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**JUDUL:** FAKTOR-FAKTOR YANG MEMPENGARUHI APLIKASI  
KAEDAH BAYARAN BALIK DI KALANGAN SYARIKAT  
TERPILIH YANG TERSENARAI DI BURSA SAHAM  
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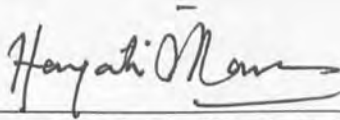
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**DETERMINANTS OF PAYBACK METHOD  
APPLICATION AMONG SELECTED MALAYSIAN  
PUBLIC LISTED COMPANIES**

**ZURAIDA NAIM**

**A DISSERTATION SUBMITTED IN PARTIAL  
FULFILLMENT OF THE REQUIREMENT FOR THE  
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ADMINISTRATION**

**SEKOLAH PERNIAGAAN DAN EKONOMI  
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## DECLARATION

The materials in this thesis are original except for quotations, excerpts, summaries and references, which have been duly acknowledged.

ZURAIDA NAIM

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## ABSTRACT

This research attempts to assess the determinants of the application of payback method among public listed companies in Malaysia. A total of twenty four (24) face to face interviewed were conducted. In addition, seventy six (76) questionnaires were sent to Chief Financial Officer of selected public listed companies. However, only nine (9) of them responded within the allocated time. Six (6) independent factors were examined and these are (i) cost and benefit consideration, (ii) sources of funding, (iii) size of average annual expenditure, (iv) types of investment, (v) bankers' preference, and (vi) board of directors preference. The findings indicate that only three of these variables show significant influence on the application of the payback method. Namely, (i) cost and benefit consideration, (ii) sources of funding, and (iii) types of investment. It is obvious that many companies like to adopt payback method in evaluating investment proposal before making the finalized decision. Due to the some theoretical weaknesses of this method, they should adopt other methods as well to ascertain that their companies are in secured position.



## ABSTRAK

### ***Faktor-Faktor Yang Mempengaruhi Aplikasi Kaedah Tempoh Bayaran Balik Dikalangan Syarikat Terpilih Yang Tersenarai Di Dalam Bursa Saham Malaysia.***

*Kajian ini cuba untuk mengkaji faktor-faktor yang mempengaruhi aplikasi kaedah "tempoh bayaran balik" di kalangan syarikat terpilih yang tersenarai di dalam bursa saham Malaysia. Sebanyak dua puluh empat (24) kaedah temuduga secara berdepan telah dilaksanakan di dalam kajian ini. Tujuh puluh enam (76) soalan kaji selidik pula telah dihantar kepada Ketua Pegawai Kewangan bagi setiap syarikat tersenarai yang terpilih. Walaubagaimanapun, hanya sembilan (9) daripada mereka yang memberi respon dalam masa yang diperuntukkan. Terdapat enam (6) faktor bebas atau tidak bergantung telah diselidik, dan diperiksa di dalam kajian ini dan ia adalah (i) pertimbangan kos dan kebaikan, (ii) sumber dana, (iii) saiz purata perbelanjaan tahunan, (iv) jenis pelaburan, (v) kecenderungan pihak bank, dan (vi) kecenderungan lembaga pengarah. Hasil daripada kajian mendapati hanya tiga (3) daripada pemboleh ubah-pemboleh ubah di atas menunjukkan pengaruh yang signifikan terhadap aplikasi kaedah tempoh bayaran balik. Pemboleh ubah-pemboleh ubah tersebut ialah (i) pertimbangan kos dan kebaikan, (ii) sumber dana, dan (iii) jenis pelaburan. Ini jelas bahawa masih banyak syarikat yang mengaplikasikan kaedah tempoh bayaran balik dalam membuat penilaian terhadap pelaburan-pelaburan yang dicadangkan sebelum membuat keputusan yang muktamad. Oleh kerana kelemahan teori yang terdapat di dalam kaedah ini, mereka sepatutnya mengaplikasikan juga kaedah lain untuk memastikan mereka sentiasa berada di dalam keadaan yang terjamin.*



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## LIST OF ABBREVIATIONS

AAR	-	Average Accounting Return
BOD	-	Board of Director
CFO	-	Chief Financial Officer
DCF	-	Discounted Cash Flow
DPB	-	Discounted Payback Period
IRR	-	Internal Rate of Return
MIRR	-	Modified Internal Rate of Return
NDCF	-	Non-Discounted Cash Flow
NPV	-	Net Present Value
PB	-	Payback Period
PI	-	Profitability Index
WACC	-	Weighted average cost of capital



# CHAPTER 1

## INTRODUCTION

### 1.1 Background

The ability of corporations to expand itself through efficient allocation of capital will affect their survival and vitality. It is always crucial to decide major financial commitments using appropriate techniques to avoid the risk of improper investment resulting in value destructions (Rappaport, 1986; Stewart, 1991; McTaggart *et al.*, 1994; Copeland *et al.*, 1996; Arnold & Hatzopoulos, 2000). Thus, there exists an opportunity cost of appraisal system due to failure to channel resources to investments offering a return greater than the cost of capital (Arnold, 1998b; 2000a).

The possible number of investments opportunities in the form of purchases of production equipment, expansion of production facilities, acquisitions and merger is almost countless. Some options are more valuable than others and each requires careful financial analysis to match with returns requirement (Hansen, 1998). The essence of financial management which involves identifying, evaluating and selecting all possible investments is known as capital budgeting. According to Schwarz (1987) and White, Miles & Munila (1997), capital budgeting is an integral component of organization's 'strategy/plans/budgets' processes. Verbeeten (2006) defined the capital budgeting as the methods or techniques used to evaluate and select an investment project. These procedures guide managers to select  $n$  out of  $N$  possible investment projects, to achieve

the highest profits at an acceptable 'risk of ruin'. In deciding whether to accept or reject any proposed investment, managers will focus on cash flows, which are representing the benefits generated by that particular investment (Keown *et al.*, 2001).

Nowadays, in a competitive market, generating ideas for profitable projects is extremely difficult. For this reason, a firm must have systematic strategy for survival of their firm. According to Abdullah and Nordin (2006), the idea of applying capital budgeting theory lies within the concept of maximizing shareholders wealth and this technique assists firms in maximizing the value of a project which consequently adds value to the shareholders who are the legal owners of the firms.

Capital budgeting decision perhaps is one of the most important functions a chief financial officer (CFO) must perform. This is mainly because, financial effects of capital budgeting decisions continue for many years. Regardless of its effectiveness, the firm loses some flexibility in the availability of long-term funds. These resources are not unrestricted, neither are they infinitely available. Thus, firms must properly budget how these funds are invested (Brigham & Houston, 2004). A weak decision can also have a significant effect on the firm's future operations. For instance, the purchase of an asset with an economic life of 10-year period will 'lock in' the firm for the entire 10 years period (Brigham & Houston, 2004). Hall (1998) stated that, tomorrow's business success depends on investment decisions made today. Furthermore, a firm's capital budgeting decision will define the firm's strategic directions involving new product, services or markets decisions which must be preceded by capital expenditures (Brigham & Houston, 2004).

A number of well-established capital budgeting techniques are available to evaluate investment opportunities. In general, the preferred or superior approach will integrate time value of money, risk and return considerations, and valuation concepts to





select capital expenditures that are consistent with maximizing shareholder's wealth (Gitman, 2006).

According to Ryan and Ryan (2002), there are seven (7) capital budgeting methods available: (i) net present value (NPV); (ii) internal rate of return (IRR); (iii) profitability index (PI); (iv) payback period (PB); (v) discounted payback (DPB); (vi) average accounting return (AAR) and (vii) modified internal rate of return (MIRR). The techniques that categorized as discounted cash flow (DCF) method are: NPV, IRR, PI, DPB and MIRR. On the other hand, PB and IRR are classified under the category of non-discounted cash flow (NDCF) method.

The definition by Ross *et al.* (2006); Brigham and Houston (2004) for each of the technique are listed below:

*i) Net Present Value (NPV)*

- A method of ranking investment proposals using the NPV, which is equal to the sum of present value of future net cash flows, discounted at the cost of capital.

*ii) Internal Rate of Return (IRR)*

A method of ranking investment proposals using the rate of return on an investment, calculated by finding the discount rate that equates the present value of future cash inflows to the project's cost.

*iii) Profitability Index (PI)*

The present value of an investment's future cash flows divided by its initial cost. Also, can be referred as the benefit to cost ratio.

*iv) Payback Period (PB)*

The length of time required for an investment's net revenues to cover its cost.

v) *Discounted Payback Period (DPB)*

The length of time required for an investment's cash flow, discounted at the investment's cost of capital, to cover its cost.

vi) *Average Accounting Return (AAR)*

An investment's average net income divided by its average book value.

vii) *Modified internal rate of return (MIRR)*

The discount rate at which the present value of a projects cost is equal to the present value of its terminal value, where the terminal value is found as the sum of the future values of the cash inflows, compounded at the firm's cost of capital.

According to Keown *et al.* (2001), during the past 40 years, the popularity of each of the capital budgeting method has shifted rather dramatically in which during the 1970's and 1980's, the IRR and NPV methods have replaced the PB method that was used during the 1950's and 1960's. Therefore, the IRR and NPV techniques were used by virtually all major corporations in decision making.

There have been a number of surveys conducted in finding out what types of investment criteria firms actually use. Table 1.1 below summarizes the results on surveys of capital budgeting practices. Panel A provides a historical comparison of budgeting techniques used by large firms through the period of 1959-1981. In 1959, only 19 percent of the firms surveyed used either the IRR or the NPV method, and 34 percent used either the PB or the AAR method. It is obvious that the IRR and NPV had become the dominant methods in the 1980s. In panel B, the percentages reflect the techniques frequently or 'almost frequently' used by CFOs. Not surprisingly, IRR and NPV were the

two most widely used techniques, particularly at larger firms. However, over one half of the respondents frequently or 'almost frequently' used the PB method as well. In fact, among smaller firms, the PB was used just about as much as NPV and IRR. The less commonly used method was the DPB, the AAR, and the PI (Ross *et al.*, 2006).



Table 1.1: Comparison of Capital Budgeting Techniques in Practice

A. Historical comparison of the primary use of various capital budgeting techniques							
Year	1959	1964	1970	1975	1977	1979	1981
Payback period	<b>34%</b>	24%	12%	15%	9%	10%	5%
Average accounting return	<b>34%</b>	30%	26%	10%	25%	14%	10.7%
Internal rate of return	19%	<b>38%</b>	<b>57%</b>	37%	54%	60%	65.3%
Net present value	0%	0%	0%	26%	10%	14%	16.5%
IRR or NPV	19%	<b>38%</b>	<b>57%</b>	<b>63%</b>	<b>64%</b>	<b>74%</b>	<b>81.8%</b>

B. CFO's choice of capital budgeting techniques				
Capital budgeting technique	% always or almost always use	average score scale is 4 (always) to 0 (never)		
		Overall	large firms	small firms
Internal rate of return	<b>76%</b>	3.09	3.41	2.87
Net present value	75%	3.08	3.42	2.83
Payback period	57%	2.53	2.25	2.72
Discounted payback period	29%	1.56	1.55	1.58
Accounting rate of return	20%	1.34	1.25	1.41
Profitability index	12%	0.83	0.75	0.88

Source: Ross, S. A., Westerfield, R. W., & Jordan, B. D. (2006). *Fundamentals corporate finance* (7<sup>rd</sup> ed.). New York: Mcgraw-Hill, p: 285.



Table 1.2 provides the results of 1992 survey on the 100 largest *Fortune 500* firms. As can be seen, although most firms used the NPV and IRR as their primary techniques, they still used the PB method as a secondary method. This was due to the rise in the uncertainty of cash flows. The DCF techniques such as NPV and IRR are considered to be least accurate (Chen, 1995) as the risk of cash flow fluctuation increases.



Table 1.2: Survey of 100 Largest *Fortune* 500 Firms

Investment evaluation methods used:	Primary method	Secondary method	Total using method
IRR	88%	11%	99%
NPV	63%	22%	85%
PB	24%	59%	83%
PI	15%	18%	33%

Source: Keown, A. J., Martin, J. D., Petty, J. W., & Scott, D. F. (2001). *Foundation of finance: The logic and practice of financial management* (3<sup>rd</sup> ed.). New Jersey: Prentice Hall, p. 313.



From a pure theoretical point of view, the NPV is considered to be the most accurate and sophisticated technique to evaluate projects. This is followed by the IRR and the non-discounted cash flows methods (Gitman, 2006). The PB method is considered as the least sophisticated among them (Hermes *et al.*, 2005). According to Lazaridis (2004), academia prefers the NPV method and practitioners on the other hand, prefer the IRR method. Over the years, surveys suggest that the use of the DCFs techniques as the primary evaluation methods has increased significantly and the non-discounted cash flows techniques often supplement the former (Chen, 1995).

The PB method measures the length of time taken to recover the original investment. It estimates the length of time taken for the future cash inflows to match the initial cash outlay. Whilst theory has condemned the use of the PB method as misleading in evaluating investment opportunities due to its theoretical weaknesses (which ignore the time value of money and cash flows beyond the PB method), it continues to be widely applied as an appraisal technique (Brien, 1997; Ekanem, 2005). This is supported by many researchers such as Brounen (2004), Chan (2004), Danielson and Scott (2005), Abdullah and Nordin (2006); Truong, Partington and Peat (2006); Ryan and Ryan (2002); Hermes *et al.* (2005); Hogaboam and Shook (2004); and Lazaridis (2004). These studies pointed that the PB method continues to be used due to reasons beyond those considered inferior by finance theorists.

## **1.2 Problem Statement**

Finance textbooks have lamented the shortcomings of the PB method because it ignores time value of money and cash flow beyond the cutoff point. However, many researchers

continue to report the application of this method in investment decisions. Given the important role played by the PB method for creating value to shareholder (Hall, 1998), it is important to further investigate the determinants of the adoption of the PB method. Hence, the research question for this study is 'what are the determinants of the PB method application in evaluating investment proposals?'

### **1.3 Objectives of the Study**

The main purposes of this study are:

1. To identify and examine the extent of application of the PB method by public listed companies in Malaysia;
2. To investigate the significant factors that influence Malaysian public listed companies in choosing the PB method; and
3. To suggest implications for academia and practitioners, and the direction for future research.

### **1.4 Scope of the Study**

Although there are large bodies of finance literatures investigating the analytical techniques employed by corporation, the number of studies focusing specifically on the PB method in Malaysia is rather limited. Therefore, the scope of this study is focused on public listed companies in Malaysia. The ever increasing importance of our regional



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