of the JSE, as well as small and larger international companies.

The findings of prior studies that focused on unlisted South African SMEs found that the most popular capital budgeting techniques among SMEs were the PBP and other elementary tools of investment appraisal such as 'gut feel' or 'intuition'. Studies of the capital budgeting practices of SMEs in other countries found that those companies used the PBP and 'intuition' as capital budgeting techniques. However, a number of studies reflected a slight increase in the percentages of SMEs that used DCF techniques over the decades. Some studies reported that South African SMEs preferred the IRR approach (Gilbert, 2003), whilst others suggested that SMEs favoured the NPV technique (Brijlal and Quesada, 2009). Findings from international studies on SMEs suggested that over time SMEs have begun to favour the NPV as a capital budgeting technique rather than the IRR (Baker *et al.*, 2011).

The current study was based on an analysis of primary data gathered from a web-based survey administered to companies listed on the Alt X. The demographics in the current study show that the decision-makers have a relatively high level of academic education. The primary capital budgeting tools used by companies listed on the Alt X were the IRR and the NPV and these choices resembled practices used by larger companies. Furthermore, the use of DCF techniques among Alt X-listed companies has increased since a study conducted by West (2008) on a similar population. Respondents from the current study continue to show a stronger preference for 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 drawn on whether Alt X-listed companies used DCF techniques before listing or whether listing on the stock exchange influenced their capital budgeting practices.

The majority of the respondents revealed that they used a discount rate in their investment appraisal process. This corresponds with the higher use of advanced capital budgeting techniques found among respondents. The WACC was the preferred approach for deriving an acceptable rate of return to access proposed capital investments. Furthermore, respondents revealed that they based their WACC calculation on book value and market value weights and recalculated it when significant changes to parameters occurred. These results were generally similar to recent practices in larger companies both in South Africa (Correia and Cramer, 2008) and internationally (Bennouna *et al.*, 2010).

The implications of the findings from the current study are that, as the capital budgeting practices of listed SMEs are in line with the recommended techniques proposed by academia,

namely the NPV and IRR, listed SMEs should make shareholder value-enhancing decisions in undertaking capital budgeting. Decision-makers in listed SMEs could also take cognizance of the value of the PBP as an additional technique, over and above a primary and even secondary technique. It is recommended that to optimise the capital budgeting process, two or even three capital budgeting techniques be employed. Decision-makers should be knowledgeable in the use and application of capital budgeting techniques such as the PI, as well as the modified internal rate of return (MIRR). Furthermore, the calculation and adjustment of the discount rate, ideally the WACC, should be done at least on a yearly basis, because the financial parameters used as the input in WACC are dynamic and change continuously.

It is recommended that future studies use mailed surveys or personal interviews, as these methods produce better response rates, which ultimately increase the accuracy of findings from a study. 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 stock exchanges in other countries in order to compare with the findings from the current study, as well as to detect any patterns in companies listed on alternative exchanges. International studies such as Bennouna *et al.*'s (2010) and Baker *et al.*'s (2011) state that the use of real options is one of the main developments in capital budgeting literature in the last decade. However, little evidence of this has been found among the Alt X-listed companies, and in studies in South Africa in general. Future studies could endeavour to determine the prevalence of this approach to capital budgeting among companies.

This research has shed some light on this unique group of companies on the JSE, and which are often overlooked and are neglected in financial research. This study has contributed to financial theory by showing that companies listed on the Alt X differ from their unlisted counterparts, and that many 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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