



Faculty of Economics and Business

**DO SINGAPORE LISTED MANUFACTURING FIRMS
FOLLOW PECKING ORDER THEORY?**

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Bachelor of Finance
(Honours)
2011

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ORDER THEORY?**

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This project is submitted in partial fulfillment of
the requirement for the Bachelor of Finance
(Honours)

Faculti of Economics and Business
UNIVERSITI MALAYSIA SARAWAK
2011

Statement of Originality

The work described in this Final Year Project, entitled
“Do Singapore listed manufacturing firms follow Pecking Order Theory?”
is to the best author’s knowledge that of the author except
where due reference is made.

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ABSTRACT

DO SINGAPORE LISTED MANUFACTURING FIRMS FOLLOW PECKING ORDER THEORY?

By

Mardina Alycia Marakus

This study examines the determinants of Singapore listed manufacturing firms from 2005 until 2009. The main objective of this study is to examine the determinants of capital structure for Singapore listed manufacturing companies. The results show that profitability and tangibility are significant negatively related with the debt ratio. In contrast, growth is significant positively correlated with the debt ratio. However, although firm size is positively correlated with debt ratio but it is insignificant to determine the choice of capital structure. It is found that Singapore listed manufacturing firms are more to Pecking Order theory.

ABSTRAK

ADAKAH SYARIKAT PEMBUATAN SINGAPURA YANG BERDAFTAR MENGIKUTI TEORI PECKING ORDER?

Oleh

Mardina Alycia Marakus

Kajian ini meneliti faktor-faktor penentu syarikat pembuatan Singapura yang berdaftar dari tahun 2005 hingga 2009. Tujuan utama dari kajian ini adalah untuk menguji faktor yang mempengaruhi struktur modal untuk syarikat pembuatan yang berdaftar di Singapura. Keputusan kajian menunjukkan bahawa keuntungan dan aset nyata adalah signifikan dan berkaitan secara negatif dengan nisbah hutang. Sebaliknya, pertumbuhan pula adalah signifikan dan berkorelasi positif dengan nisbah hutang. Namun, walaupun sazi syarikat berkorelasi positif dengan nisbah hutang tetapi ia tidak signifikan untuk menentukan struktur modal. Didapati syarikat pembuatan Singapura yang berdaftar lebih kepada teori Pecking Order.

ACKNOWLEDGEMENT

First, I thank God for His bless that I finally finish my final year project. A great appreciation to my supervisor, Madam Josephine Yau for her generous guidance, advice, comments, suggestions and encouragement to me so that I will always motivated to do my final year project. Other than that, I would also like to thank to the lecturers of Faculty of Economics and Business which have been involved directly or indirectly to the success of this final year project. Not forgotten, I also want to express my appreciation to my family who always support me financially and morally. Besides, thank you to my friends that have thought, shared their ideas and opinions with me. Thank you very much.

CHAPTER 1

INTRODUCTION

1.1 Introduction

A mixture of different types of securities such as long-term debt, common stock and preferred stock issued by companies to finance the company's asset refers to capital structure. No debt means the company was unlevered and having debt in capital structure means the company was leveraged. Operating leverage and financial leverage were two main types of leverage. Operating leverage was related to the fixed costs, and enhanced business or operational risk. On the other hand, financial leverage was associated with fixed debt costs, and increase financial risk. Total leverage was the used of fixed operating costs and the costs of debt. Intangible assets such as staff education and advertisement involves in market value of equity was difficult to find. This makes the market value of equity was difficult to use. This was the main categories used to measure leverage and the other one was booked value of equity (Qian et al., 2007). There are two types of factors determine the capital structure namely internal and external factors. Internal factors were such as individual company, while external factors were like government tax policy, inflation rate, and capital market conditions (Baral, 2004).

Non-financial companies need capital to cover their funding for instance purchase of property and providing facilities for production and equipment to pursue

new business. Composition of company's liabilities and owner's equity was the capital structure. The main subject of the study in the field of corporate finance was the determinants of capital structure. Bankruptcy was due to financial distress and error in determining the capital structure (Amidu, 2007; Kakani & Reddy, 1998; Karadeniz et al., 2009; Vasiliou et al., 2009). It was believed that studying about company's financing decisions and the factors that affect the capital structure was very worthwhile (Bond & Scott, 2006).

Firms harassed by debt policy or capital structure choice. A wise decision made by the firms was important because errors in decision making influence value of the firm. Firms may choose to issue more or less debt, lease financing, use warrants, issue convertible bonds, and forward contracts to sign or trade bond swaps. It was important for firms to find the right combination of debt and equity to maximize its market value (Abor, 2007).

1.2 Background of the Study

Compared with other countries, Singapore was a small country. Its land area was limited to development progress. Back to the days before Singapore became an independent country, Singapore was just an undeveloped country. In contrast with Malaysia, Malaysia achieved its independence earlier than Singapore. Singapore gained independence only after joining Malaysia. After that, it took the decision to leave Malaysia and became its own state. Apart from that, seen from the size of the country, Malaysia has more land area and it was obviously bigger than Singapore.

However, Singapore has overcome Malaysia in terms of economics. Singapore has achieved developed country compared to Malaysia which was still in the developing country level after 53 years of independence. This paper was not a paper that merely wanted to weigh Singapore and Malaysia but it was only wanted to study the determinants of capital structure in Singapore.

In this study, firms in Singapore were used. From the main board of Singapore Exchange (SGX), there were 1108 companies listed as public listed companies. There were nine sectors identified in the SGX. They were the Commerce sector, Construction sector, Finance sector, Hotels and Restaurants sector, Manufacturing sector, Multi-Industry sector, Properties sector, TSC sector or as noted on the SGX it was the Transport/Storage/Communication, and Others sector, namely the Services, Loans and Debentures, Electric/Gas/Water, Agriculture, and Mining/Quarrying.

More than a quarter of Singapore's Gross Domestic Product (GDP) was contributed by the manufacturing sector. As well as the Singapore's exports, more than half of it was contributed by this sector as well. According to Nah (2006), Singapore economy was driven by one of the key growth that was manufacturing. Tendency to increase was shown by the manufacturing sector during the period except in 1998 and 2001. This was due to the economic crisis in 1998 and declining in global demand, particularly in electronic products in 2001. Hence, data of manufacturing sector was selected to be used in this study. Manufacturing sector was

a sector which engaged with electronics, chemicals, biomedical, precision engineering and transport engineering (Nah, 2006).

Figure 1: Manufacturing sector share in Singapore's GDP (1960)

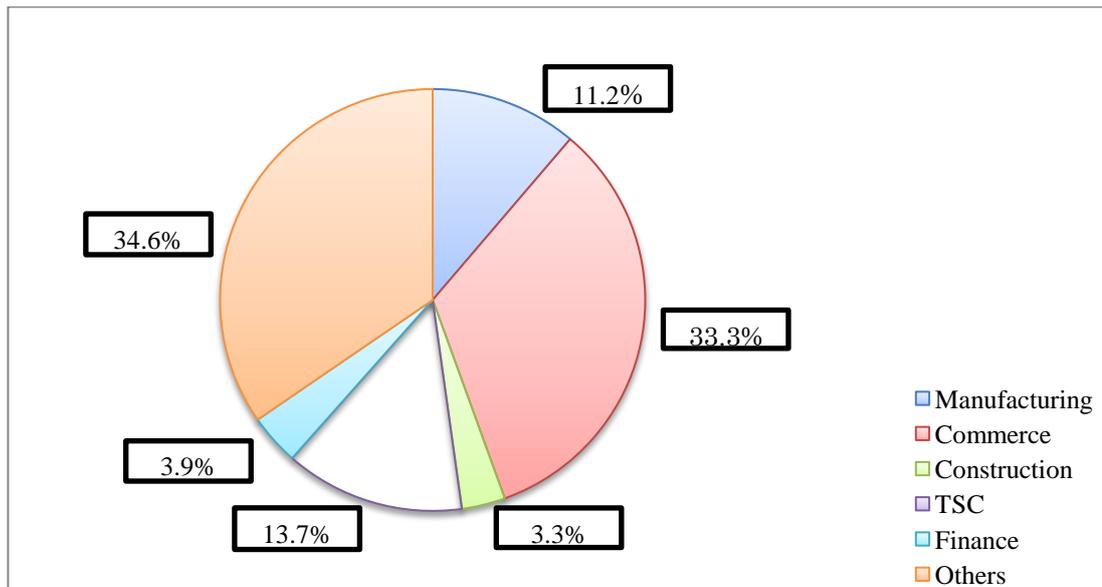
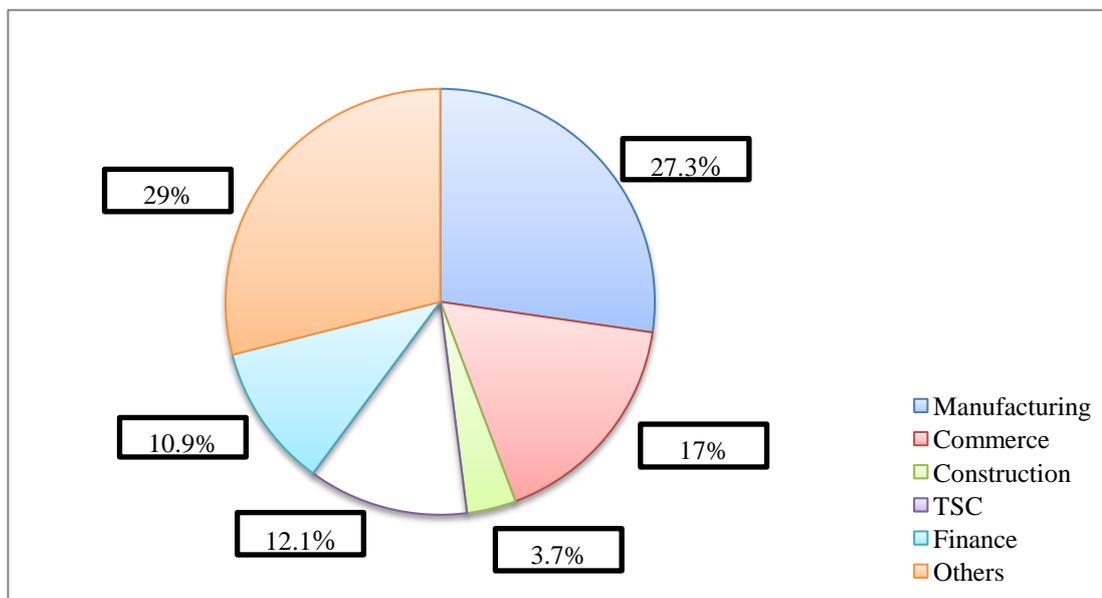


Figure 2: Manufacturing sector share in Singapore's GDP (2005)



In figure 1, it showed that the portion of contribution by the Manufacturing sector was only 11.2% in 1960. Meanwhile, in figure 2, the percentage of contribution by the Manufacturing sector was increased by 16.1% in 2005 and brought about the percentage in 2005 was 27.3%. Since Hotels and Restaurants sector, Multi-Industry sector, Properties sector contribute in small portion of percentage, these sectors was included in others sector category.

1.3 Theoretical Framework

A number of theoretical and empirical studies investigated the optimal capital structure of a firm. There were two most theories that get engaged with capital structure which were the Pecking Order Theory and the Trade-Off Theory. Two theories or approaches namely the Trade-Off Theory and Pecking Order Theory affect a large part of the capital structure decision (Eldomiaty, 2007; Qian et al., 2007).

A process in which the uneven flow of new investment creates debt because of company has no specific target capital structure and current debt levels; Pecking Order theory. Company as an organization balances the advantages of interest tax shields on the cost of financial distress (Qian et al., 2007). Complied with hierarchy when seeking for financing its projects, firstly demanding internal resources, then issuing debt, and ultimately issuing equity set by the Pecking Order theory. That was because, issuing new stock was rarely or used as a last resort. In addition, the order of hierarchy was the basic to the Pecking Order theory. Pecking Order theory did not

apply if the equity issued were considered in the first place (De Medeiros & Daher, 2005). There was no optimal debt ratio was defined by both companies to target set by the Pecking Order theory (Zhang & Kanazaki, 2007; Bond & Scott, 2006). Based on Asymmetric information and signalling problems with the external financing obtained by Myers and Majluf (1984) then introduced the Pecking Order theory (Bond & Scott, 2006).

If the company detects a problem, they would prefer internal financing to external and debt to equity. Companies only used external funds if needed. If they have to use external funds, they would choose debt which was the safest security, then convertible securities and lastly equity as the last option. The Pecking Order theory stresses on asymmetric information while the Trade-Off theory pressing about taxes (Karadeniz et al., 2009).

Optimal capital structure of companies existed when the trade-off between benefits and costs of debt in which the costs and benefits were balanced. Companies issued more debt in its capital structure due to the tax shields of debt and free cash flow control, and vice versa with bankruptcy costs and agency problems (Zhang & Kanazaki, 2007). Trade-Off theory assumes that the company's assets and investment plans constants, optimal debt ratio exists which maximizes the value of the trade-off of costs and benefits of the loan (Bond & Scott, 2006).

1.4 Problem Statement

Various studies have been conducted to explain the determinants of capital structure but it seems that the findings of each study were differed. Board size, board composition, board skill, CEO tenure, non-debt tax shield, firm's age, asset structure, return, volatility, tax aspects related to capital structure, probability of financial distress, quality signalling, product market competition and adjustment costs were among the various determinants add by other various researchers in their research in determining the determinants of capital structure other than profitability, firm size, tangibility and growth that determined the capital structure of a company which were generally used by researchers (Abor & Biekpe, 2005; Ovtchinnikov, 2008; Mei & Bo, 2009; Balboa et al., 2009; Surya & Ranjana, n.d.). Other than that, during the researcher examined journals about the determinants of capital structure, none of these journals were about the determinants of capital structure in Singapore. Since there were various variables that determine capital structure, what are the determinants of capital structure for Singapore's listed manufacturing firms?

1.5 Research Objectives

General Objective:

The main objective of this paper is to examine the determinants of capital structure for Singapore listed manufacturing firms.

Specific Objectives:

- i. To testing the Pecking Order theory and Trade Off theory for Singapore listed manufacturing firms.
- ii. To investigate the debt decisions of the Singapore listed manufacturing firms.

1.6 Significance of the Study

The research was significance and useful for manufacturing listed firms to determine their capital structure. Besides, it was also useful for other manufacturing firms which were have not registered yet on the stock exchange as they can use this study to be their guideline to manage their capital structure if they have the intention to be listed. Other than that, new firms can find out the factors that influence capital structure. In addition, this paper was especially helping manufacturing firms in Malaysia to carefully understand their determinants of capital structure. This paper can be an example for manufacturing firms in Malaysia to determine the determinants of capital structure. Furthermore, it can be a guideline to investors so that they can select which firms providing profitable returns to investors if they invest in these companies. On the other hand, this paper helps debt holders to understand the capital structure of firms to evaluate the performance of the firms. From the academic perspectives, this research can be an academic reference for students and academic staffs as knowledge and further study. Besides that, this study was also useful for students and academic staffs in comparing how manufacturing listed firms and manufacturing non-listed firms determine their capital structure.

1.7 Limitation of the Study

All the data were collected using DataStream and no questionnaires will be used or distributed for this study. By using secondary data presents limitations in terms of obtaining information of a qualitative nature. Other than that, sources of the data were too much cause difficulty to choose which of the data sources should be used. Missing data can caused the samples to be studied become less as sample with missing data cannot be used.

1.8 Conclusions

In this chapter, the researcher discussed the background of the study in greater depth as the background of the study was important in a study. The study was conducted to investigate the determinants of capital structure listed manufacturing companies in Singapore. Capital structure was a mixture of several types of securities such as long-term debt, common stock and preferred stock issued by companies to finance the company's assets (Qian et al., 2007). There were a number of firm specific determine the capital structure such as profitability, growth, tangibility, and size of firm (Pandey, 2001; Pathak, 2010). These were namely the factors used by previous researchers. There were two theories that are often associated with the capital structure decision; they were Pecking Order theory and Trade-Off theory (Eldomiaty, 2007; Qian et al., 2007). Chapter two will discuss the literature review of previous studies undertaken by other researchers. Next, chapter three will presents the sample and methodology used by researcher.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter will explain the determinants of capital structure that the researcher wants to study, which are profitability, firm size, asset tangibility and growth.

2.2 Determinants of Capital Structure

Kakani and Reddy (1998) drew a sample of 100 firms from the firms' population by using simple random sampling without replacement technique. Two periods were taken for the purpose of the study, they were the pre-liberalization period of the Indian economy; 1985 to 1989 and the post-liberalization period of the economy; 1992 to 1995. Econometric analysis was used by them to run the data. The decisions were during the pre-liberalization period, capital intensity, profitability, non-debt tax shields, and regulation were the significant factors that determine the total debt ratio. The reason that non-debt tax shields were positively related to the long-term debt ratio was the company cannot access the equity capital markets if free pricing of shares cannot be done by companies and they have to finance their own development projects with more debt in their capital structure. During the post-liberalization period, the significant factors were capital intensity, profitability, non-debt tax shields, net exports, earning risk, and uniqueness. Uniqueness turned out to

be highly significant positively related because unique firms need more capital than non-unique firms and for unique firms, cost to raise new equity was higher than the cost to raise short-term debt because investors were concerned in the long-term.

Consequently, the sample used by Sapar and Lukose (2002) contains cross-sectional data for 498 firms for pre-liberalization period, 1990 to 1992 and 1411 firms for post-liberalization, 1997 to 1999 listed on the Bombay Stock Exchange cover period from 1989 to 1999. This study used accounting data. Data then were calculated using paired-wise, correlation matrix, and regression method. Government, financial and non-manufacturing companies were excluded because they have different variables and rules in determining the capital structure. Funding decisions of big business and foreign costs were determined by the agency costs in which the tax effect and signalling effect has an important role in funding decisions. Results showed that cash operating profit and market-to-book ratio strongly significant negatively related with debt for both periods. These supported the Pecking Order theory. Profitable firms used internal funds and vice versa for low profit firms which were likely to use debt due to the lack of internal funds. The companies have tremendous growth opportunities were likely to owe for future funding. Risk showed no significant at all during the pre-liberalization because traditionally, the relationship between debt ratio and the chance to go bankrupt was predicted negatively. Size of the companies were exposed to significant positive during post-liberalization period in line with the conclusion that large companies were more diversified and have higher debt capacity, and faced lower direct cost of bankruptcy.

Other than that, Shah and Hijazi (2004) study was based on the data taken from the State Bank of Pakistan publication. The sample of their study was 445 firms listed on Karachi Stock Exchange from 1997 to 2001 excluding all firms in financial sector. Correlation, multicollinearity and regression were used to analyze the data. They found that insignificant asset tangibility, significant size and growth were positively correlated with leverage. This rejected the Trade-Off theory stated that debt level should be increased if fixed tangible assets on balance sheet increases. Larger firms in Pakistan borrow more than smaller firms. Growing companies in Pakistan use less debt than equity to finance new investment opportunities. This supported the simple version of Pecking Order theory that expressed growing companies would use internal funds initially to meet their financing needs. Profitability was significant negatively correlated with leverage suggested by the Pecking Order theory that profitable firms in Pakistan used more equity than debt.

Continuously, Hijazi and Tariq (2006) applied 16 firms in the cement sector which were listed on the Karachi Stock Exchange to explain the determinants of capital structure. The period of the data was range from 1996 to 2001. Pooled regression was used to analyze the data. They found asset tangibility and growth significant positively related with leverage because of fixed tangible assets increased in the balance sheet causes levels of debt to increase and growing companies in the Pakistani cement industry dependent on debt than equity to finance new projects. These results do not support the Pecking Order theory simple version that suggested a growing company would use internal funds initially to meet their financing requirements. But it supported the Pecking Order theory extended version that

proposed internal funds might be insufficient and causes the firm to use debt. Instead, they found no significant negatively correlated between size of the firm and debt as large companies issue more equity. The same relationship was shown by profitability for profitable firms use more equity than debt.

Instead of that, 135 non-financial and non-regulated Indian firms cover the years 1990 until 2009 were examined by Pathak (2010). The firm specific data were downloaded from COMPUSTAT Global Fundamentals database while the country specific data came from the Economic Intelligence Unit database of World Development Indicators. Two independent Ordinary Least Square was used by the researcher to examine the data. The results were tangible assets, size of firms and growth were significant positively related with leverage. The reasons were, larger firms were more diversified and have consistent cash flows hence they were affordable to obtain higher levels of leverage, and keeping low level of leverage was preferred by brighter growth opportunities firms so that creditors cannot take over their profits. Significant coefficients were also shown by business risk and profitability but in inverse relation. Asymmetric information theory suggests that firms would use retained earnings at first to finance their new investment before move to debt and equity as financing preference. Liquidity also showed negative relation with leverage but not insignificant. Conventional theories have predicted this type of correlation between liquidity and leverage.