# The use of Capital Budgeting Techniques in Large Businesses: Evidence from Sri Lanka

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**Abstract**
*This paper examines the use of capital budgeting techniques and investigates a number of variables and associations relating to capital budgeting practices in large listed companies in Sri Lanka. Study was carried out by conducting a survey of CEOs and it is the first to investigate practice of application of capital budgeting in Sri Lankan context.*
*From the study it is found that Net Present Value (NPV), Accounting Rate of Return (ARR), Payback period (PBP), Internal Rate of Return (IRR) and Profitability Index (PI) are used to evaluate investment projects. The results find that large firms rely heavily on NPV, IRR, Discounted PBP and these are the favored techniques in Sri Lanka. It is, further, revealed that most firms used only one evaluation technique among these favored techniques. Moreover it is found that project definition is the most important and critical in capital budgeting process for service organizations.*

**Key words:** capital budgeting, NPV, IRR, PB, ARR, PI, Large listed company, Sri Lanka

## 1. Introduction

Capital budgeting plays an important role in strategic financial management of organization in Sri Lanka. This research focused on large listed companies, as classified by Lanka Monthly Digest (LMD), and investigated a number of variables and associations relating to capital budgeting practices in Sri Lanka. A survey method was used to carry out the research work and it is the first to investigate practice of application of capital budgeting in Sri Lankan context.

The simple rule in capital budgeting decisions is to maximize the expected results i.e., Invest in all positive net present value projects (Brealey and Myers, 2003). This research paper discusses current capital budgeting practices of large business organizations in Sri Lanka. Importantly, organizations take necessary actions to ensure that the decision making criteria that the organization is used support the business's strategy and that support to gain the competitive advantage in the business environment. Making efficient and effective decisions on resources especially on financial resources always require managers to be based on informed decisions. Due to rapid development of both systematic and non-systematic methods of capital budgeting procedures, organizations do not always make decisions based on informed information.

This survey first examines the capital budgeting practices of large business organizations. Secondly, in order to measure implication of demographic variables of the CEO on the capital budgeting procedures and use of capital budgeting techniques, it examines demographic information of the CEO's of the organizations such as age of the CEO, tenure of the CEO in the position, education of the CEO.

## 2. Literature review

### 2.1 Capital Budgeting Techniques

Finance literature provides two types of capital budgeting procedures in the evolution of the investment appraisals. One is the traditional method, that is experience and feelings were used in evaluating the capital budgeting decisions. Recently there are developed non-discounted and discounted cash flow techniques are there to evaluate the capital budgeting decisions and executive have the option to use any method or combination of all three methods to get the better decisions which enhance the shareholders' wealth.

Recent developments in capital budgeting theory encourage executives to use Discounted Cash Flow (DCF) techniques, as it considers time value of the money of all the future cash flows in order to have better understanding on the return of the investment or capital budgeting decision. Graham & Harvey (2001) explained in their study Discounted Cash Flow techniques are the commonly used capital budgeting techniques on most of the business organizations regardless of the size of the organization. Further they explained the reason for the heavy dependence on the DCF Techniques by the large organizations. This results has been moreover proved by this research as all most all the organization tend to use DCF Techniques in capital budgeting decisions.

### 2.1 Investment Decisions

Pandey (2005) acknowledged one way of classifying the investments is expansion of existing business, expansion of new business and replacement and moderations, whereas Lumby (1991) defined an investment decision as "a firm's decision to make cash outlays in order to receive, in return, future cash inflows. Capital budgeting is a process of identification, evaluation and selection of the long-term or fixed assets which will in turn increase or maximize shareholders wealth. Pandey (2005) explained three steps involved in the evaluation of an investment namely, estimation of cash flows, estimation of required rate of return or the opportunity cost of capital and application of a decision rule or a capital budgeting technique for making the choice. There, he explained that capital budgeting technique should evaluate the economic worth of an investment.

### 2.2 Capital budgeting and large firms

Karim *et.al* (2010) carried out a research on capital budgeting of large firms in Canada, many large firms in Canada tend to use Discounted Cash Flow techniques (DCF) in evaluating their investment opportunities. Thus Discounted Cash Flow Techniques are increasingly accepted by the large firms in America specially NPV and IRR. But this study has not addressed the alignment of financial objectives of the business strategy with the adoption of investment appraisal techniques in evaluating the investment opportunities. Further they explained that usage of non-discounted cash flow techniques has declined though the usage is still in the system.

Cooper *et al.,* (2001) acknowledged that IRR and NPV are the popular Discounted Cash Flows techniques and Payback period also still in in use as investment appraisal method in Fortune 500 companies in Corporate America. Lord Bevery & Boyd Jennifer (2004) stated that 75% local authorities in New Zealand use NPV and cost benefit analysis in evaluating their capital investments but at the same time qualitative aspects have highly been used by these firms in investment appraisals. Hogaboam, LS & Shook (2004) explained that publicly owned forest product firms in US are preferred to use IRR as decision criteria of investment appraisal. Further Truong *et al.,* (2006) explained that NPV and the IRR are the most commonly used investment appraisal techniques in Australian large companies. But through their research they revealed that Payback period is still in use in Australia as a criterion and WACC is used to discount the cash flows in these companies.

Stanley (2003) carried out a study to with between different industries including Three hundred two fortune 1000 companies and found that industry patterns affect financing and capital budgeting decisions of all the industries examined. Ryan & Ryan (2002) explained that NPV and IRR are the most preferred capital budgeting tool of Fortune 1000 companies examined. At the same time Payback period and Profitability Index are also in use to some extent.

## 3. Methodology

This research gathered both quantitative and qualitative data relating to the capital budgeting of large organizations in Sri Lanka. Data were gathered through a survey using a questionnaire. The first part of the questionnaire measures the demographic characteristics of the organization and its CEO and the second part of the questionnaire measures the capital budgeting practices of the organization developed through Likert scaling.

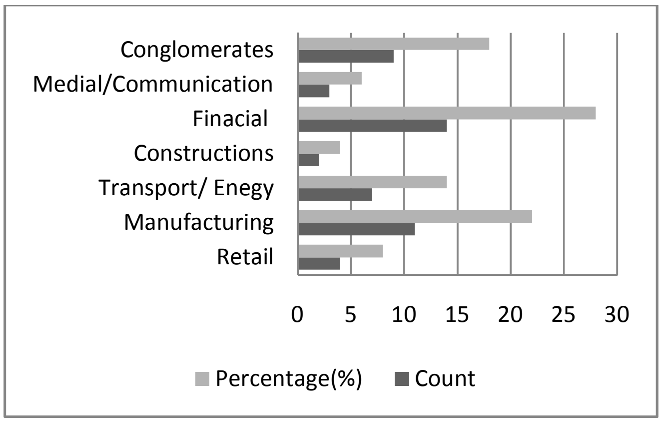
In gathering data, we gathered information and data from CEOs of the organizations. As the same questionnaire measures the demographic variables of the organization, same respondents were targeted to collect data. The large firms selected from Lanka Monthly Digest (LMD), Leading Business Magazine in Sri Lanka. This magazine includes complied annual reports of 100 leading business organizations in Sri Lanka. First 100 companies were selected as the respondents. Due to the nature of the capital budgeting practices, respondents were selected to gather information on how they make decisions on capital budgeting and their experience on capital budgeting when they make decisions. Population was defined as listed companies on the Colombo Stock Exchange and ranked companies by Lanka Monthly Digest (LMD). Chi Square test was used to measure the association between variables identified in the research. The qualitative data gathered through the survey were used to support the explanation made on the findings of the study. Out of the sample targeted 50 respondents were selected as the successful respondents with full information. This provides a response rate of 50%.

The study used one mechanism to send the questionnaire. The study sent questionnaire through e-mail from the researcher. Researchers requested to send the questionnaire within two weeks and encourage the respondents by informing that organizational information will not published and keep as anonymous to obtain correct and reliable information and results of the study are to be published.
The CEOs returned their filled questionnaire, as the study does not have the any clue to identify the organization exactly, each filled questionnaire has given a code for the identification.

## 4. Results and Discussion

### 4.1 Business Sector and Organizational characteristics

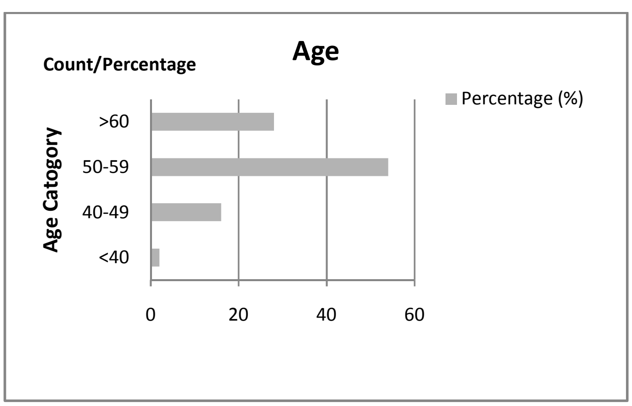
**Figure 01: Sector Analysis**




(Source: Primary Data)

Survey results show that 28% of the sample represents the Financial Services industry, which counts the highest representation of the sample. Manufacturing is the second largest and counts for 22%, and the third is the conglomerates, which counts 18% of the sample. The lowest representation is from the construction industry which counts for 4% of the sample.
All most all the companies of the sample represent the private sector business organizations which are listed on the Colombo Stock exchange. Hence the percentage representation of the sector counts 100% for the private sector.

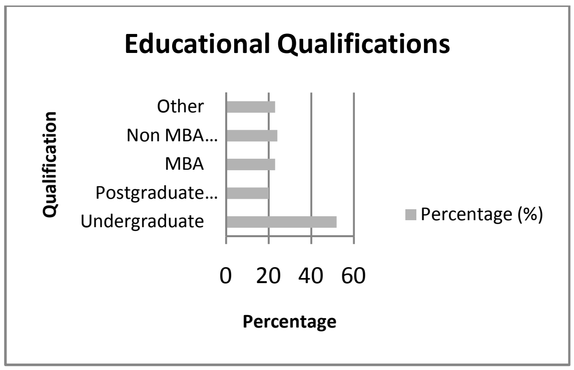
**Figure 02: Age Analysis**




(Source: Prtimary Data)

More than half of the CEO's of the responding organizations are between 50-59 years old. Another 28% of the CEO's are over 60 years. Further, 16% of the sample organizations are with CEO's whose age is between 40-49 years. Only 2% counts with CEO's whose age less than 40 years.
Almost all the CEO's of the sample firms represent males and that counts 100%. That shows top most position of large organizations are dominant with male population.

**Figure 03: Educational Qualifications Analysis**




(Source: Primary Data)

More than 50% of the CEOs have their basic degree qualification as their highest level of educational qualification. Another 23% of CEOs are with Local or international MBA qualification with their first degree. Another 24% of the CEOs are with non-MBA or other type of masters qualification related to their first degree. Moreover, 23% of the sample is with higher qualifications with professional qualifications which were categorized as other in the questionnaire.
Results show that 42% of the sample organizations seriously considered the issuing of common stocks and ordinary shares, 34% of the sample seriously considered in issuing convertible debts, and 24% of the sample seriously considered to issue debts in foreign markets as they do their business activities and operations in their country.

### 4.2 Capital Budgeting techniques

Respondents were asked to indicate their usage of different capital budgeting techniques used in corporate decisions by providing both discounting and non-discounting cash flow techniques. The summary result of the respondents is depicted below.

**Table 01: Capital Budgeting Techniques of Large Organizations.**

| Technique | % |
|---|---|
| Net Present Value | 53 |
| Internal Rate of Return | 42 |
| Hurdle rate | 18 |
| Payback period | 18 |
| Discounted payback period | 32 |
| Profitability Index | 15 |
| Accounting rate of return (book rate of return on assets) | 8 |
| Sensitivity analysis (e.g 'good' vs 'fair' vs 'bad') | 21 |

(Source: Primary Data)

According to the results of the survey, large organizations are more likely to use NPV followed by IRR. This results show that NPV is more popular than IRR in Large businesses in Sri Lanka. Business Organizations with high debts tend to use IRR and NPV. Some organizations which use NPV as their favored technique in capital budgeting decisions also use sensitivity analysis to get more insight on the decision. Because according to theory, investment is accepted if the NPV is equal to 0 or positive.

Moreover some organizations still use non-discounted cash flow techniques such as PBP and ARR in capital budgeting decisions along with discounted cash flow techniques. This result shows that organizations do not rely on one type of techniques in evaluating capital budgeting projects, but they use combination of both Discounted and Non-Discounted Cash flow Techniques.

### 4.3Association between Age, Educational Qualifications, Tenure and Capital Budgeting Techniques used

The study expected to find out the association between demographic variables and the use of capital budgeting techniques. The result shows that, all the CEOs who are responsible for capital budgeting decisions are with first degree or with postgraduate qualifications related to the industry they operates. According the responses made by the respondents, gut feelings are used very rarely in capital budgeting decisions as these organizations are very large and investments count significant cash outflows from the company. Further, it was revealed that, some organizations tend to hire expertise from outside when the organization expects to invest significantly large sum of money.

NPV is the most popular technique among executives whose age is more than 50 years, executives with long tenure at the organizations still tend to use PBP with NPV in capital budgeting decisions. But nearly 32% of the sample uses discounted-PBP which considers the time value of money of cash flows in evaluating the capital budgeting decisions.

Further, the study examined the relationship between qualifications of the CEO of the organization and the capital budgeting techniques. The study revealed that CEO's with MBA or Masters in Finance, Accounting or Management field or with professional qualifications tend to use discounted cash flow techniques.

Further research findings shows that there is an association between the level of educational qualification and the use of NPV and IRR. This is mainly due to postgraduate qualification of executives of the organization. Because recently almost all the executives tend to have postgraduate qualifications in accounting, finance or management related subjects.

### 4.4 Important stage of Capital Budgeting

There are four stages in capital budgeting that is Project Definition, Analysis and selection, Implementation and Review.

**Table 2: Importance of Capital Budgeting Stage**

| Stage | Percentage |
|---|---|
| Project Definition | 62 |
| Analysis and selection | 23 |
| Implementation | 10 |
| Review | 5 |

(Source: Primary Data)

Nearly 62% of the respondents responded that ‘project Definition’ as the most important stage in capital budgeting process. Second important stage is the analysis and the selection according to the responses and that counts 23%. Third stage is the implementation and review is the last, which counts 10% and 5 % accordingly.

## 5. Conclusions

The results revealed that capital budgeting is one of the most important aspects of large organization as it counts the continuation of the business operations and the survival in Sri Lanka. Moreover the study revealed that even if the large organizations are tend use combination of both discounted and non-discounted methods of capital budgeting techniques, still these large organizations tend to rely on discounted cash flow techniques. Finally, among the discounted cash flow techniques NPV and IRR are the most commonly used techniques of large business organizations in capital budgeting decision making.

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The use of Capital Budgeting Techniques in Large Businesses: Evidence from Sri Lanka. This paper examines the use of capital budgeting techniques and investigates a number of variables and associations relating to capital budgeting practices in large listed companies in Sri Lanka. Study was carried out by conducting a more. This paper examines the use of capital budgeting techniques and investigates a number of variables and associations relating to capital budgeting practices in large listed companies in Sri Lanka. Study was carried out by conducting a survey of CEOs and it is the first to Techniques of Capital Budgeting â€“ Non-Discounted Cash Flow and Discounted Cash Flow Techniques. Capital budgeting is the most important decision in financial management. Capital budgeting is concerned with long-term investment of funds to create production capacity of a firm in anticipation of an expected flow of benefits over a long period of time.Â  Capital budgeting is an important technique widely used for the evaluation of various capital investment proposals and selecting the most appropriate source of finance for the chosen investment proposal. In general, investing in long-term fixed assets is called capital budgeting. Sri Lanka (GoSL) targets the GDP per capita to. increase to USD 5,000 by 2020, in a bid to drive Sri. Lankaâ€™s status towards being an upper-middle income. country. Source: Vision 2025.Â  Central Bank of Sri Lanka (CBSL) that growth in the economy will continue to remain subdued during the fourth quarter of 2018. Further, CBSL expects economic growth to be modest in 2019.Â  The rise in imports were mainly caused by higher imports of fuel, vehicles (personal use) and textiles. The highest contribution to import performance in 8ME 2018 were made by intermediate goods (including fuel) which accounted for 55.0% of the total expenditure. There are different methods or techniques adopted for capital budgeting. Learn about them in detail here. Also learn about its significance with the help of example.Â  This is one of the widely used methods for evaluating capital investment proposals. In this technique the cash inflow that is expected at different periods of time is discounted at a particular rate. The present values of the cash inflow are compared to the original investment. If the difference between them is positive (+) then it is accepted or otherwise rejected. Mohamed Nurullah, Lingesiya Kengatharan, Capital budgeting practices: evidence from Sri Lanka, Journal of Advances in Management Research, 10.1108/JAMR-01-2014-0004, 12, 1, (55-82), (2015). Crossref. Pablo de AndrÃ©s, Gabriel de Fuente, Pablo San MartÃn, Capital budgeting practices in Spain, BRQ Business Research Quarterly, 10.1016/j.brq.2014.08.002, 18, 1, (37-56), (2015). Crossref. Francis Chittenden, Mohsen Derregia, Uncertainty, irreversibility and the use of â€˜rules of thumbâ€™ in capital budgeting, The British Accounting Review, 10.1016/j.bar.2013.12.003, 47, 3, (225-236), (2015). Crossref.