THE DETERMINANTS OF CAPITAL STRUCTURE OF SMEs IN MALAYSIA: EVIDENCE FROM DIVERSE PLASTIC PRODUCT MANUFACTURERS

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ABSTRACT

The success of a company, especially Small and Medium Enterprises (SMEs), depends on the right decision in relation to its capital structure, whether to choose debt and/or equity. This paper analysed the capital structure of SMEs focusing on diverse plastic product manufacturers in Malaysia. In order to determine the capital structure of selected SMEs, the regression analysis was performed by focusing on the financial performance of 127 companies in the diverse plastic product industry in Malaysia from the period of 2009 to 2013.

In this paper, the short term and long term debts ratio are used to represent capital structure as the Dependent Variables. Meanwhile, age, size, profitability, asset structure, and growth are used as the Independent Variables. The result has confirmed that the SMEs business is in line with the Pecking Order Theory but not parallel with the Trade-off Theory. This study found that age, size, profitability, and asset structure are the major determinants of capital structure of SMEs. Age is positively related to the short term debts ratio. Meanwhile, size is negatively related to the short term debts ratio. In addition, this paper found that profitability is negatively related to both short term and long term debt ratio while asset structure is positively related to both short term and long term debt ratio. Growth factor does not influence the capital structure of the SMEs.

Keywords: Capital structure, small and medium enterprise (SMEs), Malaysia

ABSTRAK

Kejayaan syarikat, terutama Perusahaan Kecil dan Sederhana (PKS), bergantung kepada keputusan yang tepat berhubung dengan struktur modal, sama ada untuk memilih hutang dan/ atau ekuiti. Kertas ini menganalisis struktur modal PKS dengan memberi tumpuan kepada pelbagai pengeluar plastik produk di Malaysia. Dalam usaha untuk menentukan struktur modal PKS yang dipilih, analisis regresi dilakukan dengan memberi tumpuan kepada prestasi kewangan syarikat 127 di bawah industri pelbagai produk plastik di Malaysia dari tempoh tahun 2009 hingga 2013. Dalam kertas ini, nisbah hutang jangka panjang dan jangka pendek yang digunakan untuk mewakili struktur modal sebagai pemboleh ubah bersandar. Sementara itu, umur, saiz, keuntungan, struktur aset dan pertumbuhan digunakan sebagai pembolehubah bebas. Hasil kajian mengesahkan bahawa perniagaan PKS adalah selari dengan Teori "Pecking-Order" tetapi tidak selari dengan Teori "Trade-off". Kajian ini mendapati bahawa umur, saiz, keuntungan dan struktur asset adalah penentu utama struktur modal PKS. Faktor umur mempunyai hubungan yang positif dengan nisbah hutang jangka pendek. Sementera itu, saiz mempunyai hubungan yang negatif dengan nisbah hutang jangka pendek. Kertas kerja ini mendapati bahawa keuntungan mempunyai hubungan yang negatif dengan kedua-dua nisbah hutang jangka pendek dan nisbah hutang jangka panjang manakala struktur aset mempunyai hubungan yang positif dengan kedua-dua nisbah hutang jangka pendek dan nisbah hutang jangka panjang. Faktor pertumbuhan tidak mempengaruhi struktur modal PKS.

Katakunci:, Struktur modal, perusahaan kecil dan sederhana (PKS), Malaysia

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Capital structure is a combination of debt and equity. Most companies require financing because of insufficient internal financial resources to develop their business. In pursuing these funding resources, the management needs to shape the best policy of the company's capital structure. Usually, the proprietors or stockholders determine the source of funding after recommendations and advice from the management.

Capital structure describes how the company finances their projects and programmes. It also defines how the company allocates the profits between creditors and proprietors. According to Ross, Westerfield, and Jaffe (2010), a model of the capital structure shows the firm's choice of its debt-equity ratio. They determine the value of the company as follows:

$$V = D + E$$

Capital structure of a company can be measured using Debt to Equity Ratio (DER), which shows how large a proportion of the company's capital is as compared to its debt. The higher the DER, the higher the risk of the company as the debt is larger than the equity capital.

1.2 Background

Small and Medium Enterprises (SMEs) are the lifeblood of Malaysian Economy as they attract domestic investments in the country. The functions and contributions of SMEs are becoming increasingly significant in achieving Vision 2020 towards establishing an industrialized state. Hence, a well-designed plan is very crucial to incorporate SMEs as part of the New Economic Model strategy from the period 2010 to 2020.

SMEs are one of the principal contributors to the economies of the nation. They have contributed in various areas such as the establishment of the private sector, employment, import, export, and fixed assets value. SMEs provide many job opportunities, contribute to the increasing number of national savings, and attract foreign investments. Besides making a better income distribution for the country, they are also contributed to creating and enhancing the skills of the workforce, both at the operating level and management level. The flow of foreign technology transfer into the country will also be increased through efficient SMEs.

In Malaysia, SMEs play a significant role in income generation, employment, and promoting growth in the country. SMEs are the domestic source of growth and bedrock of private sector activity. It is important to stimulate modernisation and act as a stabilizer of growth during the economic slowdown. Latest statistic from SME Annual Report 2013/2014 shows that SMEs contribute 35% of Gross Domestic Product, 57% of employment, and 19% of exports.

Malaysia is one of the most competitive manufacturers in Asia. The high demand from many countries such as Thailand, Singapore, China, and Europe places Malaysia as one of the major exporters in the plastic products industry. There are more than 1,450 companies produce various forms of plastic products such as household products, packaging, and wrapping for many industries. However, this paper is only focusing on the diverse plastic product manufacturers that fall under SMEs, where their sales turnover is not exceeding RM50 million.

The diverse plastic product manufacturers are coordinated together under an association namely, The Malaysian Plastic Manufacturers Association. The primary purpose of the organization which was established in 1967, is to provide leadership and quality services to its member as well as to the plastic industry as a whole. Another important function of the association is to assist its members in applying loans especially for those SMEs facing difficulty in getting financial assistance from financing institutions through restructuring and rescheduling of the existing financing.

The capital structure of the SMEs differs with the large companies. The reason is that the SMEs provide a limited amount of information, especially the financial performance of the business. The large corporation, especially public listed, tends to provide more information to the lender rather than the small business (Rajan and Zingales, 1995).

1.3 Problem Statement

The growth of SMEs may help expand the size of the productive sector in Malaysia. While enjoying the growth and success, there is one major issue in finance which has been identified as the reason why some of SMEs fail to make a start or to progress.

This major problem is difficulty in getting external financing which usually lead to the other main problems. The new start-up businesses need funds to finance their business operations, marketing, or investment to realize the company's potential, thus producing positive and faster results, so this difficulty in raising funds will hinder their growth and expansion.

According to Westhead and Wright (2000) in Hussain, Millman and Matlay (2006), the major obstruction to the business is the inadequacy of funds to support its operation. Many previous researchers investigated the relationship between the variables of a firm's characteristics and the financing option selected, typically short term and long term financing.

Hussain et al. (2006) explained that at the start-up stage, most SMEs use their savings and financial support from the family members to fund the business. However, once the internal source of finance is no longer sufficient to meet the requirements of the company, most of them will seek the financial support from the banks or other financial institutions. The firm's reputation and a cordial relationship with the bankers is pertinent where they may assist the survival of SMEs.

However, most of SMEs would face the difficulty in raising the external financing, either short term or long term. This could be due to the asymmetric information problem and agency cost related to the lack of trading history. According to Chittenden, Hall, and Hutchinson (1996), the cost of asymmetric information and moral hazard in a smaller firm is greater than the larger firm. Unwillingness of SMEs manager to provide quality financial information restricts access to the external financing. Hence, lack of the ability to raise financing will put a constraint on the business cash flow, while at the same time affect the business performance and hinder the business to grow even faster.

The ability to present strong asset structure and high level of profitability may reduce the agency and asymmetric information cost. However, from the view of provider of outside capital, SMEs are considered high risk prospects because the SMEs usually have insufficient collateral and low level of profitability (Pettit and Singer, 1985).

The probability of default payment on financing may lead to the higher level of bankruptcy cost. Thus, the financial strength and ability to repay back the loan is major criteria in analysing the potential prospect before granting the loan. Titman and Wessels (1988) explained that the smaller firm may have a lower debt ratio due to the size of the firm which represents the level of bankruptcy cost.

Most of the studies found that the growth of SMEs is dependent on the external financing, provided by banks, financial institutions or venture capitalists (Michaelas, Chittenden, and Poutziouris, 1998; Michaelas, Chittenden, and Poutziouris, 1999; Cassar and Holmes, 2003; Hall, Hutchinson, and Michaelas, 2004; Sogorb–Mira, 2005; Nguyen and Ramachandran, 2006; Mac an Bhaird and Lucey, 2010; Degryse, Goeij, and Kappert,

2012; Barros, Nakamura, and Forte, 2013). When the SMEs expand their operations to reach their potential, the need for external financial resources becomes a critical issue as internal financial resources are insufficient to support this expansion (Hall et al., 2004).

Hence, the research problem statement is what is the impact of determinants to the firm's capital structure? Therefore, we can analyse how SMEs of diverse plastic products manufacturers in Malaysia are being financed.

1.4 Research Questions

This study seeks to determine the capital structure of the SMEs in Malaysia, focusing on diverse plastic product manufacturers. The research questions of this study are as follows:

1. What are the determinants of the capital structure of SMEs companies?

2. What is the proportion of debt in the capital structure of the SMEs in Malaysia?

3. Which capital structure theories are suitable to the SMEs financing?

1.5 Research Objectives

The primary aim of this research is to determine the capital structure of the SME companies in Malaysia, focusing on diverse plastic product manufacturers basing from the period of 2009 to 2013.

The specific research objectives are as follows:

1. To identify the impact of determinants to the firm's capital structure.

2. To measure the level of debt in the capital structure of the SMEs in Malaysia?

3. To identify the relevant capital structure theories to the SME financing.

1.6 Significance of the Study

In Malaysia, there are a few research works regarding the SMEs capital structure. A significant number of works focus more on public listed companies. However, this research is attempting to investigate the factors that influence the capital structure of Malaysia SMEs. The findings of this paper will provide significant benefit to the SMEs manager to choose the right selection of capital structure, particularly on those related to the external financing, either short term and/or long term financing. Hence, the right selection may maximize the value of the company. This paper will also furnish some ideas

and additional views to SMEs manager to minimize the asymmetric information problem and agency cost related to the lack of trading history.

Furthermore, the findings in relation to the impact of the determinants to the SMEs capital structure will assist the academicians and researchers to get some ideas and knowledge regarding the unique characteristic of SMEs which differ with the large or public listed companies that will influence the firm's capital structure. This will help them to gain better understanding about the capital structure of the SMEs business. The future researchers may have the idea and information to develop and enhance the research paper on this subject in the areas which are not covered in this research.

The findings of this paper can help the government policymaker, regulators, and statutory bodies to enhance the current regulation and create a more conducive policy environment to assist the SMEs to grow their businesses especially new start-up entrepreneurs as well as stimulating sustainable economic growth.

1.7 Scope and Limitations of the Study

According to the Malaysia Economic Report 2012/2013, the contribution from the manufacturing sector is 43.7% of the total exports, private consumption is 27.4% of the total exports, private investment is 8.4% of the total exports, and public consumption is 7.1% of the total exports, while public investment is 6.0% of the total exports. It can be concluded that the manufacturing sector is a major contributor to the national economy.

From the manufacturing sector, this paper has chosen the plastic products industry because it is one of the most dynamic and vibrant growth sectors within the Malaysian manufacturing sector. The largest competitive producer in Asia is Malaysia, where the demand of plastic products is the highest from many countries.

In the market segment for plastic products, diverse plastic products represent 42% of market share in the plastic industry. This is the reason this study concentrates on the SMEs companies which focus on diverse plastic product manufacturers in Malaysia. This study examines the determinant factors which influence the capital structure of SMEs in Malaysia. 127 companies, with 635 firm-year observation are identified from Companies Commission of Malaysia. The sample period covers from the year 2009 to 2013.

The limitation of this study is unavailability of data from online and limitation of previous literature. First, this study is focusing on small and medium enterprise where most of the financial data on them are not available online and need to be collected and manually extract from Companies Commission of Malaysia. Second, limitation of previous literature about the capital structure of the small and medium enterprise. Most of them

prefer to produce empirical research on the capital structure of the large listed companies in view of data availability.

1.8 Organization of the Thesis

This study starts with an introduction to chapter one. This chapter discusses the background of the study, research questions, and objectives, significance of the study, scope and limitation of the study.

Chapter two presents the previous literature related to this study in order to develop a hypothesis for this research. They are divided into three sections namely theoretical review, empirical review and hypothesis development.

The third chapter concentrates in shaping the research design, data and sample collection, and variables selection.

The fourth chapter discusses in detail about the result and empirical findings. The empirical finding is analysed and explained whether a hypothesis is accepted or rejected.

Then, the main conclusion and recommendation which is derived from the analysis of data are pointed out in chapter five.

CHAPTER 2

LITERATURE REVIEW

2.1 Theory of Capital Structure

There are many theoretical and empirical studies explaining in detail the impact of using leverage in the firm's capital structure. Beginning with the theory of Modigliani and Miller (MM Theory), many studies have since been developed to extend the original MM theory to generate a better theory of capital structure. More variables of the economic activities are taken into account in their studies in addition to what MM theory selects. Overall, the theory related to the capital structure is Pecking Order Theory, Static Trade-off Theory, Agency Theory, Asymmetries Information Theory, and Cost of Distress Theory.

Modigliani and Miller (MM) Theorem, proposed by Franco Modigliani and Merton Miller, is the first theory of capital structure. It is also known as the Irrelevance Proposition by most of the scholars because it is purely a theoretical result since it disregards many important factors in the capital structure process such as transaction cost, taxes, agency costs, bankruptcy cost, and asymmetric information. There is no such thing as a perfect capital market in the real economy. MM theorem asserts that the capital structure does not impact the value of the firm. The firm's value is determined based on its earning power and business risk (Modigliani and Miller, 1958).

Further study is developed by Modigliani and Miller (1963) which introduce the static trade-off theory as most countries impose a tax on corporations. However, interest on debts is a tax deductible that will result in the decrease of the amount of taxes to be paid. This trade-off theory can adduce that the value of a firm with a high level of debt exceeds the value of firm without any financing. Consequently, most corporations maximize their value by maximizing the use of debts.

According to Ehrhardt and Brigham (2011) and Sogorb–Mira (2005), many previous studies demonstrated that many large firms might choose a higher leverage in their capital structure policy in view of the fact that the company shall derive benefits from tax shield on the interest payment. The firm with a higher tax bracket will enjoy more tax benefit. However, this strategy is not relevant to the SMEs business which could be due to two factors, profitability and financial distress.

According to Hall et al. (2004) and Sogorb–Mira (2005) the SMEs, unlike large firms, would not face the same trade-off between the cost and tax shield. First, the smaller firms are not as profitable as larger firms. The low level of profitability could be one of the reason that SMEs have less purpose for the debt tax shield, ceteris paribus. The tax shield is less valuable to them. This could also be due to the lack of knowledge among managers of SMEs. The SMEs do not realize the benefit derived from the tax shield. Therefore, the SMEs do not reach the target of trade-off theory due to the lower tier of debt use. In addition, the empirical evidence found that the tax rates do not influence the level of debt in the SMEs business (Pettit and Singer, 1985; Michaelas et al., 1999).

Second, the extreme effect of trade-off theory that could happen to the company is financial distress. The SMEs face higher bankruptcy rates due to the higher business risk. Bankruptcy costs are in the form of direct and indirect. For example, direct bankruptcy costs are legal and administration costs. Meanwhile, the indirect cost is the cost of loss of profit due to the unwillingness of stakeholders to do business with them. During this difficult time, it is very hard for the company to retain customers, suppliers, and employees. Moreover, they may miss the investment opportunities, and their asset may be coerced to sell to meet liquidity demands.

The bankruptcy-related problem may arise in a situation where a firm obtained a lot of debts, thus increasing debt equity ratio. The firm with more volatile products will be the first to be hit and may face a greater possibility of bankruptcy more than a stable firm. Therefore, the manager of a company must be vigilant and quickly rectify the situation by reducing the financial leverage. Most of the SMEs are a family owned business which has a great amount of sentimental value to the owners. Because of these factors, the SMEs do not prefer to use a high level of debt use.

Static trade-off theory explains the benefit of financing the firm's operation from both debt and equity. The firm may have the optimal capital structure when the trade-off between costs and merits of debt are equal. According to Jensen and Meckling (1976) the cost of static trade-off theory represents the agency cost arising from the owners and creditors, and also from the cost of financial distress. Meanwhile, merit is the benefit of tax shield (Myers, 1984).

According to the hierarchy of this theory, SMEs are generally using the internal funding (i.e. firm owner, retained earnings, funding from family and friends) as a first consideration, followed by debt financing, and then followed by issuing equity to an outsider (Myers, 1984). The primary reason why the Pecking Order is suitable for SMEs is because SMEs are usually a family-owned business which has a great amount of sentimental value and hereditary. Consequently, the firm owner prefers to maintain, sustain, and control the managerial role itself rather than passing the growth opportunities to another provider of capital. The owner-managers do not like outside intrusion in the company's decision making process.

The structure of SMEs and the accessibility to the capital markets is different from that of large listed companies. The owner of SMEs business is usually a single shareholder who at the same time is also a director or a manager of the company. Hence, the owner prefers debt instead of equity as a source of financing because the issuance of new equity would dilute the shareholding of the owner-manager. Therefore, it will lead the owner-manager to have less control in the company (Sogorb–Mira, 2005). According to Chittenden et al. (1996), the SMEs do not prefer to use equity as a source of financing because the cost of external equity is higher compared to debts. Issuing of new equity is not only expensive to organize, but it may also be subject to underpricing.

As the firm develops and matures, the firm has an opportunity to accumulate their retained earnings. Hence it will reduce reliance on the personal funds, friend, and kin. If the firm has insufficient funds and then get external financing to support its operations, it will normally opt to utilize the debt financing rather than getting external equity. This action

is considered because the owner is protecting his business from intrusion by the provider of capital. The other reason is due to the cost factor as the debt financing is generally less expensive than external equity.

Nevertheless, the Pecking Order Theory is not only referring to the demand side, but also on the supply from the provider of outside capital. Some literature concluded that most start-up firms would face difficulty in raising external financing. The reasons for this difficulty include asymmetric information, agency cost, bankruptcy risk, and lack of trading history and collateralisable assets.

As stated above, agency cost and asymmetric information problems are the main reason why SMEs are facing difficulty in accessing the external financing either short term or long term. The problem of agency cost may arise in SMEs because of their unwillingness to provide the financial information. This problem will lead to the company to have high levels of asymmetry cost. The manager should be more transparent in producing and presenting the quality of financial data in order to reduce the cost of asymmetric information.

Agency theory is about the relationship between the agent (manager) and the principal (the shareholders). This theory assumes that there is a separation of ownership between management and principal where sometimes this will create conflicts among them which will lead to tensions thus resulting in high agency cost. The conflicts may arise where the stakeholders' objective is to maximize the stakeholders' wealth, but the objective of the agent or management contradicts with that of stakeholders. This simply means that the management is not able to meet the objective of their principal.

According to Jensen and Meckling (1976) the use of debts in the capital structure will lead to the increase in the agency cost because of the conflicts that emerge between manager and shareholder. According to Chittenden et al. (1996), the conflicts between debtholder and shareholder is due to moral hazard where it arises because of different types of claims on the firm. This theory suggests that a small firm tends to have more asymmetric information and moral hazard as compared to a large firm. However, Jensen and Meckling (1976) argued that the SMEs tend to have less conflict between principal and agents. This is because the SMEs owner, and the manager are the same person.

Myers and Majluf (1984) explained that the cost of financing increases due to the asymmetric information between insiders and outsiders. This is because the "inside" management has better information about the value of the company rather than the "outside" stakeholders and other investors.

The borrowing behaviour of the SMEs is significantly influenced by the asset structure, size, and profitability of the company. Banks or financial institutions normally require the company to produce assets as collateral as well as the personal guarantee of the owner before disbursing any loans. As such, SMEs who do not have access to the collateralisable assets such as land or house will find it difficult to get the loan application approved. The reason is that the financial institutions consider SMEs business to be in the high-risk category (Pettit and Singer, 1985). Therefore, collateral is very crucial in granting the loan to SMEs, hence reducing the agency and asymmetric information cost.

According to Berger and Udell (1998), SMEs face higher finance costs and demand for collateral. Therefore, managers of SMEs prefer to rely on an internal source of financing such as personal savings, family, kin, and friends.

In addition to that, to a larger extent, growth opportunities of the company negatively influence the decomposed leverage of SMEs. However, the element of growth opportunities can attract the provider of outside capital in evaluating the SMEs business.

2.2 Empirical Review

The capital structure of a firm varies in size, type, sales, liquidity, and growth. Moreover, the empirical literature of the capital structure is vast and diverse. Most of the researchers investigate the behaviour of stock market-listed companies to determine their capital structure. Only a few authors investigated the capital structure of SMEs due to the limitation in getting companies' financial statements.

Michaelas et al. (1999) investigated the capital structure of 3,500 SMEs from various industries in the United Kingdom from 1986 to 1995. The empirical finding shows that size has a significant positive relationship with the total debt ratio, where $\beta = 8.18$ and $p<0.05$. The result indicates that a large firm with higher debt would be able to maintain the sustainability of business, whereas small firm seems to have some difficulties in expanding their business. This paper suggests that when the firm grows larger, it tends to engage more long term debt rather than short term debt. The reason is that the transaction costs of the large scale of financing are lower than the small scale of financing.

In contrast, this research found that age has a significant negative relationship with the total debt ratio, where $\beta = -0.002$ and $p<0.001$. The result reveals that young firm prefers more external finance as compared to the old firm as they have the accumulated earnings to finance its operations. Consistent with Pecking Order Theory, profitability has a significant negative relationship with the leverage ratio, where $\beta = -0.409$ and $p<0.001$. This result supports the notion that the SMEs may utilize their internal financing rather than external financing.

In studying the relationship between growth and gearing ratio, this paper found that growth has a significant positive relationship with both short term and long term debt, where $\beta = 0.008$ and $p<0.001$, and $\beta = 0.004$ and $p<0.001$, respectively. This result shows that the effect of growth on short term debt is larger than that of long term debt. Similarly, the result also indicates that future growth has a significant positive relationship with the gearing ratio, where $\beta = 0.422$ and $p<0.001$. Consistent with the Pecking Order Theory, this result reveals that fast growing SMEs prefer to utilize external financing in view of the fact that their retained earnings are insufficient to finance the determinants of growth such as research and development expenditure.

This paper further signifies that business risk has a significant positive relationship with both short term and long term debt, where $\beta = 0.028$ and $p<0.01$, and $\beta = 0.010$ and $p>0.05$, respectively. This result indicates that SMEs in the higher business risk situation tend to utilize more short term and long term debt.

On the other hand, the result provides strong support that asset structure and stock level are important factors to be associated with the higher short term debt as well as long term

debt, where $\beta = 0.313$ and $p<0.001$, and $\beta = 0.359$ and $p<0.001$, respectively. This result provides the evidence to support that strong asset structure reduces the asymmetric information and agency cost. In view of this, the lender is unwilling to provide a loan to the small firm. In the end, the firm needs to produce collateral to the financier in the form of assets or stocks in order to secure financing. In summary, SMEs with strong asset structure and have a high level of inventory can raise more debt, in general, long term debt in particular.

This paper has further found out that net debtors have a significant positive relationship with both short term and long term borrowing, where $\beta = 0.313$ and $p<0.001$, and $\beta = 0.359$ and $p<0.001$, respectively. This result reveals that SMEs are suffering from cash flow upheaval because of overdue payment from customers. To mitigate this situation from happening, SMEs will opt to use external financing, particularly short term debt and at the same time delay the payments due to creditors.

Cassar and Holmes (2003) investigated the determinants of the capital structure and the use of leverage for SMEs on the 1,555 Australian firms from 1995 to 1998. The empirical finding indicates that size has a significant positive relationship with the leverage, where $\beta = 3.236$ and $p<0.01$. The result shows that large SMEs reduce asymmetric information cost and transaction cost.

However, the researcher found that asset structure has a significant negative relationship with the short term debt, where $\beta = -36.649$ and $p<0.001$. In contrast, this paper found that asset structure has a significant positive relationship with the long term debt, where $\beta = 22.230$ and $p<0.001$. The result shows that the firms will match the duration of assets

with the leverage. With respect to profitability, the researcher found that there is a significant negative relationship between profitability and leverage, where $\beta = -33.543$ and $p<0.001$. Basing on these two results on asset structure and profitability, the financial institution will put a substantial focus on the firm's asset structure rather than its operations, in providing loans to SMEs.

Furthermore, this paper found that growth has a significant positive relationship with the short term debt, where $\beta = 13.675$ and $p<0.01$. This result reveals that in order to meet the increasing needs of working capital for growth, the SMEs tends to use short term debt in their capital structure.

Hall et al. (2004) conducted a study on financial data of 4,000 SMEs, 500 from each of 8 European countries. This study examined the degree of differences in the determinants of SMEs capital structure among European countries. The strongest factor that affects capital structure is the collateral where the study showed that SMEs in the European countries have statically positive relationship between the collateral and both the short term and long term debt.

However, the weakest factor in determining the capital structure is growth where empirical finding showed that SMEs in Italy have a significant positive relationship between growth and short term debt, where $\beta = 0.042$ and $p<0.01$. Meanwhile, for SMEs in Spain, the researcher found that growth has a significant positive relationship with the long term debt, where $\beta = 0.041$ and $p<0.01$. The researcher concluded that there are some variations on the effect of the determinants of capital structure between these countries.

Sogorb–Mira (2005) conducted a study on 6,482 firms from the period of 1994 to 1998 to examine the influence of firm's characteristic to the SMEs capital structure in Spain. The empirical result reveals that non-debt tax shield, profitability, growth options, and asset structure influence the SMEs capital structure. The empirical finding shows that non-debt tax shield has a significant negative relationship with the leverage, where $\beta = -0.681$ and $p<0.01$. This result shows that SMEs may resort to less financing as they would be able to reap benefits from using another alternative of tax shield. Similarly, consistent with Pecking Order Theory, this paper found that profitability has a significant negative relationship with the total debt, where $\beta = -0.154$ and $p<0.01$. The result indicates that the more profitable SMEs would tend to use their internal funds rather than external financing to support their operations.

The researcher found that size has a significant positive relationship with the leverage, where $\beta = 0.044$ and $p<0.01$. This result shows that the large SMEs would use more debts in order to hold greater bargaining power towards their creditors. Similarly, growth has a significant positive relationship with the leverage, where $\beta = 0.135$ and $p<0.01$. This result supports that the SMEs would use more debts in order to fulfil working capital needed to finance growth activities. Furthermore, this paper found that asset structure has a significant positive relationship with the leverage, where $\beta = 0.022$ and $p<0.01$. This result confirmed that SMEs would use the assets as a collateral to reduce the moral hazard and adverse selection costs in getting the external financing.

Nguyen and Ramachandran (2006) conducted a study on 558 SMEs from the period of 1998 to 2001 to examine the influence of specific determinants of SMEs capital structure

in Vietnam. The result shows that most SMEs employed short-term debt to finance their operations. The empirical result reveals that growth, business risk, firm size, networking, and relationships with the bank are positively related to the capital structure while tangibility is negatively related. However, profitability has no significant impact on the capital structure.

The empirical finding shows growth to have a significant positive relationship with all measure of capital structure, where $\beta = 0.045$ and $p<0.01$. The result reveals that Vietnamese SMEs prefer to raise funds through debt in order to meet the increasing requirement of working capital to propel growth. Similarly, business risk has a significant positive relationship with the short term debt, where $\beta = 0.088$ and $p<0.001$ shows that higher business risk would lead to the preference of SMEs to use debt to meet their financial obligations.

In addition, the researcher found that size has a strong influence toward the capital structure. They found that size has a significant positive relationship with all measures of capital, where $\beta = 0.224$ and $p<0.001$ reveals that the large firms prefer to use more debt to finance their operations as compared to small firms (Chittenden et al., 1996).

The researcher further found tangibility to have a significant negative relationship with all measure of capital structure, where $\beta = -0.077$ and $p<0.01$. However, these figures show that the effect of tangibility on the capital structure is weak as compared to other determinants.

Relationship with the bankers and strong networking are also important in determining capital structure. This paper provides strong evidence to support this hypothesis. The relationship with the bank can be categorized as business relations as well as social relations. The empirical finding shows that both categories have significant positive relationship with the debts ratio, where $\beta = 0.413$ and $p<0.001$, and $\beta = 0.205$ and $p<0.001$, respectively. It implies that the bankers' trust on SMEs would gradually increase once they establish a cordial relationship with their respective banks.

For networking, the result shows that networking has a significant positive relationship with all measure of capital structure, where $\beta = 0.156$ and $p<0.001$. It indicates that the level of networking has a strong impact towards the capital structure which simply means that the SMEs would employ more debt when they have a strong network.

Abor (2008) conducted a study on 22 publicly quoted firms, 55 large unquoted firms, and 230 SMEs from the period of 1998 to 2003 to examine the influence of the determinants of capital structure in Ghana. The result of this study reveals that quoted and large unquoted firms exhibit significantly higher debts ratios than SMEs. The empirical findings show that age of the firm has a statistically positive relationship with the long term debts among SMEs, where $\beta = 0.0090$ and $p<0.05$. The result indicates that the older SMEs are able to solve the issue of asymmetric information and present good credit history. Similarly, the researcher found that size has a significant positive relationship with short term debt ratio, where $\beta = 0.0679$ and $p<0.001$. The result reveals that the larger SMEs have easier access to the short term credit.

Meanwhile, asset structure was found to have a significantly negative relationship to short term debt ratio, where $\beta = -0.3820$ and $p<0.001$. This result reveals that firms tend to match their duration of an asset with liabilities. Similarly, the result shows a significant negative relationship between profitability and the short term debt ratio, where $\beta = -0.3272$ and $p<0.001$. The result is in line with the Pecking Order Theory where profitable SMEs would use retained earnings as much as possible, and only opt to raise debt should additional finance be needed.

On the other hand, this paper found a significant positive relationship between risk and short term debt, where $\beta = 0.0028$ and $p<0.001$. This result indicates that firm with high risk prefer short term debt because they have no choice to support their operation. However, in terms of ownership, the researcher found a significant negative relationship to the short term debt ratio, where $\beta = -0.2935$ and $p<0.001$. This result reveals that SMEs with a high percentage of managerial shareholders would depend less on short term debt.

Mac an Bhaird and Lucey (2010) presented the determinants of the capital structure of 299 Irish SMEs. The empirical finding shows a significant positive relationship between age and retained profits, where $\beta = 0.030$ and $p<0.05$. This paper also found a significant positive relationship between size and retained profits, where $\beta = 0.035$ and $p<0.01$. Similarly, size has a significant positive relationship with the long term debt, where $\beta = 0.016$ and $p<0.01$. This result supports the Pecking Order Theory that the debt is employed when the internal financing is insufficient to meet the requirement working capital.

Meanwhile, the intangible activity namely research and development (R&D) has a significant negative relationship with the retained earnings, where $\beta = -0.098$ and $p<0.001$ but has a positive relationship with the external equity, where $\beta = 0.113$ and $p<0.001$. This finding highlighted that the liquidity constraint as a result of inadequate retained profits would lead to the company seeking additional external financing to support their investment.

In addition, the researcher found that ownership structure of the firm is also an important factor affecting the capital structure. The empirical finding shows that the ownership structure and the use of external equity have a significant negative relationship, where $\beta = -0.158$ and $p<0.001$. This result provides further evidence that the SMEs prefer to maintain, sustain, and control the managerial role itself rather than passing the growth opportunities to another provider of capital (Michaelas et al., 1998).

Collateral is an important factor that influences the debt financing to be either short-term debt or long-term debt. This paper found a statistically significant relationship between collateral in the form of fixed asset with both short-term and long-term debt, where $\beta = 0.147$ and $p<0.001$, and $\beta = 0.110$ and $p<0.001$, respectively. The researcher found that the influence of the above factors is similar across industry sectors, whereas the asymmetries of information is the crucial issue in getting the loan. SMEs may provide collateral in the form of personal assets in order to secure their external financing to meet the requirement of growth opportunities such as research and development.

Degryse et al. (2012) conducted a study on Dutch SMEs from the period of 2003 to 2005 to examine the impact of firm and industry characteristics to the capital structure. The

empirical finding shows a significant negative relationship between profitability and short term debt, where $\beta = -0.034$ and $p<0.05$. This result indicates that profitable SMEs prefer to use internal funds rather than external financing to maintain control and to protect their business from the intrusion of capital providers.

Concerning growth opportunities, the researcher found a significant positive relationship between growth and long term debt, where $\beta = 0.022$ and $p<0.05$. This result reveals that firm with high intangible assets has the capability to employ long term debt to support future growth activities. Consistent with Pecking Order Theory, it concludes that Dutch SMEs prefer to use the profit to reduce their debt level while growing SMEs will increase their long term debt level.

On the other hand, the researcher found that size has a significant positive relationship between both short term and long term debt, where $\beta = 0.004$ and $p<0.05$, $\beta = 0.019$ and $p<0.05$, respectively. This result indicates that the larger SMEs tend to employ long term debt rather than short term debt as they have the financial capability, professional staff, and strong bargaining power towards the lender. Similarly, net debtors have significant positive relationship related to the leverage, where $\beta = 0.161$ and $p<0.05$. Consistent with the maturity-matching principle, this result reveals that SMEs with a low level of net debtors may have lower debt ratios, while SMEs with a high level of net debtors may have higher debt ratios.

In SMEs, collateral is important because it helps firms to reduce the asymmetric information cost in getting the financing. In this paper, the researcher found that asset structure has a significant positive relationship with the long term debt but significant

negative relationship with the short term debt, where $\beta = 0.546$ and $p<0.05$, and $\beta = -0.195$ and $p<0.05$, respectively. This result reveals that the SMEs with strong asset structure tend to employ more long term debt rather than short term debt. The reason is the cost of both debts differs where the cost for long term debt is lower than short term debt. Finally, the researcher found that tax rate has a significant negative relationship with the leverage, where $\beta = -0.109$ and $p<0.05$. This result supports that the benefit from the tax shield would reduce the needs of external financing.

Barros et al. (2013) conducted a study on 19,272 Brazilian firms from the period of 1994 to 2006. The data of this study measures size, age, asset structure, risk, industry, and leverage as samples of small enterprises. The outcome of this study indicated that profitability has a significant a negative relationship with the leverage, where $\beta = -0.495$ and $p<0.001$. Meanwhile, asset growth has a significantly positive relationship with the leverage, where $\beta = 0.144$ and $p<0.001$. Both results are in the line of Pecking Order Theory, where SMEs will only prefer external financing once they exhaust their internal funds.

In addition, the researcher found that size has a significant positive relationship with the leverage, where $\beta = 0.009$ and $p<0.01$. It can be taken as evidence that larger firms have more access to credit facilities. However, this researcher found that risk has a significant negative relationship with the leverage, where $\beta = -0.108$ and $p<0.01$. The SMEs with high risk may prefer less financing due to the bankruptcy cost. Similarly, the age has a significant negative relationship with the leverage, where $\beta = -0.023$ and $p<0.001$ suggesting that the older firm is more conservative in their financing choice.

2.3 Hypothesis Development

The importance of SMEs in regional integration, production networking, and the age of globalization is widely established and documented in the most empirical studies. There are many variables used in previous empirical studies especially age, size, profitability, asset structure, stock turnover, business risk, growth, and future growth to determine the factors that influence the capital structure. In addition, the external factors such as political and economic condition also influences the level of debt.

To analyze the impact of the determinants of capital structure, short term and long term debt is used as dependent variables (Michaelas et al., 1999; Cassar and Holmes, 2003; Hall et. al, 2004; Sogorb–Mira, 2005; Abor, 2008; Mateev and Ivanov, 2011; Degryse et al., 2012; Saarani and Shahadan, 2013). The main reason for not using total debt in the study is because the impact of independent variables on the total debt is a net opposite impact on both short-term and long-term debt (Chittenden et al., 1996). Meanwhile, the determinants chosen are size, age, profitability, growth, and asset structure.

2.2.1 Firm Age and Short Term and Long Term Debt

The standard measure of the reputation of a firm is its age. The young firms prefer the external financing because they face the problem of insufficient funds to support their activities. Usually, at an early stage of business, a new firm probably generates less profit as they need to use more funds to support their operation. Therefore, the possibility of retaining profit is less than mature firms.

However, in SMEs scenario, at an early stage of business, the young SMEs mainly raise funds internally. The main reason is because SMEs may encounter some difficulties in securing sources of financing due to the agency cost and asymmetric information problems. The asymmetric information problem arises because SMEs are reluctant to provide a quality financial statement which can demonstrate the financial strength and their abilities to repay back the loan. Therefore, the SMEs do not satisfy the requirements of the provider of outside capital in getting the external financing.

Abor (2008) opined that the older SMEs are able to solve the issue of asymmetric information and present good credit history. The longer the firm is in the business, the higher the possibility that they can generate more debt. Based on standard procedure, the banks or financial institutions will evaluate the creditworthiness of the borrower before granting the loan, Diamond (1989) suggested to use strong reputable companies in evaluating the creditworthiness of the borrowers. The reputable company refers to the name or goodwill which the firm has built up over the years, and the market recognizes it. Hence, the older the age of the firm, the better its reputation will be. Petersen and Rajan (1994) in Abor (2008) found that older firms have higher debt ratios rather than young firms since they are considered as quality firms.

Meanwhile, a successful and matured firm has an opportunity to accumulate retained earnings over the years as compared to a newly start-up firm (Hall et al., 2004). They can reinvest the retained profits in current and/or future projects. Therefore, the older firm prefers using internal funds rather than external financing to support its activities (Michaelas et al., 1999; Mac an Bhaird and Lucey, 2010 and Barros et al., 2013). These

studies confirmed that the SMEs behaviour are in line with the Pecking Order Theory, where the SMEs will only prefer the external financing once they have exhausted the internal funds. Therefore, Pecking Order Theory proposed the following hypothesis to test the age factor:

H1: Age has a significant positive relationship with the short-term debt.

H2: Age has a significant negative relationship with the long-term debt.

2.2.2 Firm Size and Short Term and Long Term Debt

The size of the company has an impact on the availability of debt-financing. According to Chittenden et al. (1996) and, Nguyen and Ramachandran (2006), the larger firms prefer to use more debt to finance their operations compared to the smaller firms. The banks or financial institutions are more interested in dealing with a large firm as this will reduce the risk of default payments. A small firm has a high potential of default compared to a large firm. According to Rajan and Zingales (1995) in line with static-off theory, the probability of default for a smaller firm is higher because the more debt financing the company has, the more the potential costs of bankruptcy will be.

It is relatively more costly to resolve asymmetric information within small-scale enterprises which will eventually influence the banks' or financial institutions' lending decisions. A financial institution may offer lesser financing amount or offer to finance at a significantly higher cost than a large firm. Cassar and Holmes (2003) revealed that the large size of firms may reduce asymmetric information cost and transaction cost. This is

because the larger firm is more transparent in terms of the quality of financial information hence reducing the problem of asymmetric information. This is one of the reasons that the large firm has more chances of securing debt financing rather than a small firm.

According to Titman and Wessels (1988), the transaction costs associated with financing may also affect the financing choices. The small scale of financing may lead to higher transaction costs. Therefore, the large companies may prefer long term debt rather than short term debt to reduce the amount of transaction costs incurred. According to Michaelas et al. (1999) the larger SME tends to employ long term debt rather than short term debt as the transaction costs of large scale financing is lower than a smaller scale of financing.

Considering the potential of bankruptcy, business risk, and transactions cost, this may discourage SMEs to use an external financing, particularly short term financing. Most of the SMEs are a family-owned business which has a great amount of sentimental value and hereditary. In line with the Pecking Order Theory, the SMEs will use their internal funds rather than external financing. The reason is because when the SMEs engage with the external financing, it is likely to pass the intergeneration business to the provider of outside capital. Hence, the following hypothesis is proposed:

H3: Size has a significant negative relationship with the short-term debt.

H4: Size has a significant positive relationship with the long-term debt.

2.2.3 Firm Profitability and Short Term and Long Term Debt

The profitable firm is considered as a quality firm and therefore would be able to obtain the debts with ease and on schedule. The banks or financial institutions is more interested in a profitable firm as a lending prospect. Therefore, the profitable firm can always get more debt capital rather than the less profitable firm.

In contrast, in line with the Pecking Order Theory, Michaelas et al. (1999), Cassar and Holmes (2003), Sogorb–Mira (2005), and Abor (2008) revealed that most of the profitable firms would use their internal funds rather than external financing. These studies confirmed that the Pecking Order Theory is appropriate with the SMEs behaviour.

The profitable firms have an access to accumulate their earnings from time to time. They have a capability to finance its operation internally and as opposed to depending on the external resources (Michaelas et al., 1999). Adedeji (1998) in Hall et al. (2004) found that the company which has more earnings would borrow less. The reason is to restrict or control the firm from any intrusion by the provider of outside capital. This argument is relevant to SMEs business where it is a family-owned business, and they have a great amount of sentimental value and hereditary. In line with this argument, the proposed hypothesis follows:

H5: Profitability has a significant negative relationship with the short-term debt.

H6: Profitability has a significant negative relationship with the long-term debt.

2.2.4 Firm Asset Structure and Short Term and Long Term Debt

Assets structure is related to the cost of financial distress. The firm with lots of tangible assets shows that it already has a stable source of return because of the internally generated funds from these assets. The degree of the firm's assets' tangibility represents the extent of the firm's liquidation value (Hovakimian, Hovakimian, and Tehranian (2004).

Tangible assets can be pledged as security in obtaining the loan. Usually, banks or financial institutions will request collateral as a security or guarantee, should the loan default. The more tangible assets the company has, the less probability of default payment. In analysing the creditworthiness of the customer, Cassar and Holmes (2003) revealed that the financial institution places more focus on the firm's asset structure rather than its operations before granting the loan.

According to Myer (1977), banks or financial institutions would usually determine the tenure of the loan based on the life of the assets being used as collateral. This is supported by Abor (2008) who found that asset structure is negatively associated with the short term debt which is consistent with the maturity-matching principle, showing that the firms tend to match their duration of asset with the liabilities.

The requirement to produce collateral is a serious issue in providing long term debt which has put some constraints on SMEs business. Pettit and Singer (1985) opined that the SMEs business is considered as high risk prospects due to the insufficient collateral and less profitability. According to Sogorb–Mira (2005) the presentation of asset structure will reduce the moral hazard and adverse selection costs in the SMEs businesses.

The provider of outside capital will offer lower interest rates if the firm can pledge strong asset structure. According to Michaelas et al. (1999) the asset structure and stock level is an important indicator associated with both short term and long term debt. Their findings provide the evidence that the strong asset structure may reduce issue of asymmetric information and agency cost.

In addition, SMEs may provide personal assets as collateral in order to secure their external financing (Mac an Bhaird and Lucey, 2010). On the other hand, Degryse et al. (2012) found that the SMEs with strong asset structure tends to employ more long term debt rather than short term debt. Hence, the following hypothesis is:

H7: Asset structure has a significant positive relationship with the short-term debt.

H8: Asset structure has a significant positive relationship with the long-term debt.

2.2.5 Firm Growth and Short Term and Long Term Debt

Growth is one of the factors that pushes the firm to employ the external financing (Hall et al., 2004). It is supported by Timmons (1994) in Thornhill, Gellatly and Riding (2004) whom stated that the requirement of capital requirement differs according to the firm's evolution.

According to Barros et al. (2013), the firms with high growth rates may seek for the external financing. In line with the Pecking Order Theory, a firm may seek the external debt once they exhaust their internal funds. Therefore, the firms with high growth rate

will be more leveraged. Cassar and Holmes (2003), Sogorb–Mira (2005) and Nguyen and Ramachandran (2006) revealed that the SMEs tend to use short term financing in order to meet the increasing needs of the working capital for growth. The fast growing SMEs may prefer to use external financing as their retained earnings are insufficient to finance their growth activities such as research and development expenditure internally (Michaelas et al., 1999).

Nevertheless, the Pecking Order Theory is not only referring to the demand side, but also on the supply from the provider of outside capital. Myers (1977) stated that underinvestment problems would cause the creditors to reduce the supply of funds in the companies with more growth opportunities. In addition, the growth opportunities can create a moral hazard situation, and it can give risk to the small-scale entrepreneurs to grow.

On the other hand, Myers (1977) stated the high leveraged firm will transfer the wealth of the firm's owner to the provider of outside capital. It is likely that the firm will transfer their profitable investment opportunities.

In the case of SMEs business, growth opportunities of the company negatively influenced the decomposed leverage. SMEs business, usually, is a family-owned business which has a great amount of sentimental value and hereditary. The firm owner prefers to maintain, sustain, and control the managerial role itself rather than passing the growth opportunities to another provider of capital.

Therefore, the SMEs with high growth opportunities may not consider the debt financing to support their activities. In line with this parameter, the proposed hypothesis is:

H9: Growth has a significant negative relationship with the short-term debt.

H10: Growth has a significant negative relationship with the long-term debt.

CHAPTER 3

METHODOLOGY

3.1 Research Design

This study aims to examine the relationship between capital structure (short-term and long-term debt) and its unique characteristics; age, size, profitability, asset structure, and growth.

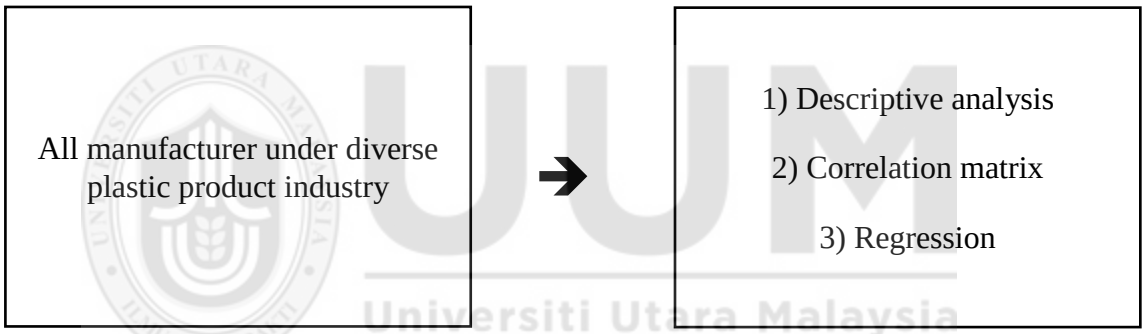

Figure 3.1
Research Design

3.2 Data and Sample Selection

3.2.1 Sampling

The sample frame employed in this study is the list from SME Corporation which is focused on diverse plastic product manufacturer. According to the Department of Statistics Malaysia, the manufacturing sales value increases from year to year.

Sales value in the manufacturing sector in October 2014 increased due to the contribution from higher sales in five major manufacturing industries in which the sales value of electrical capacitors and resistors increased about 29.1%, basic organic chemicals increased about 15%, condensed powder and evaporated milk increased about 38.7%, diverse plastic products increased about 59.0%, and cocoa products increased about 35.6% as compared with the sales value of the corresponding month in 2013.

Rapid growth in sales value in the above statistics shows that there is high demand in the plastic product industry. We choose the diverse plastic product manufacturer as they are considered as a small and medium enterprise which sales turnover is not exceeding RM50 million and one of the major contributor to Malaysia's economy.

3.2.2 Data Collection Procedures

In order to test the proposed hypotheses, we used a panel data methodology where the data are collected from the year 2009 to the year 2013. Selected sample comprises of all companies from manufacturing industry which focus on the diverse range of plastic products. From the information provided by SME Corporation, there are 751 companies in this industry, but only 295 companies are active companies. From the list of active companies, if the data related to capital structure and SMEs unique characteristics are incomplete or unavailable, it was excluded from the sample. The selection criteria required all firms to make responses to all of the variables required for analysis for each of the five years of the survey. Hence the final sample consists of 127 companies, which represent 43% of the total sample.

Secondary data was collected for this study. In this study, a list of company information was gathered which focused on diverse plastic product manufacturer from SME Corporation. Meanwhile, financial data were gathered from annual reports of diverse plastic product manufacturers as provided by the Companies Commission of Malaysia. The information collected was regarding the company size, incorporation, and financial performance.

This study had performed statistical analysis by using Statistical Package for the Social Sciences (SPSS) to test the hypotheses. The SPSS had performed descriptive statistical analysis, correlation test, and regression analysis.

3.3 Variables Selection

3.3.1 Research Framework

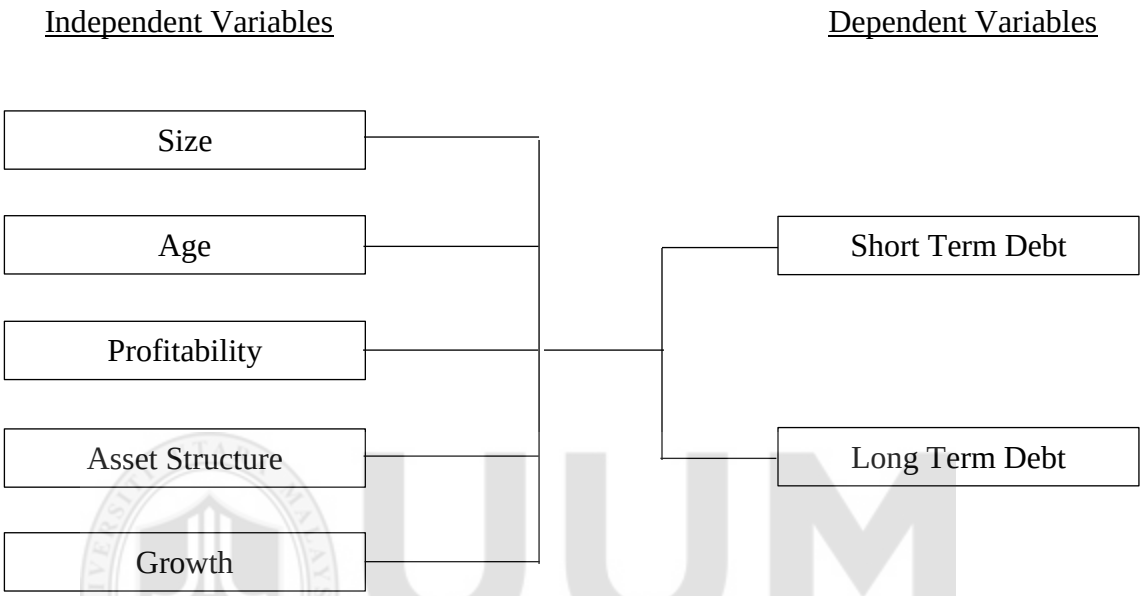

Figure 3.2
Research Framework

In this paper, we examine the determinants of capital structure, where short term and long term debt is used as a Dependent Variable. The Short Term Ratio is measured by Short Term Debt/Total Assets. Meanwhile, Long Term Debt Ratio is measured by Long Term Debt/ Total Assets. The Independent Variables are age, size, profitability, asset structure, and growth. These independent variables are approved by the relevant literature for SMEs and large firm's capital structure.

3.3.2 Technique Data Analysis

Regression is a statistical model that predicts the response of the dependent variable based on the values of the explanatory variables. This study had performed regression analysis to analyse the relationship between selected factors which are called the SME's uniqueness with the capital structure. Based on the research done by Nguyen and Ramachandran (2006), Barros et al. (2013) and Saarani & Shahadan (2013), the regression equation for this study is written as:

$$Capital\ Structure\ (Leverage) = \beta o + \beta 1(Age)i + \beta 2(Size)i + \beta 3(Profitability) + \beta 4(Growth) + \beta 5(Asset\ Structure) + Ui \quad (1)$$

Where:

βo = Intercept

β1 = Age; Derived from number of year SMEs was in the business

β2 = Size; Derived from natural logarithm of total assets

β3 = Profitability; Derived from net profit scaled by total assets

β4 = Growth; Derived from percentage change in total asset

β5 = Asset Structure; Derived from net fixed assets scaled by total assets

Table 3.1
Variables Descriptions and Expected Signs

Variables	Description	Expected Sign	
		Short Term Debt	**Long Term Debt**
Leverage	Both short-term debt and long-term debt are individually scaled by total debt (Michaelas et al., 1999; Cassar and Holmes, 2003; Hall et al., 2004; Sogorb-Mira, 2005; Abor, 2008; Mac an Bhaird & Lucey, 2010; Mateev and Ivanov, 2011; Degryse et al., 2012; Saarani and Shahadan, 2013).		
Age	Number of year SMEs was in the business (Michaelas et al., 1999; Hall et al., 2004; Abor, 2007; Abor, 2008; Mac an Bhaird & Lucey, 2010; Barros et al., 2013; Saarani and Shahadan, 2013).	+	-
Size	Natural logarithm of total assets (Titman & Wessels, 1988; Cassar and Holmes, 2003; Sogorb-Mira, 2005; Abor, 2008; Barros et al., 2013; Saarani and Shahadan, 2013).	-	+
Profitability	Net profit scaled by total assets (Abor, 2007; Saarani and Shahadan, 2013).	-	-
Asset Structure	Net fixed assets scaled by total assets (Chittenden et al., 1996; Michaelas et al., 1999; Cassar and Holmes, 2003; Hall et al., 2004; Nguyen and Ramachandran, 2006; Abor, 2008, Degryse et al., 2012; Saarani and Shahadan, 2013)	+	+
Growth	Percentage change in total asset (Titman & Wessels, 1988; Chittenden et al., 1996, Nguyen and Ramachandran, 2006; Degryse et al., 2012)	-	-

CHAPTER 4

RESULTS AND DISCUSSION

4.1 Descriptive Statistics of Capital Structure and the Determinant Factors

A summary of the descriptive statistics of the dependent and independent variables for the period of 2009 to 2013 is presented in the following Table 4.1. The result shows that the average ratio for short term debts and long term debts over total assets, are 57.4% and 16.8% respectively. In this paper, it can conclude that the importance of the short term debt is over than the long term debt in SME financing. Cassar and Holmes (2003), Sogorb–Mira (2005) and Nguyen and Ramachandran (2006) revealed that the needs of short term financing is crucial for SMEs, it could be due to the insufficient internal funds to finance their production cost as well as working capital. This is in support of the SMEs behaviour which is in line with the Pecking Order Theory.

Table 4.1
Descriptive Statistics of Dependent and Independent (Explanatory) Variables

Variable		N	Mean	SD	Minimum	Maximum
Dependent Variable	Short Term Debt	633	0.5742	0.8567	0.0200	12.8200
	Long Term Debt	572	0.1687	0.2058	0.0000	2.0900
Independent Variable	Age	635	18.7480	7.7245	5	53
	Size	635	15.4401	1.0402	12.4800	17.9900
	Profitability	635	0.0199	0.0108	-0.8000	0.4200
	Asset Structure	631	0.4155	0.2103	0.0000	0.8900
	Growth	635	0.0745	0.2782	-0.6500	2.1100

As shown in Table 4.1, the average age of the companies under study is about 18 years. Therefore, the companies experienced enough to balance their capital structure. The mean size measured by log normal of total assets is 15.44 or equivalent to RM5 million. In terms of the composition of assets, fixed assets account for about 41.5% of the total asset value. It shows that the SMEs have strong asset structure which can be pledged as a collateral in getting the loan. According to Michaelas et al. (1999), they revealed that the asset structure is an important indicator associated with both short term and long term debt. The more tangible assets the company has, the less probability of the default payment. In considering the growth of the companies, it represents 7.4% of asset growth. It can be considered that the growth in the plastic products industry is not fast growing.

4.2 Correlation

The following Table 4.2 shows the correlation matrix between the dependent and independent variables. As depicted in the table, it can be concluded that generally, most of the variables are significantly correlated with each other. The correction coefficient for many pairs of the variable is weak. However, there are two pairs that show a moderate correlation. The first pair is STDTA and InSIZE which showed a negative correlation coefficient of −0.345, and the second pair is STDTA and PROFIT with also a negative correlation coefficient of −0.416. Since the correlations are relatively low, it is shown that there is no multicollinearity problem and thus all the variables can be taken into subsequent regression analysis.

Table 4.2
Correlation Matrix

	SDR	LDR	AGE	SIZE	PROF	ASTR	GRO
SDR	1						
LDR	.056	1					
AGE	.080*	-.061	1				
SIZE	-.345**	.026	.065	1			
PROF	-.416**	-.152**	-.079*	.337**	1		
ASTR	.083*	.276**	-.133**	.197**	.032	1	
GRO	-.116**	.051	-.149**	.153**	.174**	.117**	1

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

4.3 Regression

Table 4.3 presents the key determinant factors that are influence the capital structure of Malaysia SMEs focusing on diverse plastic product manufacturer. From the comparison with the purpose hypothesis, the direction of relationship and significance between capital structure variable and debt ratio are presented in Table 4.4.

For the short term debt, the variables in this study has managed to get R^2 = 23.8%. This model have F-value = 40.185 and P < 0.001. Meanwhile for the long term debt, although the variables in this study are significant but R^2 is lesser which is only 8.5%. However, these two result suggest that this model is both strong and can be used for analysis.

Table 4.3
Regression Result

Independent Variable	Dependent Variable	
	SDR	LDR
Constant	3.679	0.011
	(7.719)***	(0.083)
AGE	0.010	0.000
	(2.388)*	(-0.364)
SIZE	-0.225	0.004
	(-7.052)***	(0.420)
PROF	-2.443	-0.295
	(-8.150)***	(-3.157)**
ASTR	0.580	0.260
	(3.905)***	(6.031)***
GRO	-0.083	0.026
	(-0.748)	(0.823)
R-Squared	0.238	0.085
F-(p-value)	40.185 (0.000)	11.525 (0.000)
No. of Observation	627	627

Note: Absolute value of t-statistic in parentheses, asterisks denote level of significant *p<0.05; **p<0.01; ***p<0.001.

From Table 4.4 it is shown that age, size, profitability, and asset structure matched with the proposed hypothesis. Meanwhile, growth did not correspond with the proposed hypothesis and the relationship is also not significant. In order of the Pecking Order Theory, profitability and asset structure is important for long term financing.

Table 4-4
Relationship between the Determinants and the Debt Ratio

Independent Variable (The Determinants)	Dependent Variable (Debt Ratio) SDR Result	LDR Result
AGE	**+ve**	+ve
	significant	not significant
SIZE	**-ve**	+ve
	significant	not significant
PROFITABILY	**-ve**	**-ve**
	significant	**significant**
ASSET STRUCTURE	**+ve**	**+ve**
	significant	**significant**
GROWTH	-ve	+ve
	not significant	not significant

The analyses of each variable are as follows:

4.3.1 Age

Hypothesis 1 suggests that age has a significant positive relationship with the short term debt ratio. Most of the previous papers do not consider age as one of the factors that affect the leverage of the firm. However, age is tested in this paper to confirm it. The data analysis in table 4.3 reveals a significant positive relationship between age and short term debt ratio, with the standardized $\beta = 0.010$ and p-value equal to 0.017 ($p<0.05$). Hence hypothesis 1 can be accepted. This result can be explained as one unit increase in firm age will increase 0.010 usages of short term debt in the capital structure. Although the result is weak, but it shows that the firm's age does influence the SMEs capital structure. It is in support of the research done by Abor (2008), as the SMEs grow older, it can be seen that they are able to solve the issue of asymmetric information and present the good credit

history. Therefore, the provider of the outside capital will be more interested to older SMEs or strong reputable companies as their potential prospect. Petersen and Rajan (1994) in Abor (2008) confirmed that the older firm has higher debt ratios rather than a young firm since they are considered as a quality firm.

Hypothesis 2 suggests that age has a significant negative relationship with the long term debt ratio. However, the analysis of empirical data revealed that age has an opposite effect on long term debt ratio. The result does not support the hypothesis 2, significant positive relationship with the standardized $\beta = 0.000$ and p-value equal to 0.716 ($p>0.05$). Hence hypothesis 2 is rejected. The contradicting result and insignificant β confirms that age has no or small impact on the long term debt. There is no evidence to suggest that age influences the long term debt.

A comparison between the two ratios of short term and long term debts showed that the SMEs are in line with the Pecking Order Theory, whereby they prefer short term debt more rather than long term debt. Most of the SMEs are a family-owned business which has a great amount of sentimental value and hereditary. The firm owner's desire is to maintain control and to protect their business from the intrusion of capital providers. Therefore, the SMEs may be more conservative with their financing choices.

In Malaysia, the main reason age has no or small impact on the short term and long term debts could be due to the government intervention. The government recognized the SMEs as the backbone of the country's economy. The Malaysian government is aware of the difficulties of SMEs in securing the loan. They introduce and implement various initiatives and grants to assist the SMEs to grow their business especially for new start-up

business. The effort of the Government to encourage more SMEs in the country can be seen from the improved and beneficial financing schemes created over the years. Many programmes and incentives are being developed by the Malaysian Government through SME Corporation to help the SMEs grow and expand their business.

For corporations in the plastic products industry, their association namely The Malaysian Plastic Manufacturers Association assists its members to apply loans through the restructuring and rescheduling of their existing financing with the financial institutions. Therefore, age is not a major problem in getting the loan in Malaysia.

4.3.2 Size

Hypothesis 3 suggests that size has a significant negative relationship with the short term debt ratio. This hypothesis is supported by previous research done by Saarani and Shahadan (2013). The result in this paper indicates a significant negative relationship between size and short term debt ratio, with standardized $\beta = -0.225$ and p-value equal to 0.000 ($p<0.001$). Hence hypothesis 3 can be accepted. This result can be explained as one unit increase in firm size will decrease 0.225 usages of short term debt in the capital structure. This simply means when the size is increased, the possibility of the firm raising funds through the short term debt will decrease, whereas when the size of the firm decreases, the possibility of the firm to be engaged with the short term debt will be increased. The reason could be due to the fact that most of the SMEs is a family-owned business which has a great amount of sentimental value and hereditary. When the size of the SMEs grow bigger, the needs of external financing is lesser since the firm has a strong

bargaining power towards their creditors and stakeholder. In line with the Pecking Order Theory, the SMEs will use their internal funds rather than external financing. The reason is because when the SMEs engage with the external financing it is likely to pass the intergeneration business to the provider of outside capital.

Hypothesis 4 suggests that size has a significant positive relationship with the long term debt ratio. The finding from the research done by Cassar and Holmes (2003), Sogorb–Mira (2005), Mac an Bhaird and Lucey (2010), Degryse et al., (2012) and Saarani and Shahadan (2013) support this hypothesis. The result in this paper confirms that size has a significant positive relationship with the long term debt ratio, with the standardized β = 0.004 and p-value equal to 0.675 ($p>0.05$). However, there is no significant relationship between size and long term debt ratio. Hence hypothesis 4 is rejected.

The insignificant β confirms that size has no or small impact on the long term debt. There is no supporting evidence that size influences the long term debt. However, comparing between the two ratios of short term and long term debt, the result shows that when SMEs increase in size, they would prefer long term financing because of higher transactions cost associated with the financing package. The transaction costs of small-scale financing are higher than the large scale of financing (Titman and Wessels, 1988).

Furthermore, the banks or financial institutions are more interested in financing the large size firms because the probability of default payment is low as compared to a small company (Rajan and Zingales, 1995). Moreover, the large SMEs have the ability to secure the long term debt as compared to small SMEs because of their strong asset structure

(Michaelas et al., 1999). This simply means the larger firms have easier access to engage with the external financing rather than the small firm.

4.3.3 Profitability

Hypothesis 5 suggests that profitability has a significant negative relationship with the short-term debt ratio. This hypothesis is supported by previous research done by Michaelas et al., (1999), Hall et al., (2004) and Saarani and Shahadan (2013). The result in this paper indicates a significant negative relationship between profitability and short term debt ratio, with standardized $\beta = -2.443$ and p-value equal to 0.000 ($p<0.001$). Hence hypothesis 5 can be accepted. This result can be explained as one unit increase in firm profitability will decrease 2.443 usages of short term debt in the capital structure. The reason could be due to the fact that profitable firms have an access to accumulate their earnings from time to time. They can use their accumulated retained earnings to finance their operation and not depends on the external financing (Michaelas et al., 1999).

Hypothesis 6 suggests that profitability has a significant negative relationship with the long term debt ratio. Analysis of empirical data provides support for Hypothesis 6, significant negative relationship between profitability and long term with the standardized $\beta = -0.295$ and p-value equal to 0.002 ($p<0.01$). Hence hypothesis 6 can be accepted. This result can be explained as one unit increase in firm profitability will decrease 0.295 usages of long term debt in the capital structure. The result is in the line of Pecking Order Theory, where SMEs are generally using the internal funds rather than external financing. It is confirmed by the research done with Michaelas et al., (1999), Cassar and Holmes (2003),

Sogorb–Mira (2005), and Saarani and Shahadan (2013) whom stated that SMEs behaviour is in line with the Pecking Order Theory,

In an asymmetric information scenario, the SMEs which have more earnings will borrow less either short term or long term debts. The reason is to restrict or control the firm from any intrusion by the provider of outside capital. This argument is relevant to SMEs business where it is a family-owned business, and they have a great amount of sentimental value and hereditary.

4.3.4 Asset Structure

Hypothesis 7 suggests that asset structure has a significant positive relationship with the short-term debt ratio. This hypothesis is supported by previous research done by Michaelas et al., (1999) and Mac an Bhaird and Lucey (2010). The result in this paper indicates a significant positive relationship between asset structure and short term debt ratio with the standardized $\beta = 0.580$ and p-value equal to 0.000 ($p<0.001$). Hence hypothesis 7 can be accepted. This result can be explained as one unit increase in firm asset structure will increase 0.580 usages of short term debt in the capital structure.

Hypothesis 8 suggests that asset structure has a significant positive relationship with the long-term debt ratio. A positive correlation between asset structure and long term debt ratio is supported by various literature. Michaelas et al., (1999), Cassar and Holmes (2003), Hall et al., (2004), Sogorb–Mira (2005), Mac an Bhaird and Lucey (2010), Degryse et al., (2012) and, Saarani and Shahadan (2013) confirmed that the asset structure

will affect the level of debts in the firms. Hypothesis 8 is supported by the standardized β = 0.260 and p-value equal to 0.000 ($p<0.001$). Hence hypothesis 8 can be accepted. The result can be explained by one unit increase in firm asset structure will increase 0.260 usages of the long term debt in the capital structure. The reason for the positive relationship between asset structure and both short and long term debt, could be due to the ability for firms with stronger asset structure to pledge their assets as collateral in obtaining the financing. The firm with stronger asset structure can raise a higher level of debt (Ozkan, 2001).

Asset structure is related to the bankruptcy cost or cost of distress. Logically, the potential for firms with a strong asset structure to become bankrupt is less than the firms with weaker asset structure. The provider of outside capital usually look for the asset structure rather than the firm's operations (Cassar and Holmes, 2003).

Usually, the provider of outside capital is reluctant to provide financing to the SMEs due to the existence of asymmetric information and agency problem. In order to persuade the provider of outside capital to provide the financing, SMEs may offer collateral to secure the loan. The more tangible assets the company has, the lesser the probability of default payments because they are considered as a firm with a stable source of income via liquidation value from these asset structure (Hovakimian et al., 2004). In conclusion, the asymmetric information and agency cost will decrease with the existence of collateral provided by the firm to secure their loan.

4.3.5 Growth

Hypothesis 9 suggests that growth has a significant negative relationship with the short-term debt ratio. Analysis of empirical data provides support for Hypothesis 9, significant negative relationship with the standardized $\beta = -0.083$ and p-value equal to 0.455 ($p>0.05$). Hence there is no significant relationship between growth and short term debt ratio. Hypothesis 9 is rejected.

Hypothesis 10 suggests that growth has a significant negative relationship with the long-term debt ratio. However, the data analysis of empirical data revealed that growth has an opposite effect on long term debt ratio. The result also does not support hypothesis 10, with the standardized $\beta = 0.026$ and p-value equal to 0.411 ($p>0.05$). Hence there is no significant relationship between growth and long term debt ratio. Hypothesis 10 is rejected.

The insignificant β confirms that growth has no or small impact on short term and long term debt. There is no support of growth influencing either short term or long term debt. However, a comparison between the two ratios of short term and long term debt, show that the SMEs prefer long term debt rather than short term debt. It is consistent with the Pecking Order Theory, the fast growing SMEs may prefer to use the external financing because their retained earnings are insufficient to meet the requirement of working capital for growth activities such as research and development internally (Michaelas et al., 1999).

A negative relationship between growth and short term debt is due to the agency problem. Most of SMEs businesses tend to have agency cost as compared to large firms. This could

be due to the moral hazard which is a conflict between manager and owners of the firm (Myers, 1977). In SMEs business, the manager and the owner of the company are the same person. When the growth opportunities increased, the SMEs may seek the external financing to support their operation. The high leveraged firm will transfer the wealth of the firm's owner to its debt holder. As mentioned before, usually the SMEs business is a family-owned business which has a great amount of sentimental value and hereditary. The firm owner prefers to maintain, sustain, and control the managerial role itself rather than passing the growth opportunities to another provider of capital. Therefore, the firms with high growth opportunities may not consider the external financing to support their activities.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1 Conclusion

The objective of this paper is to investigate the determinants which influence the capital structure of SMEs in Malaysia, focusing on the diverse plastic products industry, over the period of 2009 to 2013. This paper has applied data regression for the sample of 127 SMEs, focusing in diverse plastic product manufacturers in Malaysia. The result of the empirical analysis provides evidence on the magnitude, direction, and significance of the regression coefficient of the five capital structure determinants, over the time. In this paper, three main issues are identified and investigated.

First, the findings in this paper suggest age, size, profitability, and asset structure to be the main capital structure determinants for SMEs. Profitability and asset structure are likely the major determinants which influence the capital structure decision, either short term or long term financing. Meanwhile, growth factor does not influence the capital structure of the SMEs.

Age has a significant positive relationship with the short term debts. The results show that the older SMEs can reduce the agency cost and asymmetric information problem. As they are considered to be reputable and quality firms, they present the good credit history as well as can fulfil all the requirements from the provider of outside capital. It can be

concluded that the older firm has an access to obtain the external financing as compared to a young firm. Meanwhile, size has a significant negative relationship with the short term debts. It could be due to the fact that the larger SMEs have stronger bargaining power towards their creditors and stakeholder. Therefore, the need of financing is lesser as they prefer to use their internal funds rather than external financing. In the SMEs case, employing external financing would most likely result into the passing of the intergeneration business to the provider of outside capital.

The findings of this paper have shown that profitability and asset structure are major determinants for both short term and long term debts. The profitability has a significant negative relationship with both short term and long term financing. It could be due to the reason that the SMEs business is a family-owned business which has a great amount of sentimental value and hereditary.

The profitable SMEs do not prefer the external financing to restrict or control the firm from any intrusion by the provider of outside capital. Meanwhile, the asset structure has a significant positive relationship between asset structures and both short term and long term debt as it was confirmed that in granting the financing, banks or financial institutions commonly require the personal guarantees or collateral as security in the case of default or bankruptcy risk. Securing the loan with the fixed assets may reduce the agency cost and asymmetric information cost.

Secondly, the descriptive statistics on the Malaysian SMEs focusing in diverse plastic products manufacturers showed that most of them financed their operations from the short term financing which is 57.4% rather than equity. Meanwhile, long term debts are rarely

employed by Malaysian SMEs focusing in diverse plastic products manufacturers which only amounts to 16.8%. It could be due to the reason that the Malaysian SMEs receive full support by the government. The government recognizes SMEs as one of the backbones of the country's economy. Hence, they introduced and implemented various initiatives and grants to help eligible SMEs grow. Malaysian SMEs, especially in the diverse plastic products industry, prefer short term debt because of the fund needed for their working capital and operation.

Thirdly, the finding supports the Pecking Order Theory, which is in the same line as the SMEs' behaviour. This paper has confirmed that the SMEs is in line with the Pecking Order Theory, they may prefer to use internally generated funds (i.e. returned earning) rather than obtain external financing. The main reason for this is that most of the SMEs business is a family-owned business which has a great amount of sentimental value and hereditary. They do not prefer external financing especially high amount of long term debts to protect their business from maximum intrusion from the provider of outside capital.

5.2 Recommendation

This paper offers some important implications for the policy-makers of Malaysia. Although the government intervention helps SMEs grow and expand their business, but the average of short term debts is over the total assets. This result looks so worrying because the company uses the debt exceeding their capacity. The policy-makers should control the amount of financing given to the SMEs to avoid misuse of the facilities given as well as the potential of bankruptcy.

This study also provides some implications for the SMEs manager. Manager of SMEs business should recognize that asymmetric information is the crucial issue in getting the loan. The SMEs manager should be more transparent by disclosing well-prepared financial statements in order to build up the level of trust of the provider of outside capital. The availability and reliability of financial data were a major limitation in this research.

This paper caveats only the diverse plastic products industry. Potentially, future studies can incorporate various industries effect into consideration. The study may examine the capital structure of Malaysian SMEs by their respective industries because each industry has its own specific characteristics. Moreover, the future study can perform a comparative study among the developing countries such as the Asian countries.

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APPENDICES

Appendix A: Sample Data List of Companies

No	Company No	Company Name	Incorporation Date
1	3807-T	MALAYAN INDUSTRIAL PLASTICS SDN BHD	05/27/1960
2	12359-T	UNIVERSAL PLASTICS INDUSTRIES SDN. BERHAD	07/08/1972
3	14909-U	HUP SOON PLASTIC INDUSTRIAL (M) SDN.BHD.	06/26/1973
4	29317-A	FEE KEE SDN. BHD.	09/23/1976
5	38496-U	CHIGA LIGHT INDUSTRIES SDN. BHD.	03/31/1978
6	40279-V	MRPI PIPES SDN. BHD.	06/27/1978
7	41019-T	TEONG HIN PLASTIC INDUSTRIES SDN. BHD.	08/07/1978
8	44457-K	BAN HING LOONG PLASTICS FACTORY SDN. BHD.	01/10/1979
9	67595-D	HEE PLASTIC INDUSTRIES SDN. BHD.	02/19/1981
10	74500-V	HASSIA SDN. BHD.	08/24/1981
11	75177-D	KIAN WAH PLASTIC & TOBACCO SDN. BHD.	09/08/1981
12	81787-A	FIRST P.P. SHEET PRODUCTS SDN.BHD.	02/27/1982
13	104572-T	MALAYSIAN OLEFINS SDN. BHD.	07/27/1983
14	108786-K	KNOBS SDN.BHD.	10/27/1983
15	117685-D	PERUSAHAAN BETA SDN.BHD.	04/09/1984
16	125486-X	NYCON MANUFACTURING SDN BHD.	08/21/1984
17	132341-T	POLYBUTTONS INDUSTRIES SDN. BHD.	12/29/1984
18	134074-X	PP PRODUCTS SDN.BHD.	01/25/1985

No	Company No	Company Name	Incorporation Date
19	136302-V	EPOLY PACKAGING INDUSTRY SDN. BHD.	03/05/1985
20	141133-P	PLASTIK STC SDN. BHD.	06/17/1985
21	151753-U	NEPTUNE INDUSTRIES SDN. BHD.	03/13/1986
22	155397-V	FUSIONONE POLYMERS SDN. BHD.	08/21/1986
23	156287-U	QPM INDUSTRIES SDN. BHD.	09/24/1986
24	158372-H	PLASTICMATE SDN. BHD.	12/18/1986
25	162018-T	ASIATIC PLASTIC PACKAGING INDUSTRIES SDN. BHD.	06/13/1987
26	162439-X	OMNIPRO SDN. BHD.	07/06/1987
27	162714-H	LIPTA PLASTIC INDUSTRIES SDN. BHD.	07/15/1987
28	163279-T	SUP-FORM INDUSTRIES SDN. BHD.	08/10/1987
29	168329-A	ARI INDUSTRIES SDN. BHD.	02/06/1988
30	172364-A	POLYPLAS SDN. BHD.	07/27/1988
31	173201-X	PLASFORM SDN. BHD.	08/23/1988
32	173578-P	B.P. BINTANG INDUSTRIES (M) SDN. BHD.	09/02/1988
33	174149-H	TA TONG PLASTIC INDUSTRY SDN. BHD.	09/21/1988
34	179672-P	YOSOGO WRITING INSTRUMENT SDN. BHD.	03/14/1989
35	183986-W	EDMARK INDUSTRIES SDN. BHD.	07/06/1989
36	188981-U	SAFETY PLASTICS SDN. BHD.	11/07/1989
37	194912-U	AGISSON SDN. BHD.	03/14/1990
38	196595-V	MAGISAN SDN. BHD.	04/12/1990
39	196659-V	SIDNEY INDUSTRIES SDN. BHD.	04/13/1990
40	197081-K	MEDISHIELD FIRST AID SUPPLIES SDN. BHD.	04/23/1990
41	197401	POLYFLOW PIPES SDN. BHD.	05/08/1990
42	198069	MEGAPADU SDN. BHD.	05/21/1990
43	199344	TUSHIMA TRADING SDN. BHD.	06/14/1990

No	Company No	Company Name	Incorporation Date
44	206062-P	TUBE HOME (M) SDN. BHD.	10/11/1990
45	206339-T	SUNRISE MOULDING SDN. BHD.	10/15/1990
46	208503-U	ICHI-BAN PLASTIC (M) SDN. BHD.	11/26/1990
47	209037-V	VSE PRECISION MOULDS (M) SDN. BHD.	12/05/1990
48	209468-W	SCIENTEX ADVANCE SDN. BHD.	12/13/1990
49	210233-W	MIDPACK INDUSTRIES (MALAYSIA) SDN. BHD.	12/29/1990
50	221277-X	POLY FOAM ENTERPRISE SDN. BHD.	07/22/1991
51	224446-A	LABPLAS SDN. BHD.	09/04/1991
52	224910-X	JI ZHAO PLASTIC SDN. BHD.	09/12/1991
53	233073-X	LIAN SENG HENG PLASTICS INDUSTRY SDN. BHD.	01/23/1992
54	233329-T	PWC CORPORATION SDN. BHD.	01/28/1992
55	235586-U	CHIEN JIN PLASTIC SDN. BHD.	03/07/1992
56	244089-K	TEONG HUAT CLAY PRODUCTS SDN. BHD.	07/09/1992
57	248617-A	PARK WORLD RECREATION SDN. BHD.	09/12/1992
58	250523-W	INTERSTRAP (M) SDN. BHD.	10/14/1992
59	253153-D	GLASFIL POLYMER SENDIRIAN BERHAD	11/23/1992
60	254647-H	GLOBAL FACTOR SDN. BHD.	12/30/1992
61	255337-V	ANTAWISE SDN. BHD.	01/05/1993
62	259335-W	FORMPAK INDUSTRIES SDN. BHD.	03/11/1993
63	261822-A	SEMI CONVERTOR INDUSTRIES SDN. BHD.	04/16/1993
64	262597-P	SYNTHETIC ORIENTAL SDN. BHD.	04/24/1993
65	262795-H	GUAN SENG PLASTIC INDUSTRIES SDN. BHD.	04/27/1993
66	267012-H	ATOSTECH FIBREGLASS SDN. BHD.	06/15/1993
67	278686-M	PLEXTECH (MALAYSIA) SDN. BHD.	10/18/1993
68	281990-A	GPA PLASTIC INDUSTRIES SDN. BHD.	11/19/1993

No	Company No	Company Name	Incorporation Date
69	283869-M	AV PLASTICS SDN. BHD.	12/10/1993
70	283990-X	PLASCOLOUR COMPOUND SDN. BHD.	12/13/1993
71	286494-P	ASSESS PRODUCTS (M) SDN. BHD.	01/10/1994
72	288962-T	CENBOND PACKAGES SDN. BHD.	02/03/1994
73	289191-X	TEKNIK PRINT SDN. BHD.	02/07/1994
74	294469-A	PLASTICYCLE INDUSTRIES SDN. BHD.	04/08/1994
75	302637-V	SAIYAKAYA (M) SDN. BHD.	06/02/1994
76	303195-D	ANCHOR-LINK SDN. BHD.	06/08/1994
77	319152-P	MEISTER PLASTIC INDUSTRIES (M) SDN. BHD.	10/07/1994
78	326968-A	C & T PLASTIC ENTERPRISE SDN. BHD.	12/13/1994
79	341353-W	MULTIPLEX PACKAGING SDN. BHD.	04/21/1995
80	341837-U	ELLIPSE INDUSTRY SDN. BHD.	04/27/1995
81	342533-M	ACA TECHNICS SDN. BHD.	05/05/1995
82	347556-K	WESPACK WASTE MANAGEMENT SDN. BHD.	06/21/1995
83	360723-W	KENZOPLAS INDUSTRIES SDN. BHD.	09/23/1995
84	367284-H	NEPTUNE TECHNOLOGY SDN. BHD.	11/15/1995
85	371928-M	TOLI PACKAGING SDN. BHD.	12/27/1995
86	373964-A	FIRMAR JOT SDN. BHD.	01/15/1996
87	378737-X	ORAFOL REFLECTIVE SOLUTIONS (MALAYSIA) SDN. BHD.	03/05/1996
88	380387-D	TCL PLASTIC INDUSTRIES SDN. BHD.	03/20/1996
89	384392-H	MASDELOY SDN. BERHAD	04/18/1996
90	384897-H	EKSPEDISI EMAS SDN. BHD.	04/23/1996
91	393077-W	CYBERSHIELD PLASTIC SDN. BHD.	07/06/1996
92	398221-X	RENIPLAS SDN. BHD.	08/15/1996
93	399320-P	KEAN BENG LEE INDUSTRIES (M) SDN. BHD.	08/22/1996

No	Company No	Company Name	Incorporation Date
94	402623-W	SKI FOAM INDUSTRIES SDN. BHD.	09/18/1996
95	410787-M	DSA DYNAMICS (M) SDN. BHD.	11/20/1996
96	418231-W	CAMELTECH INDUSTRIES SDN. BHD.	01/23/1997
97	440069-P	SUJPLAS SDN. BHD.	07/24/1997
98	449946-H	VERTEX SUCCESS SDN. BHD.	10/14/1997
99	451969-M	NICHI INDUSTRIES (M) SDN. BHD.	11/05/1997
100	458681-P	ORCA INNOVATION SDN. BHD.	03/05/1998
101	488182-P	GOLDEN CITY PLASTIC SDN. BHD.	07/10/1999
102	504640-P	KINSEN FILTER MANUFACTURE SDN. BHD.	02/02/2000
103	504814-V	LOO SEK HOW PLASTIC INDUSTRIES SDN. BHD.	02/04/2000
104	505951-M	ADVANCE PLUS MOULDS & INJECTIONS SDN. BHD.	02/21/2000
105	510553-W	HIGHTECH MATERIAL ENTERPRISE SDN. BHD.	04/10/2000
106	512194-H	TRI INDUSTRIAL SUPPLIES SDN. BHD.	04/22/2000
107	521179-D	PREMIER FOREFRONT SDN .BHD.	07/21/2000
108	523698-U	SUN RELIANCE SDN. BHD.	08/16/2000
109	558888-P	SRI KOTA PLASTIK SDN. BHD.	09/13/2001
110	561225-X	INTEGRATED PLASTIC KOGYO (M) SDN. BHD.	10/11/2001
111	565881-T	THINWARE PRODUCTS INDUSTRIES SDN. BHD.	12/04/2001
112	570260-A	NEW FUYU INDUSTRIES SDN. BHD.	01/30/2002
113	589721-U	FIT METAL SDN. BHD.	08/16/2002
114	592452-W	WANPOW PLASTIC INDUSTRIES SDN. BHD.	09/14/2002
115	619688-V	STS PLASTIC MANUFACTURING SDN. BHD.	06/25/2003
116	631501-K	ROTO MOULDING SDN. BHD.	10/15/2003
117	632278-U	LK PACKAGING TECHNOLOGY SDN. BHD.	10/23/2003
118	633354-H	RITEK INDUSTRIES SDN. BHD.	11/04/2003

No	Company No	Company Name	Incorporation Date
119	635589-K	IPK PLASTIC SDN. BHD.	12/01/2003
120	637316-V	FOREGAIN SYSTEMS SDN. BHD.	12/17/2003
121	638466-U	KUMARAN & COMPANY SDN. BHD.	12/31/2003
122	641005-A	MAYA PACKAGING INDUSTRIES SDN. BHD.	01/30/2004
123	641236-X	MOCA PLASTIC INDUSTRIES SDN. BHD.	02/04/2004
124	645600-X	KHAI SENG PLASTIC INDUSTRIES SDN. BHD.	03/15/2004
125	650105-X	PROPAC PLASTIC INDUSTRY SDN. BHD.	04/22/2004
126	655982-P	AERIES PLASTIC INDUSTRIES SDN. BHD.	06/14/2004
127	659748-V	GEMLUX SDN. BHD.	07/16/2004

Appendix B: Sample Data Financial Statement

Company Name: Malayan Industrial Plastic Sdn Bhd (3807-T)

Balance Sheet as at 31 August 2008-2013

FYE Date	Fixed Asset	Current Asset	Others Asset	Total Asset
31/12/2008	1,115,559.00	820,981.00	-	1,936,540.00
31/12/2009	1,095,815.00	962,218.00	-	2,058,033.00
31/12/2010	211,557.00	938,950.00	-	1,150,507.00
31/12/2011	1,161,458.00	987,487.00	-	2,148,945.00
31/12/2012	133,954.00	928,692.00	-	1,062,646.00
31/12/2013	1,294,164.00	831,459.00	-	2,125,623.00

FYE Date	Total Investment	Short Term Liability	Long Term Liability	Total Liability
31/12/2008	-	73,636.00	22,603.00	96,239.00
31/12/2009	-	145,261.00	12,084.00	157,345.00
31/12/2010	944,046.00	121,876.00	2,457.00	124,333.00
31/12/2011	-	115,612.00	-	115,612.00
31/12/2012	1,050,479.00	66,289.00	-	66,289.00
31/12/2013	-	52,718.00	-	52,718.00

FYE Date	Paid Up Capital	Share Premium	Inappropriate Profit	Total Liability & Equity
31/12/2008	906,700.00	933,601.00	-	1,936,540.00
31/12/2009	906,700.00	993,988.00	-	2,058,033.00
31/12/2010	906,700.00	1,063,520.00	-	3,038,599.00
31/12/2011	906,700.00	1,126,633.00	-	2,148,945.00
31/12/2012	906,700.00	1,140,136.00	-	3,163,604.00
31/12/2013	906,700.00	1,166,205.00	-	2,125,623.00

Income Statement for the year ended 2008-2013

FYE Date	Revenue	Profit Bef. Tax	Profit After Tax	Profit S/holder
31/12/2008	677,287.00	66,570.00	57,540.00	57,540.00
31/12/2009	736,418.00	137,557.00	101,189.00	101,189.00
31/12/2010	653,329.00	147,448.00	123,934.00	123,934.00
31/12/2011	583,297.00	138,179.00	131,116.00	131,116.00
31/12/2012	632,528.00	92,908.00	81,506.00	81,506.00
31/12/2013	606,818.00	101,205.00	94,072.00	94,072.00

Appendix C: SPSS Result

Descriptive statistics for 2009-2013

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
STDTA	633	.0200	12.8200	.574171	.8567472	9.872	.097	117.441	.194
LTDTA	572	.0000	2.0900	.168689	.2057923	3.551	.102	20.271	.204
AGE	635	5.0000	53.0000	18.748032	7.7245241	.826	.097	1.667	.194
lnSIZE	635	12.4800	17.9900	15.440142	1.0402096	-.214	.097	-.321	.194
PROFIT	635	-.8000	.4200	.019874	.1080249	-1.867	.097	12.462	.194
ASTRUCT	631	.0000	.8900	.415499	.2102765	-.118	.097	-.729	.194
GROWTH	635	-.6500	2.1100	.074520	.2782101	2.302	.097	10.679	.194
Valid N (listwise)	566								

Correlations

Correlations

		STDTA	LTDTA	AGE	lnSIZE	PROFIT	ASTRUCT	GROWTH
STDTA	Pearson Correlation	1	.056	.080*	-.345**	-.416**	.083*	-.116**
	Sig. (2-tailed)		.184	.045	.000	.000	.038	.003
	N	633	570	633	633	633	629	633
LTDTA	Pearson Correlation	.056	1	-.061	.026	-.152**	.276**	.051
	Sig. (2-tailed)	.184		.145	.535	.000	.000	.222
	N	570	572	572	572	572	568	572
AGE	Pearson Correlation	.080*	-.061	1	.065	-.079*	-.133**	-.149**
	Sig. (2-tailed)	.045	.145		.100	.047	.001	.000
	N	633	572	635	635	635	631	635
lnSIZE	Pearson Correlation	-.345**	.026	.065	1	.337**	.197**	.153**
	Sig. (2-tailed)	.000	.535	.100		.000	.000	.000
	N	633	572	635	635	635	631	635
PROFIT	Pearson Correlation	-.416**	-.152**	-.079*	.337**	1	-.032	.174**
	Sig. (2-tailed)	.000	.000	.047	.000		.417	.000
	N	633	572	635	635	635	631	635
ASTRUCT	Pearson Correlation	.083*	.276**	-.133**	.197**	-.032	1	.117**
	Sig. (2-tailed)	.038	.000	.001	.000	.417		.003
	N	629	568	631	631	631	631	631
GROWTH	Pearson Correlation	-.116**	.051	-.149**	.153**	.174**	.117**	1
	Sig. (2-tailed)	.003	.222	.000	.000	.000	.003	
	N	633	572	635	635	635	631	635

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Regression

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	GROWTH, ASTRUCT, PROFIT, AGE, lnSIZE[b]	.	Enter

a. Dependent Variable: STDTA

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.494[a]	.244	.238	.7503266

a. Predictors: (Constant), GROWTH, ASTRUCT, PROFIT, AGE, lnSIZE

b. Dependent Variable: STDTA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	113.119	5	22.624	40.185	.000[b]
	Residual	350.743	623	.563		
	Total	463.862	628			

a. Dependent Variable: STDTA

b. Predictors: (Constant), GROWTH, ASTRUCT, PROFIT, AGE, lnSIZE

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.679	.477		7.719	.000		
	AGE	.010	.004	.086	2.388	.017	.941	1.063
	lnSIZE	-.225	.032	-.271	-7.052	.000	.821	1.219
	PROFIT	-2.443	.300	-.308	-8.150	.000	.847	1.180
	ASTRUCT	.580	.149	.142	3.905	.000	.917	1.091
	GROWTH	-.083	.111	-.027	-.748	.455	.932	1.073

a. Dependent Variable: STDTA

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions					
				(Constant)	AGE	lnSIZE	PROFIT	ASTRUCT	GROWTH
1	1	3.859	1.000	.00	.01	.00	.00	.01	.01
	2	1.087	1.884	.00	.00	.00	.41	.00	.32
	3	.786	2.216	.00	.00	.00	.45	.00	.62
	4	.194	4.461	.00	.24	.00	.00	.61	.04
	5	.072	7.308	.01	.74	.01	.02	.35	.01
	6	.002	44.766	.99	.00	.99	.11	.03	.01

a. Dependent Variable: STDTA

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.474543	3.145798	.574547	.4244127	629
Residual	-1.1342129	10.5184841	.0000000	.7473336	629
Std. Predicted Value	-2.472	6.058	.000	1.000	629
Std. Residual	-1.512	14.019	.000	.996	629

a. Dependent Variable: STDTA

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	GROWTH, lnSIZE, ASTRUCT, PROFIT, AGE[b]	.	Enter

a. Dependent Variable: LTDTA

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.305[a]	.093	.085	.1974966

a. Predictors: (Constant), GROWTH, lnSIZE, ASTRUCT, PROFIT, AGE

b. Dependent Variable: LTDTA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.248	5	.450	11.525	.000[b]
	Residual	21.921	562	.039		
	Total	24.168	567			

a. Dependent Variable: LTDTA

b. Predictors: (Constant), GROWTH, lnSIZE, ASTRUCT, PROFIT, AGE

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.011	.137		.083	.934		
	AGE	.000	.001	-.015	-.364	.716	.907	1.103
	lnSIZE	.004	.009	.018	.420	.675	.882	1.134
	PROFIT	-.295	.093	-.132	-3.157	.002	.922	1.084
	ASTRUCT	.260	.043	.253	6.031	.000	.917	1.091
	GROWTH	.026	.032	.034	.823	.411	.948	1.055

a. Dependent Variable: LTDTA

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions					
				(Constant)	AGE	lnSIZE	PROFIT	ASTRUCT	GROWTH
1	1	3.984	1.000	.00	.01	.00	.01	.01	.01
	2	.951	2.047	.00	.00	.00	.44	.00	.38
	3	.824	2.198	.00	.00	.00	.47	.00	.55
	4	.176	4.758	.00	.27	.00	.02	.55	.05
	5	.063	7.964	.02	.71	.01	.01	.42	.02
	6	.002	47.243	.98	.02	.99	.05	.01	.00

a. Dependent Variable: LTDTA

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.073574	.398749	.168996	.0629601	568
Residual	-.2726586	1.9139060	.0000000	.1966239	568
Std. Predicted Value	-3.853	3.649	.000	1.000	568
Std. Residual	-1.381	9.691	.000	.996	568

a. Dependent Variable: LTDTA