



An investigation of the usage of capital budgeting techniques by small and medium enterprises

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Accepted: 29 August 2020
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Abstract

This paper examines the extent or usage of capital budgeting techniques in Small and Medium Enterprises (SMEs) and the effect of non-financial factors on the choice of capital budgeting techniques adopted by SMEs. A qualitative research method of content analysis as well as an econometric quantitative analysis have been employed for this study. The study has been conducted in several divisional councils within the district of Colombo, Sri Lanka. Stratified random sampling has been used to collect a sample of SMEs from each divisional council within these divisions. Information has been gathered through questionnaires and personal interviews. Results of the study reveal that Payback Period (PBP) is the dominant capital budgeting technique used in SMEs. Results of the Multinomial logistic regression indicate that the probability of selecting Net Present Value as the capital budgeting technique is higher in foreign SMEs and in SMEs who operate in the industry for 11 to 15 years. Furthermore, being a SME decision maker with less than 10 years of experience increases the probability of selecting PBP as the capital budgeting technique. Finally, qualitative techniques used in this study indicate that cost, time and knowledge are the main reasons that deter SMEs from using capital budgeting techniques.

Keywords Capital budgeting · Small and medium enterprises (SMEs) · Sri Lanka · NPV · IRR · Payback period

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1 Introduction

Small and Medium Enterprises (SME) are considered as the engine driving a country's economy. "The development of SMEs can be an aid to promote balanced regional development" (Yogendrarajah et al. 2015). The SME sector would become a major contributor for developing countries which are burdened by poverty and unemployment problems. Moreover, these countries have the potential to expand and create employment opportunities. Furthermore, SMEs are recognised as the driving force in any country for promoting the growth of gross domestic product (GDP) and embarking on innovations. This is also valid in the case of Sri Lanka. The economic contribution of SMEs to the wider national economy is reported to be as high as 80% (National Human Resources and Employment Policy 2020). In Sri Lanka, SMEs consist of more than 75% of the total number of enterprises, provides 45% of the employment and contributes 52% of the GDP (Ministry of Industry and Commerce 2015). The SME sector comprises 80% of the business sector in the Sri Lankan economy (Yogendrarajah et al. 2015). On the one hand, the Sri Lankan government recognises SMEs as the backbone of the economy.

On the other hand, SMEs are not large corporates. Typically, SME often step up from humble startups. In most SMEs, owners of management are not professionals nor those who hold a wealth of experience. Research evidence indicates that the failure rate of SMEs is also as high as 45% (Kulupparachchi et al. 2017). In the context of competitiveness prevailing in the current business environment, SMEs experience many challenges in relation to inadequate capital, inadequate institutional credit facilities, reliance on obsolete technology and improper management techniques (Yogendrarajah et al. 2015). These characteristics itself are sufficient to place a high concern for SMEs to manage assets, funds etc., in a way that can yield optimum returns to a SME.

Thus, synthesizing on the significance of SMEs to a country's economy and the high felt need for SMEs to be effective in their investment decisions, the need to use an investment evaluation tool is crucial. This increasingly become crucial in an era where product markets are transforming, price levels are volatile, thereby necessitate SMEs to withstand external shocks that strike unexpectedly.

In these circumstances, one of the most pivotal concerns of an SME is to decide on how they allocate its scarce resources on various investment projects. As such, decision making at this point refers to investment analysis. The tools that help the decision makers in SMEs when making investment decisions are investment evaluation techniques, also known as capital budgeting techniques in financial terms. As stated in Solomon (1963), and as cited by (Lima et al. 2017), capital budgeting is defined as a process by which resources of the firm are allocated to the various projects that the firm undertakes. Uddin and Chowdhury (2009) underscore the importance of capital budgeting decisions as follows: "The successes of the SMEs depend on the optimal capital budgeting decision" (Uddin and Chowdhury 2009).

How do SME's make investment decisions? There is a dearth of studies focussed on capital budgeting practices of SMEs in Sri Lanka. Every country acknowledges the importance of developing SMEs. However, the Sri Lankan government's efforts in this regard are hampered due to lack of relevant information, when compared to the efforts of other developed and developing countries. This study highlights the importance of; (1) having in place reliable and comprehensive information about SMEs and (2) understanding those non-financial factors that affect selecting an investment evaluation technique in Sri Lankan SMEs. Remarkably, research gaps can be identified in terms of non-financial factors in

the context of local SMEs. Therefore, in order to formulate a national policy on SMEs in Sri Lanka and thereby uplift this sector, there is an urgent need to research and study the behavior of SMEs operating in Sri Lanka. In doing so, study findings can provide necessary insights to the policymakers of the SME sector. The in-depth study on capital budgeting practices undertaken in this study will add value to the pool of existing knowledge of SMEs, and help to bridge the knowledge gaps in relation to Sri Lankan SMEs.

Scarcity of resources is not uncommon. However, as a developing country, Sri Lankan firms too face, and experience the magnitude of the issue of resource scarcity. Therefore, it is vital to utilise the limited resources efficiently and effectively in order to maximise organisational business goals. Even if the owners of the SMEs have access to sufficient sources of capital, these business firms are susceptible to decline; this is due to inadequate knowledge about selecting the right investment evaluation technique and the factors that influence investment choices. Therefore, it is important to examine the effect of non-financial factors of SMEs on their capital budgeting practices.

1.1 Objectives

This study consists of two objectives. Firstly, to investigate the extent of usage of capital budgeting techniques in SMEs. Secondly, to find out the effect of the non-financial factors of SMEs (level of education of the decision maker, years of experience of the decision maker, years of operation of SMEs and form of ownership of SMEs) on the choice of capital budgeting techniques.

This research differs from existing studies, and contributes to the literature in three ways. Firstly, it helps to understand how governments of many countries worldwide to offer many inducements and incentives to the SME sector. Based on the positive impact of the SME sector towards the development of the economy, it is reasonable to assume that these countries have been well focussed on developing their SME sectors. However, the Sri Lankan government's efforts can be identified as quite low compared to the efforts of other developed and developing countries. Therefore, uplifting the SME sector is critical. Knowhow is vital to make appropriate investment decisions that contribute significantly to the success of SMEs. This study attempts to add value to the pool of existing knowledge on SMEs by identifying the non-financial factors relating to SMEs; in addition, to identify their impact on the usage of capital budgeting practices. Secondly, this study contributes to provide insights about the decision makers of capital budgeting activities in SMEs. Thirdly, the study results would aid in the successful implementation of capital budgeting techniques in SMEs by providing suggestions to overcome the challenges faced by the owners or decision makers in the choice of investment activities.

The remaining parts of this paper are organised as follows. Section 2 addresses the literature review, while Sect. 3 presents data and methodology; Sect. 4 assesses the empirical hypothesis and test results, and Sect. 5 presents the concluding remarks.

2 Literature review

2.1 Capital budgeting in SMEs

Research in the field of capital budgeting practices of SMEs has been carried out in developed nations as well as in developing nations. Sarwary (2019) provides a survey of studies

carries out relating to capital budgeting practices of SMEs. In the context of developed nations, early research studies on capital budgeting techniques have identified Payback Period (PBP) as the dominant technique adopted by SMEs. A study conducted on the UK manufacturing industry has found that PBP is the most popular investment evaluation technique among the SMEs (Peel 1999). Peel (1999) has extended the study to SMEs in Germany and Japan and confirmed similar results. In a US study, Block (1997) has affirmed that PBP continued to be the leading capital budgeting technique adopted. It can be noted that results of the studies carried out in developed countries are consistent with one another.

Among developing countries, although the usage of capital budgeting techniques by companies in general has been well researched in the corporate finance literature, less attention has been paid to this issue in the context of SMEs. Sungun (2015) has surveyed over 65 SMEs located in Istanbul, Turkey, in the production, construction and service industries; results showed that the PBP method has indicated a usage rate of 74% from all participants in the survey. Furthermore, a study conducted in India has found that PBP is the most widely used technique for evaluating projects with 48.4% of the respondents stating that SMEs used this technique most frequently (Yadave 2017). Based on this evidence it reaffirms that PBP was the preferred capital budgeting method used by SMEs. Moreover, it indicates that results are similar regardless of the country's stage of development.

Furthermore, the literature indicates a heavy usage of unsophisticated capital budgeting techniques, such as PBP. However, a more recent study conducted in South Africa reports that the fundamental capital budgeting techniques employed by SMEs are the Internal Rate of Return (IRR) and the Net Present Value (NPV) (Sibanda and Hall 2016). Olawale et al. (2010) analysed data in South Africa and found out that 39% respondents make use of sophisticated investment appraisal techniques. Results of these studies are in contrast with those studies that highlighted the heavy usage of less sophisticated capital budgeting techniques. The evidence implies that discounted cash flow (DCF) techniques seem to gain acceptance among developing countries in recent years.

2.2 Factors influencing the choice of capital budgeting techniques

In exploring the determinants of capital budgeting techniques in the literature, both financial and non-financial factors are found to have played major roles. The non-financial factors which include the business and decision maker's demographics have received increasing attention in the recent decades. A study conducted in Tanzania has investigated the effect of business characteristics on the choice of capital budgeting techniques (Katabi and Dimoso 2016). Business characteristics include industry of the business, sales growth, establishment of the business, number of employees and form of ownership. Katabi and Dimoso (2016) addressed the effect of the business characteristics on the choice of capital budgeting techniques using MLR. A study conducted by Danielson and Scott (2006) analyzed choice of investment evaluation tools with the respective firms' business characteristics. The determinants that were measured in the study were industry of business, sales growth, business age, employment, owner educational level, owner age, investment type and planning tools. This study has applied MLR in order to accomplish the stated objectives of the study. These studies which measure the effect of independent variables on the choice of capital budgeting techniques have interpreted results using coefficients: "Coefficients of each independent variable in the model will not represent the impact of the variable on the dependent variable in terms of magnitude or size" (Collins and Troilo 2015). In accordance with Collins and Troilo (2015), marginal effect would be the most

appropriate interpretation for categorical independent variable, to indicate change in likelihood of a given response if the variable changes from 0 to 1.

A number of studies have been carried out to test the link between non-financial factors and the choice of capital budgeting techniques. Brijlal and Quesada (2009) indicate that financial officers with a Master of Business Administration (MBA) degree applied more sophisticated techniques such as NPV and IRR. Also decision makers with considerable experience showed a tendency to employ DCF techniques (like NPV, IRR etc.) more than decision makers with a short business experience (Lakew and Rao 2014). Furthermore, it was found that established SMEs for a longer period inclined to use NPV and IRR techniques (Sharma 2017). “independently owned SMEs are less aware of the techniques (particularly the more sophisticated DCF methods), which may result from subsidiaries being more ‘educated’ in the techniques by their larger parents and/or may be in consequence of better financial training in subsidiaries” (Peel 1999). Based on past research findings, the age of the SME, form of ownership, level of education of the decision maker and years of business experience of the decision maker are the four factors that determine the choice of capital budgeting practices.

2.3 Reasons for the non-usage of capital budgeting techniques

With regard to the issue of reasons for not adopting capital budgeting techniques, the research evidence is relatively small compared to other researches carried out on similar issues investigated. Financing problems and budget constraints have been the main barriers for implementation of capital budgeting techniques in high tech firms (Silvola 2006). Recent empirical studies have used Wordcloud as the qualitative data analysis technique. Wordclouds were created from the numerous responses in the form of text which exhibits the size of each word as corresponding to its recurrence (Mcwhirter and Shealy 2018). Most of the literature and survey related to the capital budgeting have not utilised Wordcloud analysis in order to analyse qualitative responses. Recent empirical studies have proved Wordcloud as a successful qualitative data analysis technique regardless of its simplicity (Bhanot et al. 2016; Jayathilaka et al. 2020). As such, the current study, contributes to the literature by employing Wordcloud techniques to identify capital budgeting practices.

In summary, many academics globally have looked into capital budgeting techniques in SMEs. Studies of this nature conducted relating to SMEs in Sri Lankan context (Yogendrarajah et al. 2015), investigated financial management practice in SMEs and not capital budgeting techniques. Therefore, it is evident that research on capital budgeting techniques remains an understudied area in the context of Sri Lankan SMEs, where empirical gaps exist. From the literature review carried out, it directs to the conclusion that information required to adopt capital budgeting techniques in SMEs in Sri Lanka, is rather limited. No attempt has been made to examine the non-financial factors for the non-usage of capital budgeting techniques, according to information available to authors.

3 Data and methodology

3.1 Data

A persistent difficulty faced by researchers on the SME sector is to ascertain the appropriate definition of an SME. SMEs are defined in different ways by various countries using

different parameters. In accordance with the World Bank definition as cited by Yogendrarajah et al. (2015), SMEs are classified into categories of Micro, Small and Medium, in terms of its employment base. Accordingly, the employment base was adopted to define the SMEs in this study. Micro SME is where the number of employees is up to 10, Small is from 10 to 50 employees and Medium is from 50 to 300 employees. A greater number of SMEs are based in the Colombo district. For this reason, the district of Colombo was selected as the geographical region for the study. A qualitative research method of content analysis as well as an econometric quantitative analysis were deployed in this study.

A stratified sampling approach was adopted to identify a representative sample of SME from three municipals sub-divisions of Colombo, namely *Homagama*, *Kolonnawa* and *Hanwell*. The population of SMEs in these sub-divisions which are reported to have homogenous employee numbers between 10 and 300 was ascertained to be 553. Of this number, a questionnaire was distributed among approximately one-third of the population selected at random, numbering 190 firms. Out of the firms sampled, 60 valid responses were received, which formed the sample of SMEs for the study.

A questionnaire was considered as most appropriate, given the busy schedule of the participants. The questionnaire which this study administrated is based on a review of the existing literature and uses a format and designed to minimise biases (Sharma 2017). All questionnaires were electronically distributed to reduce the non-response rate; two reminder e-mails were sent to the respondents of the survey sample. As a consequence, 60 valid questionnaires were returned representing a retrieval rate of 31%. Information obtained from questionnaires was adjusted to improve the validity of the findings of the study. Furthermore, cleaned data were analysed using STATA statistical package. Additionally, in order to ensure that the respondents clearly understand all components of the questionnaire and to answer the last research question, the study employed the personal interview technique. In congruence with Downey and Ireland (1979) as cited by Lima et al. (2017), the personal interview approach was adopted to clarify issues related to the questionnaire.

3.2 Conceptual framework

Figure 1 illustrates the conceptual framework as well as the key variables involved in this study and how the variables are interrelated to each other. The dependent variable in this study is the choice of capital budgeting methods adopted by SMEs. This model investigates four independent variables, namely form of ownership, years of operation of the company, educational qualification of the decision maker, and years of business experience of the decision maker. The form of ownership was defined as either locally owned or foreign owned. Company age was categorised in groups ranging from less than 5 years, 6–10 years, 11–15 years, 16–20 years, and over 20 years. Educational qualification was categorised as secondary school ordinary level qualification, advanced level qualification, university degree or professional qualification. The arrows in the model depicts the hypothesised relationships which are examined using MLR model.

3.3 Analytical tool

This study uses three types of analytical tools namely; descriptive, econometric and Word-cloud analysis. Descriptive analysis was first adopted to find out the extent of usage of capital budgeting in SMEs. The hypotheses of the study were tested by using the Chi-square

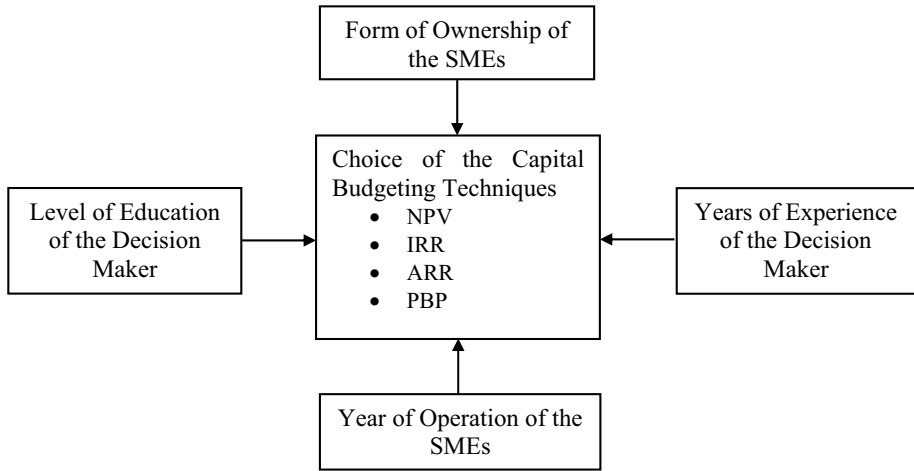


Fig. 1 Conceptual framework—interrelationship of variables. *Source:* Compiled by authors

test of independence. Based on the Chi-square test, the association between non-financial factors and choice of capital budgeting techniques was determined. Many statisticians are of the view that econometric analysis of the MLR model can be expanded to investigate more than two response variables; as such, there is no natural ordering of the categories of those dependent variables (Wooldridge 2010). The MLR model serves the research purpose of estimating the probability of belonging to a specific population and to estimate the net effects of a set of explanatory variables on the response variable. The following MLR model was estimated using the maximum likelihood function.

$$P_{ni} = \frac{e^{\beta_i X_{ni}}}{\sum_{i=1}^3 e^{\beta_i X_{ni}}}, \quad i = 1, 2, 3 \tag{1}$$

where i takes values (1, 2, 3), each representing the choice of capital budgeting technique (Payback = 1, IRR = 2, NPV = 3). P_{ni} is the probability that a SME n chooses capital budgeting method i , β_i is a vector of the calculative coefficient for the output severity i , and X_{ni} is a vector for the explanatory variables. β_i Coefficients can be estimated using the maximum likelihood approach (Wooldridge 2010) and the equation is as follows:

$$P(i = 1, 2, 3) = \beta_1 EDU_n + \beta_2 EXP1_n + \beta_3 EXP2_n + \beta_4 AGE1_n + \beta_5 AGE2_n + \beta_6 OWN_n + \varepsilon_n \tag{2}$$

where EDU denotes the Level of education of the n th respondent. $EXP1$ is a dummy variable equal 1 if Business Experience less than 10 and 0 otherwise. $EXP2$ is also a dummy variable equal 1 if Business Experience 11 to 15 and 0 otherwise. Company age is represented by $AGE1$ and $AGE2$ variables. If company age less than 10 $AGE1$ equals 1 and 0 otherwise. Similarly, Company Age 11 to 15 $AGE2$ equals 1 and 0 otherwise. OWN is the form of the ownership. Finally ε is the random error term and equation were estimated by STATA. The coefficients for reference category are considered as zero and, in this study, ARR is used as the reference category. The coefficient values of the MLR provide only the direction of the effect of the independent variable on the dependent variable.

Coefficient values do not represent the actual magnitude of change or probabilities of dependent variables resulting in changes in the independent variables. Therefore, this study

has interpreted results obtained from the MLR model using the marginal effect, because the ‘‘As all four key explanatory variables are categorical, the marginal effect indicates the change in likelihood of a given response if the variable changes from a 0 to 1’’ (Collins and Troilo 2015). In contrast, the qualitative approach of this study (to find out the reasons for not adopting the capital budgeting techniques in SMEs) has been accomplished based on world cloud analysis. Study conducted in recent empirical studies have proved Wordcloud as the successful qualitative data analysis techniques regardless of its simplicity. Wordcloud exhibits the size of each word as corresponding to its recurrence (McWhirter and Shealy 2018). Responses received from the personal interview has been applied to the *Wordle* software and obtained a diagram representing the highlighted words. This analysis pays greater attention to the most frequent words, which can be considered as major reasons to abandon capital budgeting techniques.

3.4 Empirical hypotheses

This study works on four hypotheses related to the interdependence of factors affecting choice of capital budgeting practices against the choice of capital budgeting methods, and these hypotheses can be summarised as follows:

Hypothesis 1 $\beta_1 > 0$: The level of education of the decision maker is positively related to the level of sophistication of capital budgeting techniques used.

Hypothesis 2 $\beta_2 > 0$: The experience of the decision maker is positively related to the level of sophistication of capital budgeting techniques used.

Hypothesis 3 $\beta_3 > 0$: The age of the company is positively related to the level of sophistication of capital budgeting techniques used.

Hypothesis 4 $\beta_4 \neq 0$: The form of ownership of the company is related to the level of sophistication of capital budgeting techniques used.

4 Results and discussions

Table 1 summarises the capital budgeting techniques employed to assess financial viability of major investments. Results of the present study indicate that the most preferred capital budgeting method used was PBP (55%), followed by NPV (37%) and IRR technique (12%), respectively. None of the respondents recorded their response as ARR. These results are consistent with those confirmed by previous empirical studies such as Block (1997), Peel

Table 1 Capital budgeting techniques. *Source:* Authors' calculation

Capital budgeting techniques	Frequency	Percentage (%)
PBP	33	55
IRR	7	12
NPV	22	37
ARR	0	0

(1999) and Yadav (2015). Most of the SMEs favoured the PBP technique. The main reason can be identified that in PBP, the technique itself avoids the problem of finding the appropriate discount rate. Moreover, PBP is easy to understand and a less sophisticated capital budgeting technique, which simply require calculating the time period to recover the initial investment.

4.1 Chi-squared test of independence

Results obtained from the Chi-squared independence test indicate that there is a significant association between variables (form of ownership of the SME, age of the SME and years of business experience of the decision maker) and the choice of capital budgeting techniques. There was no significant association between the level of education of the decision maker and the choice of capital budgeting techniques (Table 2). The findings of this study are contrary to the previous studies of Brijlal and Quesada (2009), and Barjaktarovic et al. (2015) which state that a relationship exists between the educational level and choice of capital budgeting techniques. Results of the Chi-square of independence are summarised below:

4.2 Results of the MLR

Results obtained based on the MLR model are shown in Table 3. The foreign SMEs had a positive effect on probability of selecting NPV as the capital budgeting technique. For foreign SMEs, the increase in likelihood that a SME will use NPV as the capital budgeting techniques by 59.68% than local firms significant at 1% probability level, holding all other factors constant. These findings are consistent with the findings of Peel (1999). Those studies have revealed that firms with multinational exposure tend to employ sophisticated DCF techniques. However, foreign SMEs had a negative effect on the probability of selecting IRR and PBP. For foreign SMEs, the decrease in likelihood that a SME will use IRR as the capital budgeting techniques by 20.7% than local firms is significant at 10% probability level, holding all other factors constant. Furthermore, for foreign SMEs, the decrease in likelihood that a SME will use PBP as the capital budgeting techniques is 38.97% significant at 5% probability level, holding all other factors constant. Foreign SMEs are less likely to choose PBP as the capital budgeting technique than the local SMEs.

The SMEs operating in the industry for 11 to 15 years had positive effect on the probability of selecting NPV as the capital budgeting technique. For SMEs who are operating in the industry for 11 to 15 years, the increase in the likelihood that a SME will use NPV as the capital budgeting techniques is 67.18% significant at 1% probability level, holding all other factors constant. SMEs who are operating in the industry for 11 to 15 years are more likely to choose NPV as the capital budgeting technique than other SMEs who are

Table 2 Result of the Chi-square test of independence. *Source:* Authors' calculation

Variable	χ^2 value	<i>p</i> value
Company ownership	18.3461	0.000
Company age	11.5241	0.021
Education qualification	2.4944	0.869
Business experience	11.4888	0.022

Table 3 Marginal effect from multinomial logistic regression. *Source:* Based on the survey conducted by authors

Variables	PBP		IRR		NPV	
	Coef.	dy/dx	Coef.	dy/dx	Coef.	dy/dx
Education qualification (professional qualification)	0.40	0.0991	-0.76	-0.0484	-0.40	-0.0506
Business experience less than 10	2.87**	0.3434	-1.15	-0.0472	-2.87**	-0.2961
Business experience 11 to 15	2.15	0.2228	0.28	0.5607	-2.15	-0.2789
Company age less than 10	-3.03	-0.4194	-0.54	-0.0945	3.03	0.5139
Company age 11 to 15	-3.43***	-0.5821	-0.36	-0.0897	3.43***	0.6718
Company foreign ownership	-4.16**	-0.3897	-1.56*	-0.2070	4.16***	0.5968
Pseudo R ²	0.3888					
Prob > χ^2	0.0000					
LR χ^2 (12)	41.27					
Log likelihood	-32.446614					

***Significant at 1% level

**Significant at 5% level

*Significant at 10% level

operating in the industry for more than 16 years and less than 10 years. Based on previous empirical studies and current study results, it can be concluded that both SMEs and large firms with short tenure tend to abandon the sophisticated capital budgeting techniques. However, these findings contradict with the findings of AlKulaib et al. (2016) who found out that SMEs operating for a longer period are more inclined to use IRR and NPV. However, the finding of the study is in contrast for SMEs operating in the industry for 11 to 15 years, which had a negative effect on the probability of selecting PBP as the capital budgeting technique. For SMEs who are operating in the industry for 11 to 15 years, the decrease in the likelihood that a SME will use PBP as the capital budgeting techniques is 58.21% significant at 1% probability level, holding all other factors constant. SMEs who are operating in the industry 11 to 15 years are less likely to choose PBP as the capital budgeting technique than other SMEs who are operating in the industry for more than 16 years and less than 10 years.

SME decision makers with less than 10 years of experience had negative effect on the probability of selecting NPV as the capital budgeting technique. For SME decision makers with less than 10 years of experience, the decrease in the likelihood that a SME will use NPV as the capital budgeting technique is 29.61% significant at 5% than others, holding all other factors constant. These findings are consistent with findings of the study of Lakew and Rao (2014) who stated that decision makers with higher experience tend to employ DCF techniques more than decision makers with lower experience. However, SME decision makers with less than 10 years of experience had positive effect on the probability of selecting PBP as the capital budgeting technique. For SME decision makers with less than 10 years of experience, the increase in the likelihood that a SME will use PBP as the capital budgeting technique is 34.34% significant at 5% probability level, holding all other factors constant. SME decision makers with less than 10 years of experience are less likely to choose PBP as the capital budgeting technique than SME decision makers with 11 to 16 years as well as those with more than 16 years.

In summary, business experience less than 10 years was found to be positively related, and company age less than 11–15 years and foreign ownership variables were found to be negatively related to the usage of PBP techniques employed. Foreign ownership was negatively related to the usage of IRR. Finally, business experience less than 10 years was found to be negatively related, and company age less than 11–15 years and foreign ownership variables were found to be positively related to the adoption of NPV techniques.

4.3 Content analysis

Data from each SME that disregarded capital budgeting techniques was noted to be less than one-third of the total sample size. The aim of the study was to obtain the keywords to explore the reasons for not adopting capital budgeting techniques. All these issues have been identified based on the response obtained from the SMEs. Wordcloud was applied to the set of responses in order to observe which highlighted keywords (Fig. 2). As noted in the Wordcloud illustration, cost, time and the knowledge are the perceived barriers to use capital budgeting techniques; this explanation was based on the relative size of barriers as depicted in the Wordcloud, depending on their relative frequency. These were expressively displayed in respondents' discourses. Based on these keywords, it can be inferred that the main three concepts relate to the driving forces for SMEs to disregard capital budgeting techniques are cost, time and knowledge. These reasons are guided by limited evidence in previous studies conducted by Gupta and Jain (2016), and Silvola (2006) who found that financing issues, budgetary issues and absence of skills as key constraints to disregard using of capital budgeting techniques.



Fig. 2 WordCloud illustration for disregarding capital budgeting techniques. Source: Authors' illustration based on WordClouds.com (2019)

5 Conclusion

This study uncovered interesting evidence pertaining to current capital budgeting practices of SMEs operating in the Colombo district of Sri Lanka. The results of the study indicated that the PBP is the most preferred capital budgeting technique in SMEs. The hypothesised relationship was tested and supported statistically. As a result of testing the hypotheses, form of ownership, age of the company and years of business experience were found to be significant factors to the selection of capital budgeting techniques. However, the level of education was found not to be a significant factor to the selection of capital budgeting techniques, by rejecting the first hypothesis. The results of the MLR indicated that, it increases the probability to select NPV as the capital budgeting techniques in foreign SMEs and SMEs who are operating in the industry for 11 to 15 years. Furthermore, being a SME decision maker with less than 10 years of experience, increases the probability of selecting PBP as the capital budgeting techniques. Cost, time and knowledge were found to be the main reasons that influence a SME's decision to abandon capital budgeting techniques. The findings in the present study strongly reinforce conclusions of previous empirical studies.

5.1 Policy implications and recommendations

The findings of this study indicated that factors such as the experience of the decision maker, age of the SMEs and the form of ownership are key indicators for the choice of capital budgeting techniques used by SMEs. These findings point out to some important policy implications in the context of SME sector development in Sri Lanka. Government and regulatory agencies should introduce and formulate policies which underscore capital budgeting management as mandatory skills for decision makers. Owners of SMEs should in turn establish policies within their businesses, to enhance financial literacy as well as overall organisational performance.

The results of this study will immensely assist the government and regulatory agencies to design policies to assist Sri Lankan SMEs in the management of investment decisions. Additionally, findings can guide SME's to monitor their capital budgeting decision making processes. The key factors associated with SMEs that did not adopt any capital budgeting processes nor had practiced poor capital budgeting techniques, have been identified as cost, time and knowledge in this study. This knowledge would be invaluable for government agencies to identify and target the SMEs that need guidance and assistance the most, for effective investment decision making that can yield better returns. Government agencies could design programmes to offer assistance and training, to specifically target SMEs deserving the help most.

It would be valuable to expand investigation of capital budgeting techniques of SMEs to hitherto less privileged areas in Sri Lanka outside of the Colombo district. Expanding this study based in this approach can help capture unique characteristics applicable to SMEs at regional levels. SMEs will then be able to devise the best mechanisms (rather than a uniform mechanism based on common findings) to apply capital budgeting techniques for evaluating investments, in order to achieve the goal of optimising shareholder wealth.

5.2 Limitations and future research

Although the study sought to be an extensive one that investigates capital budgeting techniques in SMEs in Sri Lanka, several limitations were encountered and remain to

be addressed. One limitation of the study was the resource constraint, mainly linked to time period and finance aspects. The next limitation of the study was the unavailability of data due to the absence of an official database of SMEs in Sri Lanka. Data were collected through the divisional councils representing the Colombo district. Difficulties arose when extracting information from the SMEs participants due to some ethical issues, such as requesting personal information in relation to education levels.

It would be beneficial to investigate capital budgeting techniques of SMEs in regional Sri Lanka outside of the urban Colombo district. Capital budgeting practices in regional Sri Lanka can be quite diverse to the urban areas. Thus, in such a backdrop can resemble different reasons that impact the choice of investment tools by SMEs. This research extending to a wider scale towards a provincial analysis can help contribute to empirical gaps in the Sri Lankan literature. The current study can act as a springboard for future research. This can enable to conduct comprehensive studies on capital budgeting in SMEs between the urban and rural areas of Sri Lanka.

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