CAPITAL BUDGETING PRACTICES OF LISTED COMPANIES IN MALAYSIA

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ABSTRACT (BAHASA MALAYSIA)

Tujuan utama kajian ini adalah untuk mengenalpasti kaedah-kaedah atau teknik-teknik yang digunakan di dalam mengkaji keputusan pelaburan ke atas projek-projek jangkapanjang syarikat-syarikat Malaysia yang disenaraikan. Walaupun terdapat banyak kaedah atau teknik-teknik yang dianjurkan oleh teori, ini tidak bermakna bahawa syarikat-syarikat mahu atau bersedia menerima dan mengaplikasikan teknik-teknik tersebut dalam kegiatan mereka sehari-harian. Oleh itu, kajian ini adalah bertujuan untuk mengenalpasti teknik-teknik yang digunakan oleh syarikat-syarikat terbabit dalam lingkungan belanjawan modal. Bagi mencapai matlamat tersebut, satu set soalan telah dihantar kepada syarikat-syarikat yang tersenarai di Papan Utama Bursa Saham Kuala Lumpur (BSKL). Soalan-soalan tersebut meliputi topik-topik seperti teknik-teknik analisa kewangan yang digunakan di dalam mengkaji pelaburan modal, analisa risiko dan penetapan kadar diskaun. Daripada 140 syarikat yang dihubungi, cuma 31 syarikat yang memberi respon kepada soalan-soalan yang ditanya. Daripada maklumat yang diterima, nilai bersih terkini dan kadar pulangan perakaunan adalah dua teknik yang paling banyak digunakan dalam mengkaji pelaburan modal. Selain daripada itu, analisa keadaan dan analisa kepekaan adalah dua teknik utama yang paling banyak digunakan oleh syarikat-syarikat untuk mengkaji risiko sesuatu projek. Dari segi penetapan kadar diskaun, kadar faedah yang dikenakan ke atas modal hutang adalah cara yang paling digemari untuk menentukan kadar diskaun. Kajian yang dilakukan ini adalah bertujuan untuk meneruskan lagi usaha-usaha bagi menambahkan maklumat dalam bidang belanjawan modal. Diharapkan keputusan yang diperolehi mampu meluaskan lagi pengetahuan, terutamanya di kalangan para akademik dan pengurus-pengurus.

ABSTRACT (ENGLISH)

The purpose of this study is to identify the reality of the practice in investment appraisal techniques within the context of listed Malaysian companies. Even though there are many methods or techniques suggested by the theory, it does not mean that companies are willing or ready to accept and apply them in their day-to-day activities. Because of that, this survey is intended to find out the realities of the practice within the capital budgeting framework. In achieving the intended purpose, questionnaires have been sent to companies listed on the Main Board of Kuala Lumpur Stock Exchange (KLSE). Questions in the questionnaire include topics such as financial analysis techniques used in the evaluation of major investment projects, risk analysis and the determination of a discount rate. Out of 140 companies, only 31 companies replied to the questionnaires. The data obtained from the questionnaires indicate the prevalent use of NPV and accounting rate of return in evaluating major capital investment projects. Besides, sensitivity and scenario analysis have been found to be the most popular techniques in assessing risk of a major project. In terms of the determination of a discount rate, interest payable on debt capital is the most preferred way of determining a discount rate. This survey is a part of continuous research effort carried out to enrich information within the area of capital budgeting context. The results obtained from this study are hopefully able to widen the knowledge, especially among academicians and managers.

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CHAPTER 1

INTRODUCTION

1.1 Background

Capital budgeting technique has become one of the fundamental criteria for a company proposing an investment. The techniques used in capital budgeting help a company to estimate the value of its project. This value depends on the cash flows that a project may bring where it has a direct link to the maximization of shareholder's wealth. Normally, the existence of a company is associated to maximizing the value of the company or the shareholder's wealth. Shareholders' wealth are generally known as "the aggregate market value of the common shares, which in turn is assumed to be the present value of the cash flows which will accrue to shareholders, discounted at their required return on equity" (Randall and Woods, 1989, p 86). Shareholders are the owners of a company. They provide the capital to run its business activities. Therefore, they expect the creation of value out of their investment. In short, capital budgeting techniques create a link between the "value" and the shareholder's wealth. Maximizing the value of a company means making the most of the shareholder's wealth. Because of this, capital budgeting is considered as the most important decision tool to assist in investment decision-making.

There are quite a few financial techniques that can be considered in evaluating an investment proposal. These include payback period, accounting rate of return (ROI, ROE etcetra), internal rate of return (IRR) and net present value (NPV). These techniques, when used in a proper manner, can provide useful information for investment decision-making. How true is the evaluation depends on how well a company estimates its cash flows. Besides, the range of difficulties in terms of application differs from one technique to the other. This might be one of the reasons why a company would prefer one technique rather than another. However, there are circumstances where a company might use two techniques or more, simultaneously, to evaluate a project. Such circumstances will depend on the situation or on a case to case basis. For example, a company may use the payback period method to evaluate a small investment project rather than using the net present value to evaluate that particular project. Such consideration may be associated to the cost of using the investment evaluation techniques. The payback period method is much simpler and easy to use rather than the net present value. Therefore, in evaluating a small investment project, the payback period method may become the most preferred method. On the other hand, for a large investment project, a company will have to be very cautious in making investment decision. It may consider using a more sophisticated method, such as the net present value to evaluate the investment. Furthermore, in evaluating an investment, non-financial criteria might also be considered. These may include environmental effect, the safety of the project and maintenance associated with the project.

1.2 Investment Proposal Techniques

There are a few techniques that a company can use to assist in making investment decisions. These techniques differ in terms of their applications.

1.2.1 Payback Method

Payback method or payback period is a technique which considers the length of time needed to recoup the cost of capital investment (Downes and Goodman, 1990, p 402). It is the ratio of the initial investment (cash outlay) to the annual cash inflows to recover the cost of investment. If the payback period satisfies the specified cutoff period, then the project will be accepted. For example, let say the specified cutoff period for an investment is three years. If the estimated cash inflows for the investment are able to recover the initial cost of investment within three years or less, then the project will be accepted. On the other hand, if the estimated cash inflows for the investment could only recover the initial cost of investment after the three years period, then the project will be rejected. It is quite a simple and easy to use method.

Nonetheless, there are a few problems associated with the payback period method (Ross, Westerfield and Jaffe, 1999, p 136). First, the payback period does not consider the timing of the cash flows. It assumes that all the cash flows occur at the same period as the initial investment. The time value of money is not taken into account in the

payback period method. For example, cash inflows received in year two and year three are treated as if these cash inflows were received at the initial period of investment, which is at year t = 0.

Second, the payback period ignores all cash flows occurring after the specified payback period. If the specified cutoff period for an investment is three years, cash flows occurred after the third year will be ignored. This is in contrary to the main objective of a company. By ignoring the cash flows occurring after the specified cutoff period, a company is deserting the calculation of the value of the investment project. A value of a project is a part of the value for a company, which as mentioned before affect the value of the shareholder's wealth.

Finally, there is no comparable guide for choosing the specified cutoff period, which means there is an arbitrary standard for specified payback period. A company may choose to use two years, three years or any specified period that it thinks may suit a project.

Despite the flaws of using the payback period, it is one of the most frequently used capital budgeting techniques, especially among small companies (Graham and Harvey, 1999). In addition, their study finds that the payback period method is popular among mature CEOs (Chief Executive Officer), CEOs without MBAs in small companies and CEOs

with long tenure. This result is based on a survey responded by 392 Chief Financial Officers[1].

1.2.2 Average Accounting Return

By definition, the average accounting return is the average project earnings after taxes and depreciation, divided by the average book value of the investment during its life (Ross et al., 1999, p 138). In order to calculate the average accounting return, we will need to determine the average net income and average investment. It is calculated as follows:

$$\text{Average Accounting Return} = \frac{\text{Average Net Income}}{\text{Average Investment}} \qquad (1.1)$$

The decision to accept or reject a project depends on the firm's targeted accounting rate of return. If the targeted rate of return is lower than the average accounting return, then the project will be accepted. On the other hand, if the targeted rate of return is greater than the average accounting rate of return, then the project will be rejected.

However, there are a few disadvantages associated with the average accounting return (Ross et al., 1999, p 140). It does not consider non-cash items such as depreciation. Since depreciation is a non-cash item, it has to be added to ensure that a real cash flow is considered. However, average accounting return has ignored this part. Instead, it uses a net

[1] The authors use CFO as the term to address their respondents, and when they explain in detailed, they use CEO to differentiate CEOs with different characteristics.

income figure and book value of an investment. Net income is the earnings after interest and taxes. In the calculation of net income, depreciation has been deducted as an expense. Furthermore, book value of an investment uses a historical figure. Hence, this might not show the real figure. In short, there is a distortion in the figures used by average accounting return.

Other than that, average accounting return does not take into account the timing of the cash flows. In order to arrive at the net income, expenses, such as depreciation and taxes will be deducted from the revenues. The question of when the cash flows are received is not a matter here. This is similar to the problem faced with the payback period method.

As the payback method having a problem with an arbitrary specified cutoff period, there is also an arbitrary standard with targeted rate of return. There is no specific guide of the benchmark for which targeted rate of return is to be chosen. A company can select either 20% or 30% as its targeted rate of return for its investment project.

1.2.3 Net Present Value

Other than the payback method and average accounting return, there is another technique that a company can use to evaluate its project, which is net present value (NPV). NPV is the difference between capital

budgeting costs and the present value of future cash inflows of the project. The difference between cash outflows and cash inflows is known as the net present value. In other words, NPV of a capital budgeting project is the present value of all the cash flows related to the project. The underlying assumption of NPV is that one dollar received next year worth less than one dollar received today. It is computed as below:

$$NPV = CF_0 + \frac{CF_1}{(1+r)} + \frac{CF_2}{(1+r)^2} + \ldots + \frac{CF_n}{(1+r)^n} \qquad (1.2)$$

CF = cash flow
r = discount rate

The decision on whether to accept or reject a project depends on NPV. If NPV shows a positive amount, the project will be accepted. However, if it shows a negative amount, most probably, the project will be rejected (in real world, such decision may differ as companies may have to fulfill their social obligations, especially in the utilities and services industries). For example, let say the initial investment of a project is RM5,000,000.00 and the summation of all discounted cash inflows is RM4,800,000.00. The NPV for that project is –RM200,000.00 (RM4,800,000 – RM5,000,000). Because of the negative NPV, most probably, the project will be rejected. In other words, the project does not provide sufficient return to cover the initial costs. The basic idea behind NPV is accepting positive NPV projects, which could benefit the

stockholders (Ross et al., 1999, p 135). Positive NPV means the project creates value for the company, which in turn would increase the shareholder's wealth.

NPV has three attributes, which can possibly justify its use in relative to alternative approaches (Ross et al., 1999, p 135). The first attribute is that NPV uses cash flows. Unlike alternative techniques, such as the average accounting return, NPV ignores the use of earnings since earnings do not represent cash. NPV relies on cash flows because cash flows from a project can be used for various corporate purposes, such as dividend payments and payment of corporate interests.

The second attribute deals with the use of all the cash flows of the project. Unlike NPV, other approaches, such as the payback method, ignore the cash flows occurred after a certain period of time. This may distort the calculation of the value of the investment project together with the value of the shareholder's wealth.

Finally, the third attribute of NPV is that it discounts the cash flows of the project properly. In contrast to NPV, other approaches, such as the payback method and an average accounting return, may ignore the time value of money when dealing with the cash flows. In this case, all cash flows are treated as if they were received at the same time.

1.2.4 Internal Rate of Return (IRR)

Another technique that a company can consider in evaluating an investment is the internal rate of return (IRR). IRR is the discount rate at which the present values of the future cash flows of an investment equal the cost of the investment (Downes and Goodman, 1990, p 322). In other words, it is a discount rate that makes the net present value equals to zero. The calculation of IRR is based on trial and error. It can be calculated as follow:

$$CF_0 + \frac{CF_1}{(1 + IRR)} + \frac{CF_2}{(1 + IRR)^2} + \ldots + \frac{CF_n}{(1 + IRR)^n} = 0 \qquad (1.3)$$

The decision on whether a capital budgeting project is accepted or otherwise depends on the comparison of the IRR against the cost of capital. In terms of investment decision, if the IRR exceeds the project's cost of capital, the project will be accepted. On the other hand, if the IRR is lower than the project's cost of capital, most probably, the project will be rejected.

By looking at the formula of NPV and IRR, it can be concluded that in normal case, both of the techniques may provide the same decision. In other words, the decision on whether to accept or reject a project when using the IRR as an investment evaluation technique may be the same as the decision made using the NPV technique. In this case, NPV is

concentrating on discounted cash flows, and on the other side, the IRR is looking at the rate of return in relation to the cost of capital or discount rate.

However, there are a few problems associated with IRR. The first problem deals with the determination of whether the project is an investing or a financing type. An investing-type project is considered as a normal case. On the other hand, a financing-type project is considered as a problem since IRR rule is reversed for this type of project. In this case, the project is accepted when IRR is less than the discount rate, and it is rejected when IRR is greater than the discount rate.

The second problem of IRR deals with the existence of multiple rates of return. In other words, there are situations where there are more than one IRR for a project. For example, a project may have two IRRs, which are 10 percent and 20 percent. This situation exists because both an inflow and an outflow occur after the initial investment. The problem arises when deciding on which IRR to use. In this case, NPV must be used here since no IRR criterion will work under this situation.

Both, NPV and IRR are techniques that can estimate value for shareholders. These two techniques help a company estimates the value of its project. Positive NPV can possibly enhance the shareholder's

wealth, and shareholders would prefer a higher IRR, since high IRR means high return. In this case, shareholders are interested to invest in projects that create high return for them. Besides, as noted before, the main objective of a company is to maximize the shareholder's wealth. In short, NPV and IRR are tools that can possibly estimate the value of a company's project, which then will be the source of the shareholder's wealth.

1.2.5 Discount Rates Determination

If a company decided to use either NPV or IRR, it will need to determine a discount rate or "r" (from the NPV equation). In this case, if the company is an all-equity company, it will need to determine its cost of equity using the capital asset pricing model (CAPM) equation, which is:

$$\bar{R} = R_F + B \times (\bar{R} - R_F) \qquad (1.4)$$

Expected return on a security	=	Risk-free rate		Beta of the security		Difference between expected return of the market and the risk-free rate

However, if a company financed a project with both debt and equity, a discount rate that the company will need to use is the project's overall cost of capital, which is the weighted average cost of capital (WACC). WACC is the weighted average of cost of equity and cost of debt. It is computed as below:

$$r_{WACC} = (S/S+B) \times r_S + (B/S+B) \times r_B \times (1-T_c) \quad (1.5)$$

(S / S + B) and (B / S + B) are the weights of equity and debt as proportions of total value. r_S is the cost of equity, and $r_B \times (1-T_c)$ represents the cost of debt after corporate tax.

In theory, those are the two ways on how a company could calculate its discount rate to finance its project. However, in reality, a company may have ignored them or use only part of them.

1.2.6 Risk

According to Downes and Goodman (1990, p 454), risk is a measurable possibility of losing or not gaining value. There are various types of risks, which include exchange risk, inflation risk, interest rate risk and political risk. Most investors are risk averse. They would require a higher return if they realize that there are risks associated with their investment. Therefore, companies will need to adjust for risks so that they can fulfill the investors' needs.

There are many ways on how a company can assess the risk of a major project. One way to deal with risks is to raise the required rate of return. For example, let say the current required rate of return for company A is 15 %. The company realizes that it will have to face inflation risk in the future since the inflation rate indicator shows an increasing trend for the

last few years. Therefore, company A would need to adjust for the expected inflation by raising the required rate of return from 15 % to 18 % in order to satisfy its investors.

In short, considering risk in evaluating a major project is important since the main objective of a company is to maximize the shareholder's wealth. If investors realize that investing in a particular project is risky, they would require a higher return. Therefore, a company should know how to adjust for the risks.

1.3 Significant of the Study

A few studies were found regarding the application of capital budgeting techniques in Malaysia (Kester, Chang, Echanis, Haikal, Isa, Skully, Tsui and Wang, 1999; Wong, Farragher and Leung, 1987). Nevertheless, the studies do not focus on Malaysia alone. Their discussions revolve towards the Asia Pacific region (further elaboration can be found in the literature review section). This creates an interest for the current study to be implemented focusing on capital budgeting techniques practiced by Malaysian listed companies. Since there is a lack of research done in Malaysia with regards to capital budgeting techniques, it is hoped that this study would contribute to the literatures in this part of the world.

The importance of the study can be viewed in different ways. One way to look at it is how it benefits various groups of people.

1.3.1 To Researchers

The first group that would benefit from the research is the researchers. This study will provide useful information for researchers regarding the capital budgeting techniques practiced in Malaysia, such as the adjustment of return in relation to risks, the changes in capital budgeting practiced over the past few years, the financial criteria used by a company to evaluate its manager's performance, and the computation of a company's discount rate. Other than that, researchers can also use this study as the basis for further research.

1.3.2 To Company

Other than the researchers, this study is also important to a company. It helps the managers to evaluate the current capital budgeting practices in their companies. By looking at this study, managers are able to see which capital budgeting techniques mostly applied in Malaysia, and how these techniques can possibly improve the company's wealth or value. With that, they can make some comparisons with their company's practices. This is important because a company's main objective is to maximize its shareholder's wealth. In order to achieve it, the company will possibly need the most reliable tool that can assist in investment

decision-making. In other words, the company will have to choose the right technique to evaluate a proposed investment.

Besides, this study also provides a few alternatives on how a company can evaluate its managers' performance by looking at the use of accounting rate of return, budget and profit. A company can use this study as the benchmark for its managers' performance evaluation. The evaluation technique adopted by a company should be in comparable with the company's main objective, which is to maximize the shareholder's wealth. For example, let say a company is using its profit as an evaluation technique. By applying this, the company may encourage the managers to perform better, which then may give rise to the shareholder's wealth.

1.3.3 To Academicians

This study is also significant to academicians. It gives detailed information to the academicians on how far the techniques taught in class differ from that practiced in the real world. By having this information, academicians are able to make some adjustments in trying to accommodate things taught in class with real life practices. It is hoped that with the findings of this study, academicians are able to expose their students to the real world environment.

1.3.4 To Individual

To individual, this study will be able to provide general knowledge. In dealing with the real working environment, those who are seeking for jobs in the finance field can use this study to enhance their knowledge regarding the real practice of capital budgeting. By having this kind of information, these people may avoid themselves from being ignorance.

1.4 Objective of the Study

The purpose of this paper is to discover some valuable information in the area of capital budgeting techniques practiced in Malaysia. In order to achieve such objective, this paper will focus on analyzing a comprehensive survey based on the topic of investment appraisal techniques. The scope of this analysis is within the context of Malaysian listed companies. This survey is formulated in a way that will enable us to acquire the knowledge of modern day investment appraisal techniques practiced by the companies listed on the main board of the Kuala Lumpur Stock Exchange (KLSE). The knowledge regarding the modern day investment appraisal techniques is not just important to researchers, but also to managers and the groups mentioned in the previous section. The main emphasis of this study is:

i. To develop some useful findings in the area of capital budgeting practices in Malaysia. These findings should be able to benefit various groups discussed before.

ii. To provide some information on how to improve the capital budgeting practices. This paper will try to look into some other criteria that may upgrade the investment appraisal techniques.

CHAPTER 2

LITERATURE REVIEW

2.1 Capital Budgeting Techniques in Practice

Even though textbooks emphasize on the use of net present value and internal rate of return as the techniques that can possibly estimate the value of a company's project, in reality, not all companies are willing to adopt them. Interviews carried out by Pinches and Lander (1997) in South Korea, Taiwan, Singapore and India showed that net present value was not a widely applied capital budgeting technique in making capital investment decisions in these newly industrialized and developing countries. The interviewees indicated that net present value was not of primary importance to them, or even if it was applied, it did not play a major role in the decision making process. As a substitute, most of the companies interviewed chose the payback period method as the main tool to evaluate a project.

According to a survey done by P. K. Jain, S. K. Jain and Tarde (1995) on 64 non-financial, non-governmental, manufacturing and public limited companies listed on Bombay Stock Exchange, nearly 50% of the sample companies relied on traditional techniques, such as accounting rate of return and payback period.

On the other hand, only 10% of the companies preferred the discounted cash flow techniques (NPV and IRR). The rest 40% of the companies had been using combination of traditional and discounted cash flow techniques. Discounted cash flow techniques were not of primary importance for a project evaluation for companies in India because they were believed to be highly sophisticated to use. "Simplicity leading to less time and cost involved" and "easy explainability to the top management" were among the reasons why these companies preferred the payback period method. Among all the techniques, the payback method was the most popular method for corporate companies in India. Even in Hong Kong the payback method was ranked as the most important technique (Kester et al., 1999).

However, a study conducted in Canada revealed a different result (Jog and Srivastava, 1995). In their survey of 133 large Canadian companies, their result indicated that the use of discounted cash flow methods had become a norm. Discounted cash flow methods had been used by more than 75% of the respondents. In this case, IRR was used more frequently than NPV. Nevertheless, most companies had been using multiple capital budgeting techniques to assess capital investments. This result is consistent to the findings of a study carried out by Blazouske, Carlin and Kim (1988) for the period of 1980 and 1985 in their survey of 208 Canadian companies. In other words, this clearly shows that companies in Canada have been consistently adopting the

discounted cash flow methods as the primary tool in evaluating their capital investment projects.

In a different study carried out by Lawrence Peter Shao and Alan T. Shao (1996) for 188 U.S. Multinational Enterprises located throughout 43 countries during a period of 1992, the researchers came out with the same result. According to the authors, foreign subsidiaries of U.S.-based multinational enterprises preferred sophisticated capital budgeting techniques (net present value, adjusted present value, internal rate of return and profitability index) as the primary method of analysis. In this case, internal rate of return had been chosen as the top ranked method. Besides, factors such as political, financial and economic changes had been found to have some influence on the use of sophisticated capital budgeting techniques. Subsidiaries exposed to high political and financial risks tended to use more sophisticated capital budgeting techniques. To put it briefly, risks, especially in terms of political, financial and economic, are playing their role in influencing managers' decision on which technique to apply.

In addition, in their earlier survey, Lawrence Peter Shao and Alan T. Shao (1993) found that European affiliates of U.S. Transnational companies also preferred sophisticated capital budgeting techniques as the primary method of analysis, with internal rate of return chosen as the top ranked method. This result is synonymous to the study done upon foreign subsidiaries of U.S.-based multinational enterprises. The observation that can be made here is most U.S.

companies prefer sophisticated capital budgeting techniques as a primary method of a project analysis. Besides, countries in the Asia-Pacific region, which consist of Australia, Indonesia, Malaysia and Philippines also ranked discounted cash flow techniques (NPV or IRR) as the most important techniques for evaluating a project (Kester et al., 1999).

However, in certain countries, discounted cash flow methods and non-discounted cash flow methods are ranked equally important as capital budgeting techniques in evaluating capital investment project. In a study done in Singapore, its result revealed that executives in Singapore considered IRR and payback period method to be equally important for ranking and evaluating capital investment projects (Kester and Tsui, 1998). Payback method is popular because it is easy to calculate and understand. Furthermore, it is also viewed as a technique that can assess risk since it does not include cash flows in a distant future, which are considered to be more risky than near term cash flows. However, according to the authors, the quantitative analysis used by a company is likely to depend on the size of a project: the greater the size of a project, the more sophisticated the analysis.

Other than by looking at the location or ownership of a company, the size of a company also plays a role in distinguishing the type of capital budgeting techniques applied. According to Ross (1986), surveys of capital budgeting practices among large companies indicated a prevalent use of discounted cash

flow (DCF) methods, especially the IRR. Furthermore, there has been an increased in the adoption of sophisticated capital budgeting techniques by large companies. For example, Klammer in his article for the year of 1972 (cited in Block, 1997) showed that the use of discounted cash flow methods among large companies had been steadily increasing from 16.7% in 1959 to 33.7% in 1964 and expanded to 43% in 1970. In addition, Graham and Harvey (1999) found that large firms were significantly more likely to use NPV than small firms. Less sophisticated methods such as the payback period and accounting rate of return had nearly disappeared as the primary method of analysis for large companies (Block, 1997). In a survey conducted by Drury and Tayles (1996), they reported that among 46 largest companies in the UK, 63% always used IRR, 50% always used NPV and 30% always used the payback method. Besides, they also showed that discounted cash flow techniques were highly used by larger companies. In their study, 90% of the larger and 35% of the smaller companies 'often' or 'always' used either NPV or IRR discounting methods.

In contrast, a survey done by Block (1997) pointed out that small business companies preferred payback method as the primary method of analysis rather than other techniques. In his study on 232 small business companies in the United States for the year 1997, 42.7% of the respondents indicated that the payback method was the preferred primary method of analysis with the "average" minimal payback period averaged 2.81 years. In the meantime, the

discounted cash flow methods (NPV and IRR) only accounted for 27.6% of total respondents. In this case, it was believed that small business companies were particularly interested in how quickly a loan could be paid back, and this was one of the reasons why they would prefer to use the payback method instead of the discounted cash flow methods. At this point, bankers were primarily interested in the company's ability to pay back the loan, rather than maximizing the company's shareholder's wealth. In a study carried out by Drury and Tayles (1996), they stated that small companies in UK ranked the payback method as the most important technique. In another study conducted by Graham and Harvey (1999), they stated that small companies used the payback period almost as frequently as NPV or IRR. Here, it can be seen that there is a trend toward adopting a more sophisticated method by the small companies.

In the meantime, characteristics of the CEOs also suggest a preference of capital budgeting techniques being adopted. Graham and Harvey (1999) showed that older, longer tenure CEOs without MBAs preferred to use the payback method. This was due to the lack of sophistication, especially in terms of knowledge, in applying the payback method.

Sources of external finance or specifically known as debt ratios have also been an issue in the capital budgeting process. According to Graham and Harvey (1999), highly levered companies were found to be significantly more likely to use NPV and IRR than companies with small debt ratios.

2.2 Discount Rates Determination

As mentioned earlier, net present value and internal rate of return are two capital budgeting techniques that can contribute towards an estimation of a project's value. By knowing the value of a project, a company is able to estimate its own value, which then will give some ideas to shareholders on how well their investments are doing. In other words, increased in value also means there is an increase in the shareholder's wealth.

Before determining the value of a project, a manager will need to decide on a hurdle rate or a discount rate. It is one of the most important elements in the calculation of NPV and IRR. Weighted average cost of capital and the cost of specified source of funds were two popular measures used by many companies to determine a hurdle rate (Ross, 1986, p 15). According to Lawrence Peter Shao and Alan T. Shao (1993) in their study on European affiliates of U.S. Transnational companies, it was found that 41.3% of respondents used their firm's cost of debt and 30% used weighted average cost of capital as their discount rates. From the study, the average discount rates ranged between 3% and 14.9%. In a different study conducted by Kester and Tsui (1998), they pointed out that slightly more than 50% of their respondents in Singapore indicated that their companies derived their discount rates based on a specific capital used to finance the project. Even executives in Hong Kong and Malaysia agreed that discount rates based on the specific capital used to finance a project was an important way to determine the discount rates (Kester et al., 1999). This

is in contrary to the rationale behind the traditional weighted average cost of capital, which takes into account two different sources of funds, equity and debt. Unlike Singapore, Hong Kong and Malaysia, many companies in Australia considered the weighted average cost of capital or WACC as an important way of deriving at the discount rates (Kester et al., 1999). The same thing happens in Canada. In a study conducted by Jog and Srivastava (1995), they found that roughly 50% of their respondents used WACC to estimate the cost of capital. Only 25% of their respondents considered cost of debt as their cost of capital.

Whenever a company used weighted average cost of capital to determine a discount rate, in theory, it will have to calculate the cost of equity and the cost of debt. Graham and Harvey (1999) reported that the capital asset pricing model (CAPM) was the most popular method of estimating the cost of equity. In their study, they found that 73.5% of their respondents always or almost always used the CAPM. Kester et al. (1999) also reported that CAPM was the most popular method to estimate the cost of equity in Australia. For companies that do not want to use the CAPM to calculate the cost of equity may choose to either use the dividend yield plus expected growth rate method or the risk premium method which takes into consideration cost of debt plus risk premium. According to Kester et al. (1999), the most popular method to estimate the cost of equity in Indonesia and Philippines was the risk premium method. In the meantime, the dividend yield plus growth rate and risk premium methods were considered equally important in Malaysia and Singapore. Meanwhile, Hong

Kong ranked the dividend yield plus growth rate method as the most popular method in calculating the cost of equity. In Canada, judgment seemed to be the most popular method for estimating the cost of equity followed by accounting return on equity (Jog and Srivastava, 1995). Even though theory suggests that CAPM may be the most appropriate model in calculating the cost of equity, in practice, it may not be true.

In determining the discount rates, the location of a company also plays an important role. It can be seen by comparing the study done by Graham and Harvey (1999) with the study done by Kester and Tsui (1998). Kester and Tsui (1998) stated that only 17% of their respondents in Singapore specified that their companies used the CAPM to estimate the cost of equity. This is in contrast to the result found by Graham and Harvey (1999) when they did a survey on companies throughout United States and Canada. They found that majority of their respondents preferred to use the CAPM to calculate the cost of equity.

Other than that, the size of a company is found to be an important criterion in determining how a company decides on its discount rate or hurdle rate. Block (1997) reported that majority of small business companies preferred to use the cost of funding a specific project as its cut-off point rather than using the weighted average cost of capital. They did not favour the weighted average cost of capital because it was difficult for them to estimate the cost of equity. Graham and Harvey (1999) also put up some points on how the size of a

company plays a role in determining the discount rates. They reported that CAPM was found to be a popular method of calculating the cost of equity among large companies rather than smaller companies. "What investors tell us they require" was the famous way of determining the cost of equity for smaller companies, which meant they were less likely to use the CAPM.

2.3 Risks Consideration

Generally, investors are risk averse. In other words, they are reluctant at taking risks. However, in a more complex and changing environment, it is quite difficult for investors to avoid risks.

Blazouske et al. (1988) highlighted a few reasons of why risk analysis is critical. First, most capital investment projects involve a lot of money with the benefits to be realized over an extended period of time. Second, once a decision is made, it is not easily reversible. Third, the accuracy of the financial variables is questionable. Finally, financial managers and investors are basically risk averters. Therefore, in order to satisfy shareholders or investors, companies will need to consider risks, such as economic and political risks.

In a study conducted by Block (1997), he found that more than 50% of the companies in his sample considered risks in their capital budgeting analysis. From the study, he found that most companies adjust their risks by increasing the required return. For small companies, increasing the required return means

increasing the cut-off rate or shortening the minimum payback period. In addition to that, Lawrence Peter Shao and Alan T. Shao (1993) in their study on European affiliates of U.S. transnational companies proved that changing the payback period was the most important method used to adjust for project risks.

There are a few techniques that have been used by companies to assess risk, which include scenario analysis, sensitivity analysis, decision trees and probabilistic simulation. In a study conducted by Kester and Tsui (1998), they found that the most important techniques used to assess risk in Singapore were scenario analysis and sensitivity analysis. Wong, Farragher and Leung in their article for the year of 1987 (cited in Kester and Tsui, 1998) stated similar result for Malaysia and Hong Kong. In addition, those two techniques were also considered as the most important techniques for assessing risks in Australia, Indonesia and Philippines (Kester et al., 1999). Other techniques such as decision tree analysis and probabilistic simulation, which are considered as more sophisticated techniques for assessing risks, are seldom used in practice. Even in UK, sensitivity analysis had extensively being used (Drury and Tayles, 1996). The same goes for Canadian companies. They frequently used sensitivity analysis technique to assess risk (Jog and Srivastava, 1995). This is also confirm by Lawrence Peter Shao and Alan T. Shao (1993) where their survey found that many foreign managers relied heavily on sensitivity analysis to assess project risks, followed by subjective determination of risks (1993, 1996).

In the meantime, the size of a company also has some influence on the techniques used in assessing risks. According to Drury and Tayles (1996), about 82% of the larger companies 'often' or 'always' used sensitivity analysis compared to only 30% of the smaller companies. Besides, the type of risk factors that affect a company also depends on the size of the company. The most important risk factors for large companies were interest rate risk, commodity price risk, business cycle risk and foreign exchange risk (Graham and Harvey, 1999). Among all these risks, foreign exchange risk was the most important additional risk factor for large companies. Foreign exchange risk is considered vital when a company has considerable foreign sales. This is because foreign sales are sensitive to unexpected exchange rate fluctuations. In their survey on 392 Chief Financial Officers, Graham and Harvey (1999) found that 14% of companies with significant foreign exposure adjusted discount rates for foreign exchange risk, 22% adjusted cash flows and 32% adjusted both. In short, it clearly shows that many companies are interested in adjusting their discount rates or cash flows or both when they are exposed to foreign exchange risk. As for small companies, Graham and Harvey (1999) pointed that these companies were less sophisticated when it came to evaluating risky projects, and they were more affected by interest rate risk than foreign exchange risk.

Besides the size of a company, the type of a company also plays a role in determining the kind of risk factors that highly affect a company. Compared to non-manufacturing companies, manufacturing companies were considered to be

more sensitive to interest rate risk (Graham and Harvey, 1999). Other than that, growth companies were found to be much more responsive to foreign exchange risk than non-growth companies.

2.4 The Impact of Inflation on Capital Budgeting

Generally, inflation means rise in the prices of goods and services (Downes and Goodman, 1990, p 318). Even though inflation is specifically related to prices of goods and services, it has an impact on the decision-making process dealing with capital budgeting. It affects future cash flows and cost of capital (Drury and Tayles, 1996). In this case, future cash flows and cost of capital are two important elements in the calculation of net present value and internal rate of return. Since NPV and IRR are able to estimate the value of a company, which is vital to the shareholder's wealth, ignoring inflation would possibly affect the value of a project and also the shareholder's wealth. In other words, by ignoring inflation, a company is overstating NPV or IRR since it fails to adjust the cash flows for inflation (Drury and Tayles, 1996). However, in a situation of low inflation, the effect may not be too significant.

Since prices of goods and services are not stable, there is a risk associated with inflation. Hence, in a capital budgeting process, this risk needs to be considered when decision is made on a project. In a survey conducted by Graham and Harvey (1999), they stated that inflation risk was one of the most important risk factors in the calculation of discount rates and cash flows.

CHAPTER 3

METHODOLOGY

3.1 Design

In doing this research, two types of data have been used to achieve relevant results. They are primary and secondary data. Secondary data include information regarding companies listed on the main board of KLSE and also any data significant to this study taken from journals and the News Strait Times. Meanwhile, primary data is obtained mainly by administering structured questionnaires that have been sent to 140 randomly selected companies listed on the main board of KLSE.

These companies vary in terms of their type of industry, which include consumer products, construction, trading and services, technology, properties, plantation, mining and industrial products. However, industries such as finance, unit trusts and infrastructure project companies have been ignored. This is because finance and unit trusts companies are considered as companies that have assets that are highly volatile in nature. Therefore, it will be difficult to observe the real situation of the companies. In the meantime, infrastructure project companies are companies that invest in large capital as compared to other

companies, and it may not be suitable to compare this industry with other types of industry.

Excel will be used to analyze the data. Most of the data will provide descriptive results to correspond to the formulation of the questionnaire. Besides, most of the literatures found present their results in a descriptive manner also. However, some data will be used to show correlations that exists.

3.2 Questionnaire

Primary data plays a major role in the construction of this paper. Mainly, the data are gathered from the questionnaire used in this study. The questionnaire is adopted from Glen Arnold, a Visiting Professor from Salford University. A few adjustments have been made to incorporate the Malaysian environment, such as the pound sign used to indicate the annual capital budget for a company has been changed to Malaysian Ringgit (RM). Moreover, the questions set in the questionnaire are developed in a way that will make it easy for the respondents to answer the questions. Most of the questions are close-ended questions in a manner where the respondents are asked to choose among a set of alternatives given by the researcher.

Questions developed in the questionnaire are based on elements of investment appraisal techniques. There are twelve major questions grouped into the following elements:

3.2.1 Financial Analysis Techniques

The first question is a direct question, which asks the respondents to tick financial analysis techniques that are used in their businesses to evaluate major investment projects. The alternatives given are payback method, accounting rate of return, internal rate of return, net present value and other non-financial criteria if any. Besides specifically pointing out the techniques used, respondents are also asked to rank the frequency of the techniques used, either rarely, often, mostly or always. In addition, the respondents are also asked whether there have been a major switch in the techniques used over the last five years.

The purpose of the first question is to see which techniques companies commonly use and whether these companies have the tendency to change their capital budgeting techniques over a few years. Besides, the result obtained from this question can be compared with the results of previous studies in order to see the consistency of the techniques used. Furthermore, since NPV and IRR are the two techniques, which normally link to the value of a project, it is hoped that this question may be able to show how far companies in Malaysia are concerned in maximizing the shareholder's wealth.

3.2.2 Risk

The second question deals with the techniques companies use in assessing a risk of a major project. One potential risk is the possibility to have wrong forecasted cash flows. It is likely that a decision to accept or reject a project relies heavily on estimated cash flows. Therefore, if the forecasted cash flows are wrong, the decision made is probably not right. This is known as risks or uncertainties. In a business environment, risks have a direct relationship with returns; high risks mean higher returns, low risks mean lower returns.

In order to deal with risks, the second question lists a few alternatives of risks' assessment. It is intended to see how a company incorporates the risk factor into its investment decision-making. The first choice is to use a shorten payback method. If a shorten payback method is selected, a company may believe that it is positioning itself in a secured environment. Whenever a company chooses to use a shorten payback method, it is certainly hoped that the initial cost of the investment will be recovered in a short period ensuring that further cash flows will be a return for the company. This will reduce the risk of uncertainty.

The second alternative will be to raise the required rate of return. A required rate of return is a return needed by investors at a given level of risks. As mentioned before, risks have a direct relationship with returns.

Investors will require higher returns if the risk of an investment is high. Therefore, an alternative approach to deal with risk is to raise the required rate of return.

The third alternative is to use a probability analysis, which involves multiple scenarios. In a probability analysis, each scenario is assigned a probability of occurring. NPVs of all scenarios are weighted using the probabilities, and the summation of all weighted NPVs is called expected value. The decision on whether to accept or reject a project depends on this expected value. In this situation, risks are blended into the probability figures. Once risks are incorporated into a project assessment, it is likely that a wrongful decision may be avoided.

The next alternative will be to use a sensitivity or scenario analysis. The basis of risk evaluation is quite similar to the third alternative, which is to do a simulation on multiple scenarios, which include pessimistic, most likely and optimistic scenarios. In order to reduce risks, a company may use this analysis. In a sensitivity analysis, NPVs of all scenarios are calculated, and the result will at least help a company to come out with a right decision. For example, let say an NPV for a pessimistic scenario is RM1,200, NPV for most likely scenario is RM1,800 and NPV for an optimistic scenario is RM2,000. It clearly shows that the result will reduce the confusion in a decision making process. The positive NPVs

of all three scenarios provide confidence for the management to make decision on whether to accept or reject a project.

Besides considering all of the above alternatives, a company may either choose to use a beta analysis, make a decision based on subjective assessment or it can just ignore the risk. In this case, beta is used to calculate an expected return on a security using the capital asset pricing model (CAPM). It measures systematic risk or market risk; the higher the risk, the larger the beta, and the larger the beta, the higher the expected return.

Another alternative provided is that the management can choose to make a subjective assessment. Here, a subjective assessment means the company decides on the figures it believed to be cushioning the risks. Even though the subjective assessment does not say anything about investors' perception, it does, at some point in its project evaluation, incorporate the risk factor. Although this alternative is easy to implement, it may not be the right one. Finally, the easiest way to deal with risks is to ignore them, which means a company does not have to do anything about the risks. This technique is in contrary to other alternatives since it does not consider investors' needs.

The purpose of question two is to see how companies assess the risk of a major project. Measuring risks is a difficult assignment for a company. Even though there are many techniques that can be used by a company, none of them is relied upon consistently. Therefore, the basis of this question is to observe which technique or techniques most frequently used by companies in assessing the risk of a major project.

3.2.3 Inflation

The third question asks how a company adjusts for inflation. Generally, inflation means the rate at which prices as a whole are increasing. In other words, it decreases consumers' purchasing power since the prices are increasing. Furthermore, it can also bring a negative effect to an investment since investors are also consumers. Due to inflation, investors may require higher return. This is one of the reasons why a company needs to adjust for inflation.

The purpose of question three is to discover how companies adjust for inflation. There are a few alternatives given in this question, and the first alternative is to consider inflation at risk analysis or sensitivity stage. As discussed earlier, risks are very much related to investors' return. The same goes to inflation, which also has an effect on investors. Therefore, one alternative to deal with inflation is to consider it during the risk

analysis. For example, a company can possibly raise its required rate of return in order to adjust for inflation.

Another alternative would be to specify cash flows in constant prices, and then apply a real rate of return, instead of a nominal rate of return. A real rate of return takes into account the inflation rate. Besides specifying cash flows in constant prices, companies also have a choice to express all cash flows in inflated price terms, which then can be discounted at the market rate of return. Finally, a company may also choose not to do anything about inflation, which means no adjustment is to be made. However, this may not be a wise decision since inflation does affect investors.

Given the objective of a company, which is to maximize the shareholder's wealth, it is wise if a company takes inflation into account in its decision making process. However, not all company is willing to do this since it may require a lot of tedious work. Therefore, the main purpose of this question is to see how most companies engage themselves in the situation where inflation exists.

3.2.4 Performance Evaluation Criteria

Question four deals with various techniques used by companies to evaluate their managers' performance. The alternatives given are

accounting rate of return such as rate of return on capital employed, profit, undiscounted and discounted cash flows, budget or others. Discounted cash flows are cash flows that are discounted at an interest rate determined by a company. On the other hand, undiscounted cash flows are cash flows that are not discounted at the interest rate. As for profit, it can be derived from the company's profit or department's profit. Meanwhile, budget is a standard set by a company. If a manager is able to meet the standard, it means there is a positive evaluation on the manager's performance.

The main purpose of this question is to observe the criteria used by companies to evaluate their managers' performance. Even though this question does not directly stress on capital budgeting, it does show that capital budgeting criteria or elements are one of the tools that can be used to evaluate the performance of managers. If a company is using its profit to evaluate the performance of managers, it may imply that the accounting rate of return or rate of return on capital employed will be a company's first alternative to evaluate its investment project. In the meantime, if a company chooses to use undiscounted cash flows to evaluate the managers' performance, it may be selecting the payback method. The main purpose of this question is to observe the consistency between the techniques used in evaluating a major project and the criteria used in evaluating the performance of managers.

In addition, as a part of question number four, a company is also required to answer a question regarding the kind of considerations that lead to the acceptance of non-economic projects. Even though this question is not directly related to capital budgeting, it could help in identifying the relationship between managers' performance evaluation and acceptance of non-economic projects. The former evaluation is more towards internal analysis, which has something to do with the company's main objective. On the other hand, the latter concentrates more towards the environment as well as society welfare.

3.2.5 Discount Rate

In dealing with a discount rate, two questions are developed in the questionnaire to focus on this topic, which are question ten and question eleven. A discount rate is the rate used in determining the present value of the cash flows (Downes and Goodman, 1990, p 249). As discussed earlier in the introduction section, it is one of the most important elements in the calculation of NPV and IRR.

There are many ways on how a company can derive its discount rate used in the appraisal of major capital investments. Question ten deals with this. There are a few alternatives given in this question and the first one is to choose the interest payable on debt capital as a discount rate. Whenever a company involved itself in debt financing, it would

encounter an interest payment. This interest payment rate can possibly be used to represent the discount rate.

The second alternative will be to use earnings yield on shares as a discount rate. Earnings yield is the relationship of earnings per share to current stock price (Downes and Goodman, 1990, p 258). It shows how a company's profit is allocated to each outstanding share of common stock. For example, if earnings per share are RM1 and the current price of the stock is RM10, then earnings yield will be 10% (RM1 / RM10). This is another way of choosing a discount rate.

The third alternative will be to use dividend yield on shares plus estimated growth in capital value of shares. Dividend yield is calculated by dividing dividend received with the current price of the share. Once a dividend yield is calculated, the estimated growth in capital value of the shares is added to it.

Besides all of the above alternatives, another way of choosing a discount rate is to use the cost of equity derived from the Capital Asset Pricing Model (CAPM). It is another measure to calculate an expected return on a security. The return on an asset or a security is equal to risk-free rate plus a risk premium. The details of CAPM can be referred in the introduction section. However, the CAPM model may only be suitable

for a project that is all-equity financed. In other words, it is suitable for unlevered company.

In contrast to the CAPM model, weighted average cost of capital (WACC) is another measure to calculate a discount rate, which is suitable for a project that is financed with equity and debt. In other words, weighted average cost of capital is a weighting of cost of equity and cost of debt (Ross et al., 1999, p 305). If a company chooses to use WACC as the basis of calculating a discount rate, it is asked to proceed to question eleven, which states how WACC is calculated. One way to deal with it is to use the cost of equity from the Capital Asset Pricing Model, and the cost of debt from the market rate of return. Besides, a company can also choose its cost of equity other than through the CAPM, and use current market interest rate as the cost of debt. Companies are also required to specify if they use other techniques to calculate the WACC.

In addition to question eleven, a company is also needed to define the weights it uses in relation to the proportion of debt and equity. The first alternative will be to choose a long-term target of debt and equity ratio. Since capital investment involves with long-term investment decision-making, a long-term target may probably be suitable rather than a short-term target. The second alternative is to use the present market values of

debt and equity. In other words, it is the current market values. Finally, another choice is to use book values of debt and equity ratio. A company can acquire the values from a company's balance sheet.

Going back to question ten, other than using the weighted average cost of capital to determine a discount rate, a company may also choose to use an arbitrarily chosen figure. This depends on a company's subjective assessment. However, this may not be a good idea since the decision may vary from individual to individual, and there might exist conflict of interest.

The purpose of question ten and eleven is to see how companies derive their discount rates. One thing to note here is that the determination of a discount rate is important since it is used in the calculation of the value of a project. Since the value of a project is related to the shareholder's wealth, using the most competitive discount rate would be an advantage. However, not all companies are willing to engage in using sophisticated techniques such as the CAPM to calculate a discount rate. This may be due to the lack of expertise or higher costs that may incur. Therefore, these questions can be used to observe how far companies have been using various techniques in deriving their discount rates.

3.2.6 Other

There are a few more questions that companies need to answer in the questionnaire. Even though these questions do not directly related to the capital budgeting techniques, they are able to explain why companies use such techniques. Question five deals with the relative importance of cash flow and profit in assessing company's performance. This question asks companies to rank the importance of cash flow and profit. Since cash flow is one of the elements of capital budgeting, this question will provide some information on how far cash flow is important in relative to profit when judging a company's performance.

Question six asks companies to rank their sources of external finance over the last five years. Options given are bank overdraft or loan, hire purchase, leasing, fixed interest securities, cash management, new issue of shares and if a company uses other sources, it is required to specify. A company is supposed to rank them 1 as the most important, 2 for second most important and so on. Even though this question does not specifically say anything about capital budgeting, it does provide some clarification in the area of capital budgeting. For example, there may be a difference in the application of capital budgeting techniques for highly levered and unlevered companies.

Another question, which is question seven, deals with capital expenditure ceilings. Capital expenditure is defined as outlay of money to purchase or improve capital assets such as land and equipment. Therefore, capital expenditure ceilings are referring to the limits placed upon capital expenditure. A company is required to answer a question of whether there are specific capital expenditure ceilings placed on operating units, which can lead to the rejection of viable projects. Besides, the company is also asked to state the reasons for capital expenditure ceilings. Most of the options given are circulated around the reasons for controllability. They include important decisions require central control, there is a need to control cash because of the shortage of fund and other key resources, and there is also a need to control activities and mix of products. The purpose of this question is to show that a positive NPV does not guarantee that a project will be accepted because the decision may also depend on capital expenditure ceilings set by a company.

In question eight, a company is required to give some information on its annual capital budget, and for how many years ahead the detailed capital expenditure budgets and outline capital budgets are prepared. This is just to provide some information about the size of a company, for example, how large is the company.

In question nine, a company is asked to disclose the cut off points that it uses to evaluate the viability of major capital investment. There are three alternatives given, which include no minimum rate of return standard, subjective and no evaluation techniques. After that, a company is required to specify the cut off point for each technique that it uses. For example, the payback period benchmark that a company may choose to use is between 0 to 2 years. The purpose of this question is to observe what are the most frequently used cut off points for most companies, given the techniques they use.

Finally, in addition to all of the above questions, question twelve asks a company to reveal how often it conducts post audits of major capital expenditures. It can be always, sometimes, rarely or never. This is a monitoring device to see whether the investment project selected meets its targeted or expected return.

At the end of the questionnaire, a company is given an opportunity to make any comment on investment appraisal techniques. Besides, it is also required to stamp respondent's designation and company's name to ensure reliability of information provided. Even though this may help in terms of knowing the company's background in more detailed, there is no guarantee that all respondents are willing to expose their companies' names.

CHAPTER 4

RESULT

4.1 Background

Out of 140 questionnaires that have been sent to companies listed on the Main Board of KLSE, only 31 companies replied, which is about 22% response rate. A follow-up call has been made, but the participation is still low. Given the low response rate, it may not be suitable to divide the respondents into sizes of small and large companies. However, since 28 companies or 90% of the respondents do state their annual capital budget, it will be used to identify the size of a company. Even though the annual capital budget does not directly portray the size of a company, it will be assumed that the budget is made based on the company's historical figures of revenues. Most literatures use revenues to differentiate the size of a company (Graham and Harvey, 1999; Block, 1997; Drury and Tayles, 1996). None has been found regarding the use of annual capital budget as a measure to differentiate the size of a company. Nevertheless, it is hoped that this situation may not distort the objective of this study, which is to provide some information on capital budgeting practices in Malaysia.

Table 4.1 below highlights the size of the companies based on their annual capital budget. Among 28 companies that state their annual capital budget, 18 companies or 64% of the samples have annual capital budget between RM1.1 million to RM50 million. This is followed by 6 companies or 21% of the samples that have annual capital budget above RM200 million. There are only 2 companies or 7% of the samples that have up to RM1 million as their annual capital budget. The rest 2 companies, each of them has between RM50.1 million to RM100 million and RM100.1 million to RM200 million annual capital budget, which represents 4% of the samples respectively.

Table 4.1: Size of the companies based on their annual capital budget

	N = 28	Percentage (%)
Up to RM1 million	2	7
RM1.1 mil to RM50 mil	18	64
RM50.1 mil to RM100 mil	1	4
RM100.1 mil to RM200 mil	1	4
RM200 mil +	6	21
Total	**28**	**100**

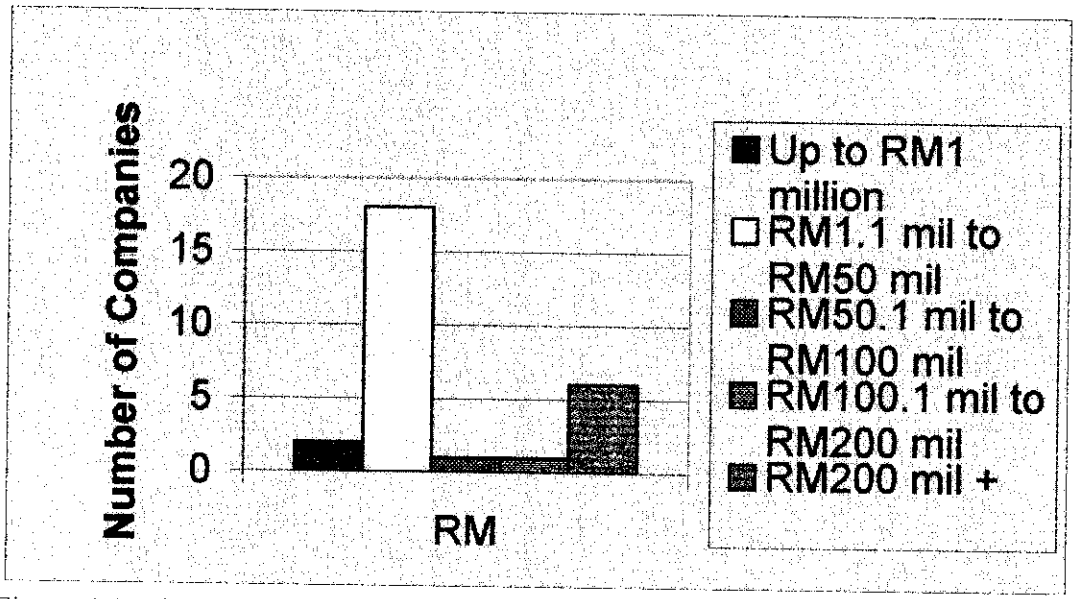

Figure 4.1: The Distribution of Companies Based on Annual Capital Budget

4.2 Financial Analysis Techniques Applied by Listed Malaysian Companies

Based on the result from Table 4.2, it clearly shows that majority of the companies use accounting rate of return and net present value as the techniques to evaluate major investment projects. About 65 % of the respondents use those techniques to evaluate their major investment projects, followed by the payback method and internal rate of return, which show approximately 61% and 58% respectively. Even though the payback method and the internal rate of return do not become the major techniques used in evaluating major investment projects, they can still be considered quite popular among listed companies in Malaysia. Some companies use these techniques in conjunction with the main technique.

Table 4.2: Financial analysis techniques applied by Malaysian companies and the frequency use of these techniques

	Number of companies	(%) N=31	Rarely	Often	Mostly	Always	Total
Payback	19	61	0	5	6	8	19
Accounting rate of return	20	65	0	5	6	9	20
Internal Rate of Return	18	58	0	5	3	10	18
Net Present Value	20	65	1	7	1	11	20

Note: Some companies use more than one technique in their investment appraisal. The amount in the "Total" column represents number of companies.

In general, among 19 companies that use the payback method, 8 companies or 42% of the respondents always use the payback method, 6 companies or about

32% mostly use it and 5 companies or 26% of the respondents often use it. Among 20 companies that use accounting rate of return, 9 companies or 45% of the respondents that use accounting rate of return always use it, 6 companies or 30% of the respondents mostly use it, and 5 companies or 25% of the respondents often use it. In terms of the frequency use for internal rate of return, among 18 companies that use the IRR, 10 companies or about 55% of the respondents always use the IRR, 5 companies or about 28% of the respondents often use it, and 3 companies or about 17% of the respondents mostly use the method. Finally, in terms of the frequency use for net present value, among 20 companies that apply this method, 11 companies or 55% of the respondents always use it, 7 companies or 35% of the respondents often use it, one company or 5% of the respondents mostly use it, and only one company or 5% of the respondents rarely use it. Only 2 companies or 6% of the samples state that there has been a major switch in techniques used over the last 5 years. The rest 94% of the samples say that there has not been any switch in techniques used over the last 5 years. This shows that Malaysian companies have been consistently adopting the techniques used over a few years.

Table 4.3 highlights the techniques used by Malaysian companies based on the annual capital budget of a company. As mentioned earlier, even though the annual capital budget does not directly portray the size of a company, it can be assumed that the formulation of this budget is made based on historical figures of revenue. From Table 4.3, among 18 companies that have annual capital

budget between RM1.1 million to RM50 million, 13 companies or about 72% of the respondents use the payback method, 11 companies or about 61% of the respondents use accounting rate of return and also NPV, and 9 companies which represents 50% of the respondents use IRR. Among all these 18 companies, 14 companies use more than one technique to evaluate major investment projects. As for 6 companies that have annual capital budget of more than RM200 million, 4 companies or about 67% of the respondents represent the use of IRR and NPV respectively, and 3 companies or 50% of the respondents represent the use of the payback method and accounting rate of return. Among the total of 6 companies, 4 companies use more than one technique to evaluate major investment projects.

The conclusion that can be made here is that small companies (by referring to companies that have annual capital budget between RM1.1 million to RM50 million) prefer to use the payback method, which constitutes 72% of the respondents, as a technique to evaluate major investment projects. However, techniques such as accounting rate of return and NPV are also quite popular among these companies. In the meantime, large companies (by referring to companies that have annual capital budget above RM200 million) prefer IRR and NPV as techniques to evaluate major investment projects. These techniques comprise of 67% of the samples respectively.

Table 4.3: The distribution of the techniques used based on the size of a company in relation to the annual capital budget

	Payback	Accounting Rate of Return	Internal Rate of Return	Net Present Value	Number of Companies
Up to RM1 million	0	2	2	2	2
RM1.1 million to RM50 million	13	11	9	11	18
RM50.1 million to RM100 million	0	1	0	0	1
RM100.1 million to RM200 million	0	0	0	1	1
RM200 million +	3	3	4	4	6

Note: Some companies use more than one technique to evaluate capital investment projects.

In terms of the cut off points used to evaluate the viability of major capital investment projects, majority of the companies, which is about 83% of the responded companies, use their subjective assessment to determine their cut off points (refer to Table 4.4). As for IRR or NPV, out of 19 companies, 10 companies or 53% of the respondents choose 11 to 15% as their cut off points, and 9 companies or 47% of the respondents choose 16 to 20% as their cut off points. In general, the popular cut off points used for IRR or NPV for Malaysian companies are between 11 to 20%. In terms of the payback period, only 14 companies responded to the question. Among these 14 companies, 8

companies or 57% of the respondents choose the payback period of 2.1 to 4 years, and 3 companies or 21% of the respondents choose 4.1 to 6 years and 6.1 to 10 years respectively. This clearly shows that 2.1 to 4 years are the most popular payback period chosen by Malaysian listed companies. In the meantime, among 12 companies that responded to the question of the cut off points used in determining return on capital employed, 2 companies or 17% of the respondents choose 0 to 10%, 3 companies or 25% of the respondents choose 11 to 15%, and 7 companies or 58% choose 16 to 20%. This means the most popular cut off points used for return on capital employed for Malaysian companies are between 16 to 20%.

4.3 Risk Assessment

There are a variety of ways on how Malaysian companies assess risks in evaluating their investment projects. Table 4.5 highlights some of the techniques used by these companies to assess the risk of a major project. From the table, approximately 77% of the respondents or 24 companies rely heavily on sensitivity or scenario analysis to assess the risk of their major project, followed by raising required rate of return and subjective assessment, which represent 35% of the respondents respectively. In short, it clearly shows that sensitivity or scenario analysis is the most popular technique in assessing the risk of a major project for listed Malaysian companies. In the meantime, the least used technique to assess risk is beta analysis where there is only 1 company using such technique, 29% of the respondents shorten the payback period,

whereas only 5 companies or 16% of the respondents use probability analysis. It is shown that Malaysian listed companies are very concern about risk assessment since there is only one company, which ignores risk in assessing a major project.

Besides, there has also been an issue regarding the adjustment of inflation. Table 4.6 reveals information on how companies incorporate inflation in their evaluation of investment projects. 8 companies or 26 % of the respondents, consider inflation at their risk analysis or sensitivity stage. In other words, these companies are considering inflation as part of the risks that they will encounter. However, there are still some companies that do not make any adjustment for inflation. Table 4.6 shows that about 19 % of the respondents or 6 companies do not make any adjustment for inflation. Other than that, 10 companies or 32% of the respondents incorporate inflation by specifying cash flow in constant prices and apply a real rate of return, and 32% of the respondents also specify cash flows in inflated price terms and discounted them at the market rate of return. This shows that majority of listed Malaysian companies do incorporate inflation in their evaluation of investment projects.

Table 4.4: The cut off points used in evaluating major capital investment projects

	No. of Companies	Percentage
		N=24
No minimum rate of return standard	4	17%
Subjective	20	83%
No evaluation techniques	0	0
IRR / NPV:		N=19
0 – 10%	0	0
11 – 15%	10	53%
16 – 20%	9	47%
21 – 30%	0	0
31% or more	0	0
Payback Period:		N=14
0 – 2 years	0	0
2.1 – 4 years	8	57%
4.1 – 6 years	3	21%
6.1 – 10 years	3	21%
Return on Capital Employed:		N=12
0 – 10%	2	17%
11 – 15%	3	25%
16 – 20%	7	58%
21 – 30%	0	0
31% or more	0	0

Table 4.5: The techniques used when assessing the risk of a major project.

	N = 31	Percentage (%)
Shorten payback period	9	29
Raise required rate of return	11	35
Probability analysis	5	16
Sensitivity / scenario analysis	24	77
Beta analysis	1	3
Subjective assessment	11	35
Ignore risk	1	3

Note: Some companies use more than one technique to assess risk.

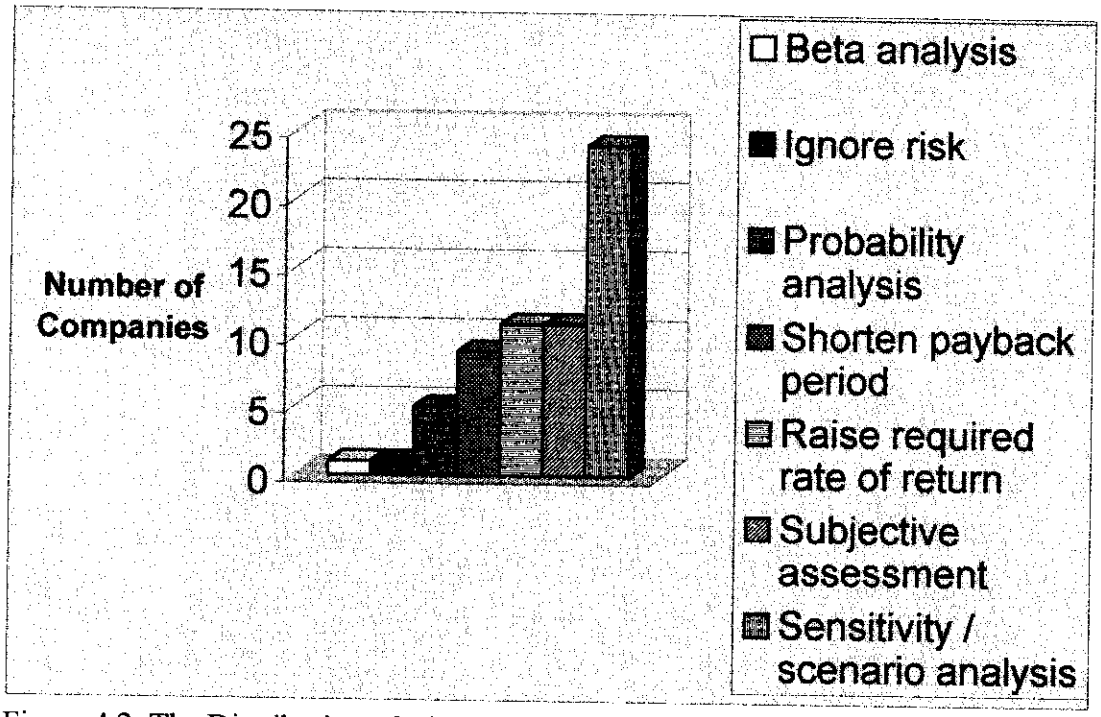

Figure 4.2: The Distribution of Risk Assessment Techniques

Table 4.6: Inflation adjustment

	No. of respondents	Percentage (N = 31)
Considered at risk analysis or sensitivity stage	8	26
Specify cash flow in constant prices and apply a real rate of return	10	32
All cash flows expressed in inflated price terms and discounted at the market rate of return	10	32
No adjustment	6	19

4.4 Performance Evaluation Criteria

There are several ways on how the management can evaluate their managers' performance. Majority of the companies, which is about 74 % of the respondents or 23 companies, tend to use budget as a mean of evaluating the performance of their managers (Table 4.7). Out of 23 companies that use budget to evaluate the performance of their managers, 10 companies use profit in conjunction with it. This means most companies use more than one technique to evaluate their managers' performance.

In general, this result is inconsistent with the result regarding the techniques used for the appraisal of major investment projects. As mentioned earlier, majority of the companies choose NPV and accounting rate of return as the major techniques to evaluate their investment projects. In this case, NPV concentrates on discounted cash flows, and accounting rate of return takes into consideration of profit. However, when evaluating the performance of

managers, most companies tend to use budget as their mean of evaluating the managers. This is may be because of the difficulty in deriving the discounted cash flows. Nonetheless, the result somehow shows that there is still support on the use of profit, which is about 45% of the respondents or 14 companies, as the criteria to evaluate managers' performance. This is consistent to the selection of accounting rate of return as one of the main techniques used to evaluate major projects.

Table 4.7: Financial criteria used in evaluating the performance of managers

	No. of respondents	Percentage (N = 31)
An accounting rate of return	7	23
Profit	14	45
Undiscounted cash flow	3	10
Discounted cash flow	4	13
Budget	23	74

Note: N = 31 is based on the number of companies that replied the questionnaires.

Even though a "big picture" shows that there exists inconsistency between the techniques used in evaluating the managers' performance and the techniques used in evaluating the investment projects, the gap may be reduced when looking at an individual company. Out of 7 companies that use accounting rate of return to evaluate the managers' performance, 6 companies use the same technique to evaluate their investment projects, whereas out of 14 companies that use profit to evaluate the managers' performance, 10 companies use

accounting rate of return to evaluate the investment projects. In the meantime, among 3 companies that use undiscounted cash flow to evaluate the performance of managers, all three companies use the payback method to evaluate their investment projects. In terms of the discounted cash flow, out of 4 companies that use it to evaluate the managers' performance, 3 companies use net present value as a technique to evaluate their investment projects. All these results show that at some point consistency does exist between the techniques used to evaluate the performance of managers and the techniques used to evaluate major investment projects.

In terms of the relative importance between cash flow and profit in assessing a company's performance, 55% of the companies reveal that both measures are equally important (Table 4.8). In this case, there are some consistencies that can be seen regarding the techniques used in investment appraisal and the measures used to assess a company's performance. Overall, most companies agree that cash flow is an important measure in assessing a company's performance. This can be seen on the percentages of respondents supporting the statement that cash flow is most important and slightly more important than profit, 16% and 23% respectively. Only one company says that profit is the most important measure of a company's performance; whereas there are only 3 companies or 10% of the respondents, which state that profit is slightly more important than cash flows.

Table 4.8: Relative importance of cash flows and profit in assessing a company's performance

	No. of respondents	Percentage (N = 31)
Cash flow most important	5	16
Cash flow slightly more important than profit	7	23
Both measures equally important	17	55
Profit slightly more important than cash flows	3	10
Profit most important	1	3
Neither measure important	0	0

Note: There are companies that provide more than one answer.

4.5 The Determination of the Discount Rates by Listed Malaysian Companies

According to Table 4.9, about 48 % of the respondents or 15 companies use interest payable on debt capital as their discount rate. Out of 31 companies that responded to the questionnaire, only 8 companies or 26% of the respondents use the weighted average cost of capital to determine their discount rate. This clearly shows that WACC is not as popular as the interest payable on debt capital in deriving a discount rate. Other than that, none of the respondents use dividend yield on shares plus estimated growth in capital value of shares to derive its discount rate. Surprisingly, there are 7 companies or 23% of the respondents, which use an arbitrarily chosen figure as their discount rate. As for CAPM, only one company uses this model to derive its discount rate for the appraisal of major capital investment project.

Table 4.9: Derivation of the discount rates used in the appraisal of major capital investments

	No. of respondents	Percentage (N = 31)
Interest payable on debt capital	15	48
Earnings yield on shares	4	13
Dividend yield on shares plus estimated growth in capital value of shares	0	0
The cost of equity derived from the CAPM	1	3
WACC	8	26
An arbitrarily chosen figure	7	23

Note: Some companies state more than one technique, saying that the technique used may depend on a situation. Therefore, the percentage may not add up to 100%.

For the purpose of this paper, the cost of equity derived from the Capital Asset Pricing Model is not widely used because majority of the companies responded to the survey choose bank overdraft or loan as their main source of external finance. Out of 29 companies that responded to the question, 23 companies or approximately 79% of the respondents rank bank overdraft or loan as the most important sources of external finance, 5 companies rank bank overdraft or loan as the second most important, and only one company ranks it as the forth most important source of external finance. Given this, a discount rate derived from the weighted average cost of capital would be a more relevant.

In calculating the weighted average cost of capital, out of 18 companies, 11 companies or about 61% of the respondents say that they would use the Capital

Asset Pricing Model to estimate the cost of equity whereas the market rate of return on debt capital is used for cost of debt. Hence, even though the CAPM is not popular in deriving a discount rate, it is still in used when it comes to WACC. Besides considering the rate for equity and debt, those companies that use WACC to develop a discount rate also need to identify the weights that they want to use in the calculation. From the survey, out of 18 companies, which responded to the question, 8 companies or approximately 44% of the respondents choose the present market values of debt and equity as the weights that they want to use in the calculation of WACC. For the rest 10 companies, 6 companies choose a long-term target of debt and equity ratio, and 4 companies choose the balance sheet ratio of debt and equity.

4.6 Other

Even though majority of the companies use NPV to evaluate their major investment project, it does not mean that they would just reject or accept the project based on negative or positive NPV. There are also other factors considered especially for non-economic projects. For example, 19 companies say that they would consider social and environmental responsibilities in accepting non-economic projects. Besides, other factors, such as health and safety, Research and Development together with legislation, have been found to be important factors, which lead to the acceptance of non-economic projects.

Other than that, some companies do place specific capital expenditure ceilings on operating units, which sometimes lead to the rejection of viable projects.

However, from the result of the survey, only a minimum number of companies are doing it. Their main reasons for having a specific capital expenditure ceiling are: 1) investment decisions are important for the whole group and require central control; and 2) management wants to control areas of activity and mix of products.

Finally, conducting post audits of major capital expenditures would give a clear vision to companies on how effective the techniques used. The result reveals that most companies do conduct post audits of major capital expenditures. Out of 31 companies, 18 companies or about 58% of the respondents choose sometimes, 12 companies or 39% of the respondents choose always, and only one company rarely conducts post audits. In short, it clearly shows that most of the companies in Malaysia do re-evaluate their major capital expenditures, and there may be a tendency for them to recognize some of the weaknesses of the techniques used.

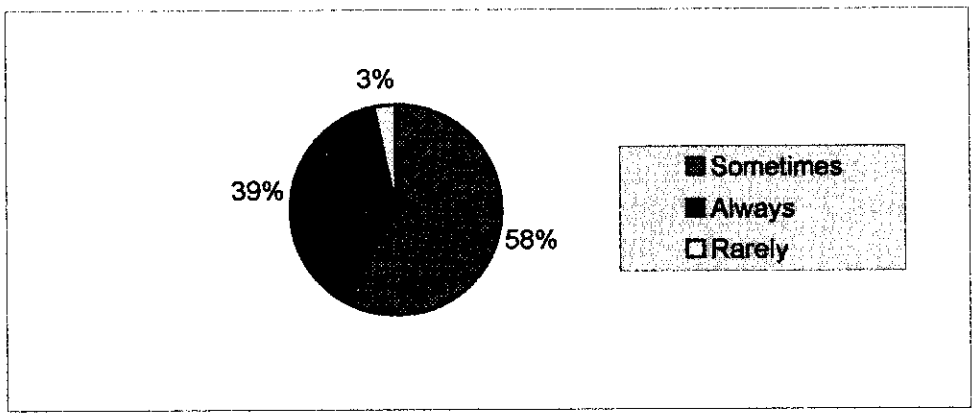

Figure 4.3: The Distribution of Companies Based on Regularity of Post Audits Conducted on Major Capital Expenditures

CHAPTER 5

DISCUSSION OF RESULTS

5.1 Comparisons With Previous Studies

Since there are not many literatures found regarding the application of capital budgeting techniques in Malaysia, there are only a few comparisons that can be made here. The first one is regarding the techniques used in the evaluation of major capital investment projects. As stated in the literature review section, Kester et al. (1999) pointed that discounted cash flow methods, which consist of NPV and IRR, were the most important techniques for evaluating projects in Malaysia, and in this study, accounting rate of return was ranked fourth. Hans's study in 1986 (cited in Kester et al., 1999) reported that the payback method was the most frequently used technique for evaluating and ranking projects for Malaysian companies in 1983. However, the result of this new study shows that NPV and accounting rate of return are the most important techniques used for evaluating major investment projects for listed Malaysian companies. Nevertheless, other techniques such as the payback method and IRR are still considered to be important techniques used in the evaluation of major investment projects. In short, even though all these results are not directly comparable to each other, they do show some consistencies.

Regarding the techniques used when assessing the risk of a major project for listed Malaysian companies, the result seems to be similar to Kester et al.'s (1999) study. In both studies, sensitivity and scenario analysis are found to be the most important techniques used for risk assessment. Besides, both studies also reveal that interest payable on debt capital or the cost of the specific capital used to finance the project is the most popular way to determine a discount rate.

5.2 Limitations of the Survey

Before making any recommendations or concluding remarks, it is important to identify some limitations of this study. Firstly, this survey is limited to the companies listed on the Main Board of KLSE. Therefore, it may not represent the whole companies in Malaysia. Moreover, the samples used in the survey may be too small to represent companies in Malaysia, and the response rates are also considered to be low. Furthermore, most of the companies chosen have different characteristics, especially in the type of industry they are involved with. Because of that, it may not be suitable to compare them against each other.

Secondly, since this is a mail survey, the answers given in the questionnaire may not reflect the true practices of the company. Besides, there may be some misunderstandings towards the questions asked in the questionnaire. The executives that answered the questions in the questionnaire may not understand the questions or the terminology used in the questions. As a result, the answers

given may not be the desired ones. Therefore, for future research, there is a suggestion to include definitions of some of the terminologies.

5.3 Recommendations

In order to improve the result of the study, there are a few recommendations that can be considered here. The first recommendation deals with the questionnaire itself. The questionnaire should be constructed in a way that is suitable to the Malaysian culture. This can be done by getting inputs from Malaysian executives, especially those who are familiar with capital budgeting practices. Other than that, since annual capital budget is not a clear indication of a company's size, it should be changed to other indicator, such as revenues or sales. As a result, it is hoped that with some changes, the result of the study would be more presentable.

Secondly, there has been a suggestion to include qualitative factors in capital investment decisions. According to Hatfield, Hill and Horvath (1998), they indicated that some projects were accepted without analysis, and in this case, subjective factors might play an important role in the acceptance or rejection of a project. Furthermore, Pike's study in 1983 (cited in Hatfield et al., 1998) found that managers agreed that qualitative factors were almost as importance as quantitative factors. Since the questionnaire adopted in this study does not include qualitative factors, future research should put some considerations

towards including them in the survey. Hopefully, this may help in terms of clarifying the idea behind the practice of capital budgeting techniques.

5.4 Conclusion

This study reveals some of the aspects of capital budgeting techniques adopted by listed Malaysian companies. Some of the results are consistent with previous studies. For example, NPV has been consistently found to be one of the most important techniques in the evaluation of major capital investment projects. In terms of the techniques used to assess risks, sensitivity and scenario analysis are found to be the most frequently techniques used for risk assessment by listed Malaysian companies.

In the meantime, budget seems to be the most famous approach in the evaluation of managers' performance. Even though this result is found to be inconsistent with the techniques used to evaluate the investment projects, the use of other approaches, such as profit, has reduced the gap. Profit is found to be the second most important technique used in the evaluation of the performance of managers, and the application of it is consistent to the selection of accounting rate of return as a technique used in the evaluation of major investment projects.

Regarding the determination of a discount rate, interest payable on debt capital is found to be the most popular approach. Almost half of the respondents choose interest payable on debt capital as their discount rates. WACC falls

number two as the second most popular technique in deriving a discount rate. Only a quarter of the respondents indicate the use of WACC.

Even though the results of this study indicate quite a few aspects of capital budgeting techniques, there are still some improvements that can be made here. Hopefully, these improvements, especially those highlighted in the recommendation and limitation sections, can be implemented for future research.

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Dear Sir,

We should be very grateful if you would contribute to a very important research project being carried out by the School of Finance and Banking collecting information on the investment appraisal techniques that quoted Malaysian companies use for evaluating major investment expenditures.

Knowledge of modern day investment appraisal techniques used in practice is important for both managers and academic researchers.

The following questionnaire is short and is designed to take only a few minutes to complete.

This survey will be kept **strictly confidential** and will only be used for academic purpose. Please therefore be frank and honest – it is only by finding out the reality of companies' methods of investment appraisal in regular use that we will be able to marry together academic teaching and business world practice.

When completed, the questionnaire may be returned in the prepaid envelope provided.

Thank you very much for your time and your participation in the project.

Yours sincerely

Dr. Nur Adiana Hiau Abdullah
School of Finance and Banking

Encl.

QUESTIONNAIRE ON ELEMENTS OF INVESTMENT APPRAISAL TECHNIQUES

Please tick the most appropriate Box(es)

Please return to:

Question 1

I. Which of the following financial analysis technique(s) are used in your business for the appraisal of major investment

- Payback ❑
- Accounting Rate of Return (ROCE, ROI, ROE etc.) ❑
- Internal Rate of Return (IRR) ❑
- Net Present Value (NPV) ❑
- Non-financial criteria used ❑ Please specify: _____

II. What is the frequency of the use of these techniques ?

	Rarely	Often	Mostly	Always
Payback	❑	❑	❑	❑
Accounting Rate of Return (ROCE, ROI, ROE etc)	❑	❑	❑	❑
Internal Rate of Return (IRR)	❑	❑	❑	❑
Net Present Value (NPV)	❑	❑	❑	❑

III. Has there been a major switch in techniques used over the last 5 years

Yes ❑ No ❑

If Yes, please specify: _____

_____

Question 2

When assessing the risk of a major project which technique(s) are used ?

- Shorten payback period ❑
- Raise required rate of return ❑
- Probability analysis ❑
- Sensitivity / scenario analysis ❑
- Beta analysis ❑
- Subjective assessment ❑
- Ignore risk ❑
- Other ❑ Please specify :_____

Question 3

How is inflation adjusted for ?

- Considered at risk analysis or sensitivity stage ❑
- Specify cash flow in constant prices and apply a real rate of return ❑
- All cash flows expressed in inflated price terms and discounted at the market rate of return ❑
- No adjustment ❑
- Other ❑

If other, please specify: _____

Question 4

I. Which financial criteria are used to evaluate the performance of managers ?

- An accounting rate of return (e.g. rate of return on capital employed) ❑
- Profit ❑
- Cash flow (undiscounted) ❑
- Discounted cash flow ❑
- Budget ❑
- Other ❑

If other please specify: _____

II. Which of the following considerations have led to the acceptance of non-economic projects ?

- Health and safety ❑
- Social / environmental ❑
- R&D / strategically necessary ❑
- Legislation ❑
- Repair/maintenance ❑
- Other ❑

Question 5

What is the relative important of cash flow and profit in assessing company's performance ?

- Cash flow most important (and profit unimportant) ❑
- Cash flow slightly more important than profit ❑
- Both measures equally important ❑
- Profit slightly more important than cash flows ❑
- Profit most important (and cash flows unimportant) ❑
- Neither measure important ❑
- Other ❑

If other please specify: _____

Question 6

Please place in order of importance the following sources of external finance over the last 5 years.
(place 1 for the most important, 2 for second most important, etc.)

Bank overdraft / loan ❑
Hire purchase ❑
Leasing ❑
Fixed interest securities ❑
Cash management (delay creditors, reduce debtors) ❑
New issues of shares ❑
Other sources ❑ Please specify: _____

Question 7

I. Are there specific capital expenditure ceilings placed on operating units which sometimes lead to the rejection of viable projects ?

Yes ❑ No ❑

If Yes, what is the action taken : _____

_____

II. What are the reasons for capital expenditure ceilings ?

Investment decisions are important for the whole group and require central control ❑
Management wants to control cash because of a shortage of funds ❑
Shortage of other key resources ❑
Management want to control areas of activity and mix of products ❑
Other ❑

If other please specify: _____

Question 8

I. How large is the annual capital budget of your company ?

Up to RM1 millon ❑
RM 1.1 million to RM 50 millon ❑
RM50.1 million to RM100 millon ❑
RM100.1 million to RM200 millon ❑
RM200 millon + ❑

II. *Detailed* capital expenditure budgets are prepared for:

1 year ahead ❑
2 years ahead ❑
3 years ahead ❑
4 years ahead ❑
more than 4 years ahead ❑

III. *Outline* capital expenditure budgets are prepared for:

- 1 year ahead ❑
- 2 years ahead ❑
- 3 years ahead ❑
- 4 years ahead ❑
- more than 4 years ahead ❑

Question 9

What are the cut off points used to evaluate the viability of major capital investment ?

- No minimum rate of return standard ❑
- Subjective ❑
- No evaluation techniques ❑

IRR/NPV

- 0 – 10% ❑
- 11 – 15% ❑
- 16 – 20% ❑
- 21 – 30% ❑
- 31% or more ❑

Payback Period

- 0 – 2 years ❑
- 2.1 – 4 years ❑
- 4.1 – 6 years ❑
- 6.1 – 10 years ❑

Return on Capital Employed

- 0 – 10% ❑
- 11 – 15% ❑
- 16 – 20% ❑
- 21 – 30% ❑
- 31% or more ❑

Question 10

How does your company derive the discounted rate used in the appraisal of major capital investments ?

- Interest payable on debt capital is used ❑
- Earnings yield on shares is used ❑
- Dividend yield on shares plus estimated growth in capital value of shares is used ❑
- The cost of equity derived from the Capital Asset Pricing Model is used ❑
- A weighted average cost of capital is used ❑
- An arbitrarily chosen figure is used ❑
- Other ❑

If other please specify: _____

_____

Question 11

I. If the weighted average cost of capital is used, how is it caculated ?

Using the Capital Asset Pricing Model for equity and the market rate of return on debt capital ❑

Cost of equity calculated other than through the Capital Asset Pricing Model with the cost of debt derived from current market interest rates ❑

Other ❑

If other please specify:_____

_____

_____

II. If the weighted average cost of capital is used, then the weights are defined by:

A long term target of debt and equity ratio ❑
The present market values of debt and equity ❑
Balance sheet rations of debt and equity ❑
Other ❑

If other please specify: _____

_____

Question 12

Does your company conduct post audits of major capital expenditures ?

Always ❑
Sometimes/on major projects ❑
Rarely ❑
Never ❑

If you have further comments on investment appraisal techinques, please state them below.

_____

_____

_____

_____

Respondent's designation & Company's stamp:

Thank you very much for your time